
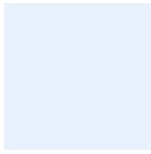


# APPENDIX F ABORIGINAL CULTURAL HERITAGE ASSESSMENT REPORT

<b>Report Title</b>	Aboriginal Cultural Heritage Assessment Wellington Solar Farm FINAL
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<b>Address of Subject Area</b>	No:                      Street:  Suburb:                      State: NSW                      Postcode:  Title Reference:  <b>Solar farm:</b> <ul style="list-style-type: none"> <li>• Lots 99, 102, 103 and 104/DP298</li> <li>• Lots 89, 90, 91 and 92/DP2987</li> <li>• Lot 1/DP34690</li> <li>• Lot 1/DP520396; and</li> <li>• Lot 2/DP807187</li> </ul> <b>Transmission line to Transgrid:</b> Lot 1/DP1226751 and road reserve adjacent to substation  Local Government Area: Dubbo Regional  Other:
<b>Report prepared for</b>	Company Name: First Solar Pty Ltd  Contact Person: Tom Best  Address:  Email: tom.best@firstsolar.com  Phone:   p: +61 2 9002 7710   m: +61 474 121 050
<b>Date of Report</b>	March 2018

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# Aboriginal Cultural Heritage Assessment


WELLINGTON SOLAR FARM



MARCH 2018



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# 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 Wellington Solar Farm, located approximately 2km north east of the town of Wellington in 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 Wellington Solar Farm 20/07/17).

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 Dubbo Regional Council Local Government Area.

## PROJECT PROPOSAL

The Wellington Solar Farm proposal would comprise of the installation of a solar plant with an upper capacity up to 174 MW. The power generated will be fed into the National Electricity Market (NEM) at the transmission level from the adjacent Substation on the southern side of Goolma Rd. First Solar proposes to develop approximately 316 ha of the 493 ha proposal site.

The key infrastructure for proposal would include:

- PV modules (solar panels).
- Single Axis horizontal tracking (likely) or fixed mounting frames.
- 30-50 inverter stations with associated transformer.
- An onsite substation or substation within the existing Transgrid substation containing one transformer and associated switchgear.
- A 33kV, 132kV or 330kV transmission line to the adjacent existing Wellington Substation (100m).
- Underground or aboveground electrical conduits and cabling to connect the inverters to the onsite substation, or substation within the existing Transgrid substation.
- 22-33kV Underground and aboveground (mounted to module structure) DC cabling to connect the modules to the inverter stations.

- Permanent site office and maintenance building with associated vehicle parking.
- Internal access tracks to allow for site maintenance.
- Perimeter security fencing up to 2.3m high.
- Energy storage
- Native vegetation screening, where required to break up views of infrastructure to specific receivers, will be planted prior to commencement of operation.
- An access track off Goolma Road, approximately 4.6km north east of Mitchell Highway junction.

During the construction period some additional temporary facilities would also be located within the proposal area.

## **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, five groups contacted the consultant to register their interest in the proposal. The groups who registered interest were:

- Wellington Local Aboriginal Land Council;
- Wellington Valley Wiradjuri Aboriginal Corporation;
- Gallangabang Aboriginal Corporation;
- Binjang Wellington Wiradjuri Heritage Survey; and
- Wiradjuri Central West Republic.

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 the fieldwork. The fieldwork was carried out in August 2017.

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 or adjacent to the proposal area. Three sites were located within 2kms of the proposal area, a modified tree to the south west (AHIMS #36-4-0081), an isolated find to the north east (AHIMS #36-4-0099) and two stone artefacts located to the south east (AHIMS #36-4-0108).

Assessment of Aboriginal site models for the region suggests 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 close proximity 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 survey strategy was to cover as much of the ground surface as possible within the proposal area. Although the actual ground impact from the construction method for the proposed solar farm was likely to be low, the placement of solar arrays across the landscape has the potential to cover any cultural heritage sites. Survey transects were undertaken on foot across the proposal area to achieve maximum coverage. All mature native trees within the proposal area were also inspected for evidence of Aboriginal scarring. Visibility within the proposal area was variable with visibility ranging from 90% in exposures and recently ploughed areas to less than 5% in areas of dense grass. The average visibility was 30% but overall was quite good.

Between the survey participants, over the course of the field survey, approximately, 280 km of transects were walked across the proposal area. Allowing for an effective view width of 5m for each person and given the variability in the ground visibility across the proposal area overall the survey effectively examined 7.7% of the proposal area. It is considered that the survey of Wellington Solar Farm proposal area had sufficient and effective survey coverage.

Despite the variable visibility encountered during the survey, there were 61 stone artefacts found across the proposal area that were recorded as 25 site occurrences. These archaeological features have been recorded as ten artefact scatters and 15 isolated finds. A single scarred tree and a possible hearth were also recorded.

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, visibility, an appraisal of the results from the field survey and the archaeological background of the area it was concluded that two areas, Potential Archaeological Deposit (PAD) 1 and PAD 2, within the proposal area have potential for subsurface finds. Both of these PAD areas have a higher density of surface artefacts compared to the rest of the proposal area and appear to have a good depth of deposit.

The results of previous archaeological surveys in the Wellington region show that there are sites and artefacts present across the landscape. 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 while Aboriginal sites may be expected throughout all landscapes the most archaeologically sensitive areas occur in proximity to water. The survey results have confirmed this prediction with stone artefacts recorded as isolated finds and artefact scatters across the proposal area. The sites were all identified on low slopes and flats within proximity of a creek line or 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 that will extend across to the existing substation on Lot 1/DP1226751. The development will result in disturbance of almost 316 hectares of the 493-hectare property within of Lots 99, 102, 103 and 104/DP2987; Lots 89, 90, 91 and 92/DP2987; Lot 1/DP34690, Lot 1/DP520396 and Lot 2/DP807187. 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.

The impact to the scientific values if the sites Wellington Solar Farm Isolated Find (IF) 3, Wellington Solar Farm IF 4, Wellington Solar Farm IF 5, Wellington Solar Farm IF 6, Wellington Solar Farm IF 7, Wellington Solar Farm IF 8, Wellington Solar Farm IF 10, Wellington Solar Farm IF 11 Wellington Solar Farm IF 12, Wellington

Solar Farm IF 13, Wellington Solar Farm IF 14, Wellington Solar Farm IF 15, Wellington Solar Farm Artefact Scatter (AS) 1, Wellington Solar Farm AS 2, Wellington Solar Farm AS 3, Wellington Solar Farm AS 4, Wellington Solar Farm AS 5, Wellington Solar Farm AS 6, Wellington Solar Farm AS 7, Wellington Solar Farm AS 8 and Wellington Solar Farm AS 10 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 Wellington 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. The development must avoid the site Wellington Scarred Tree 1, as per the current development design plans detailed in this report. A minimum 10m buffer around the tree should be in place to protect the tree given its current condition.
2. If complete avoidance of the ten artefacts scatters and 15 isolated find sites recorded within the proposal area is not possible, the artefacts within the development footprint 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.
3. 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. The Aboriginal community requests that a Cultural Smoking Ceremony take place to cleanse any artefacts salvaged and the reburial location.
4. A minimum 5m buffer should be observed around all sites including those outside the development footprint. To improve the effectiveness of the 5m buffer for sites not salvaged prior to construction it is recommended that they be fenced.
5. If the complete avoidance of PAD1 and PAD2 is not possible, further archaeological investigation in the form of test excavations in order to establish the nature and significance of any sub surface deposits should be undertaken. Alternatively, if PAD 1 and PAD 2 impacts are significantly reduced, monitoring certain areas for archaeological material during construction, could be undertaken. Excavations would be conducted prior to any development and would be undertaken in consultation with the Registered Aboriginal Parties in compliance with the OEH Code of Practice. A technical report on the results of the testing would be provided and management strategies recommended depending on the outcome. The testing would be conducted by a qualified archaeologist and members of the registered Aboriginal parties. Any monitoring or testing would be undertaken in consideration of OEH advice and outlined through a Cultural Heritage Management Plan.
6. First Solar should prepare a Cultural Heritage Management Plan (CHMP) to address the potential for finding additional Aboriginal artefacts during the construction of the Solar Farm and management of known sites and artefacts. The Plan should include the unexpected finds procedure to deal with construction activity. Preparation of the CHMP should be undertaken in consultation with the registered Aboriginal parties.

7. 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.
8. Further archaeological assessment would be required if the proposal activity extends beyond the area of the current investigation as detailed in this report. This would include consultation with the registered Aboriginal parties and may include further field survey..



# 1 INTRODUCTION

First Solar Pty Ltd (First Solar) proposes the development of a commercial scale solar farm approximately 2km north east of the town of Wellington, NSW (Figure 1 and 2). The proposal site is approximately 493 hectares in size with 316 hectares proposed for development (Figure 3). The proposed Wellington solar farm would have an upper capacity of around 174 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 considered to be one of the most effective ways to achieve the commitments of Australia and a large number of other nations under the Paris Agreement to reduce greenhouse gas emissions. The Wellington 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 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 (cultural and archaeological) impacts of the development, including adequate consultation with the local Aboriginal community (SEARs for Wellington Solar Farm 20/07/17).

The assessment area is comprised of Lots 99, 102, 103 and 104/DP2987; Lots 89, 90, 91 and 92/DP2987; Lot 1/DP34690, Lot 1/DP520396 and Lot 2/DP807187 and will connect to the national electricity network via the existing TransGrid substation located to the south of the site within Lot 1/DP1226751.

It should be noted that this assessment did not assess the entirety of Lot 1/DP1226751. This assessment only reports on the corridor surveyed for the proposed overhead transmission line to connect the proposed Wellington solar farm to the adjacent TransGrid substation as shown in Figure 4.

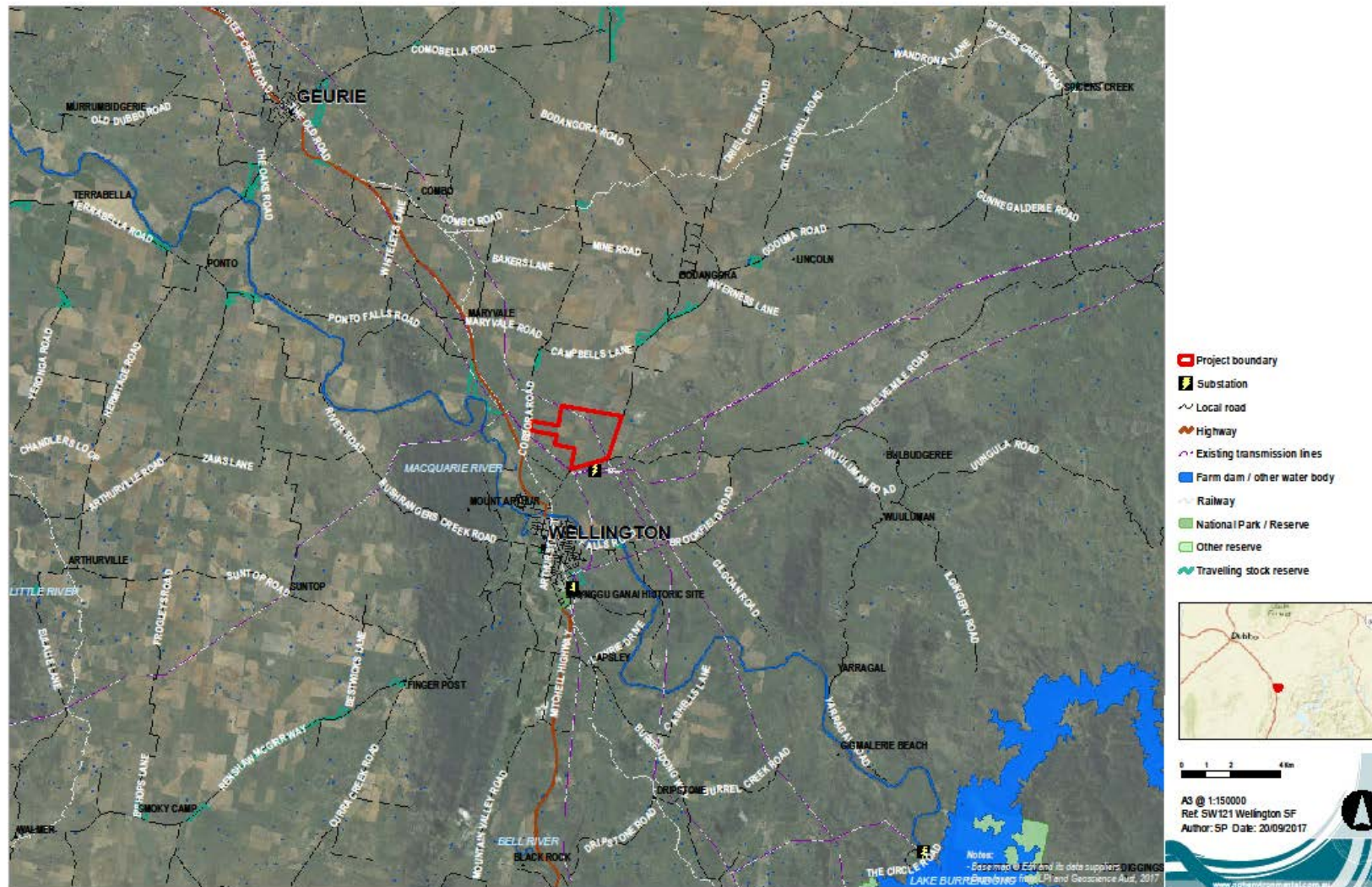


Figure 1. Location of proposal site

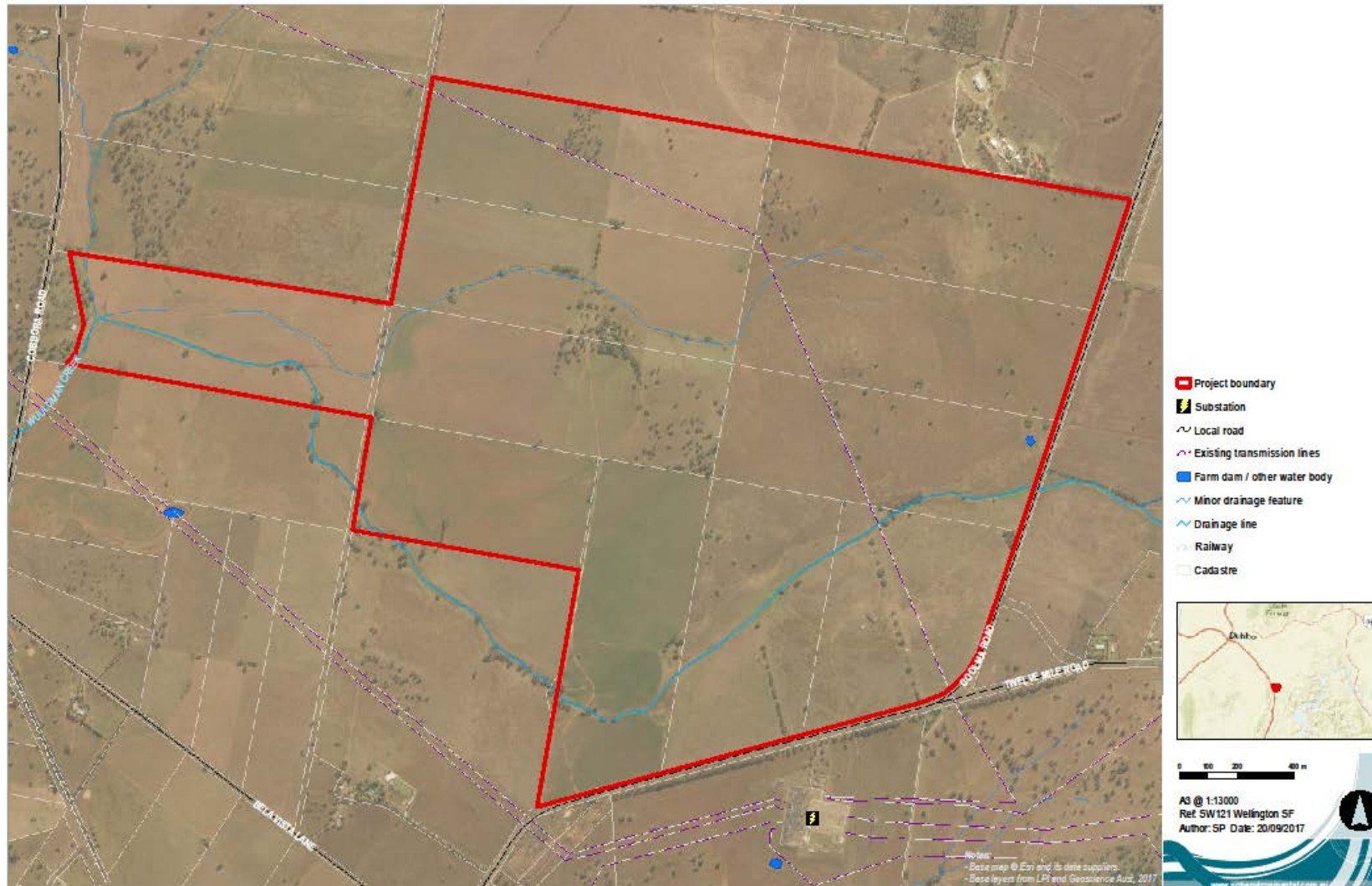


Figure 2. Proposal area.

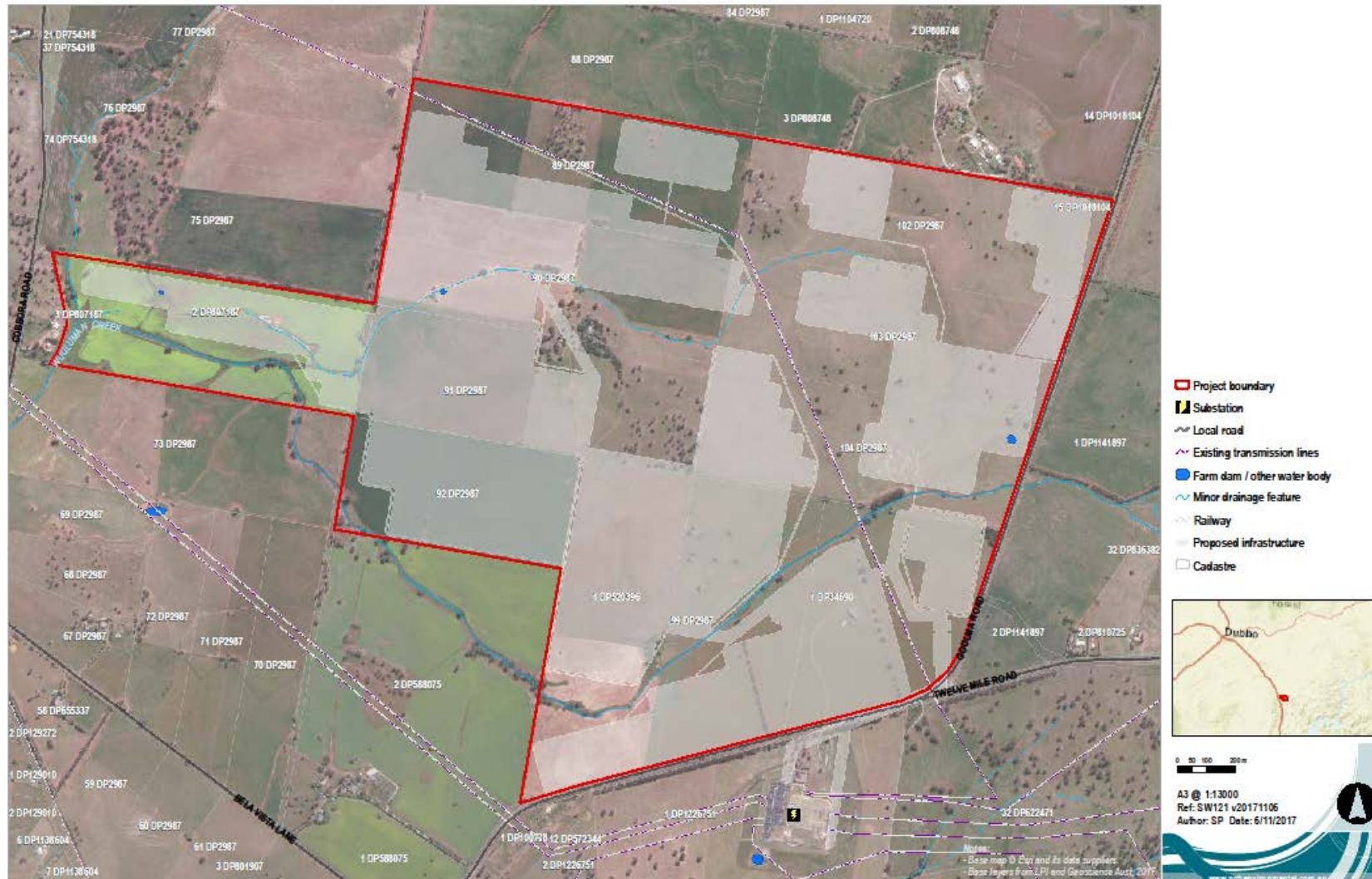


Figure 3. Proposal area with development design.

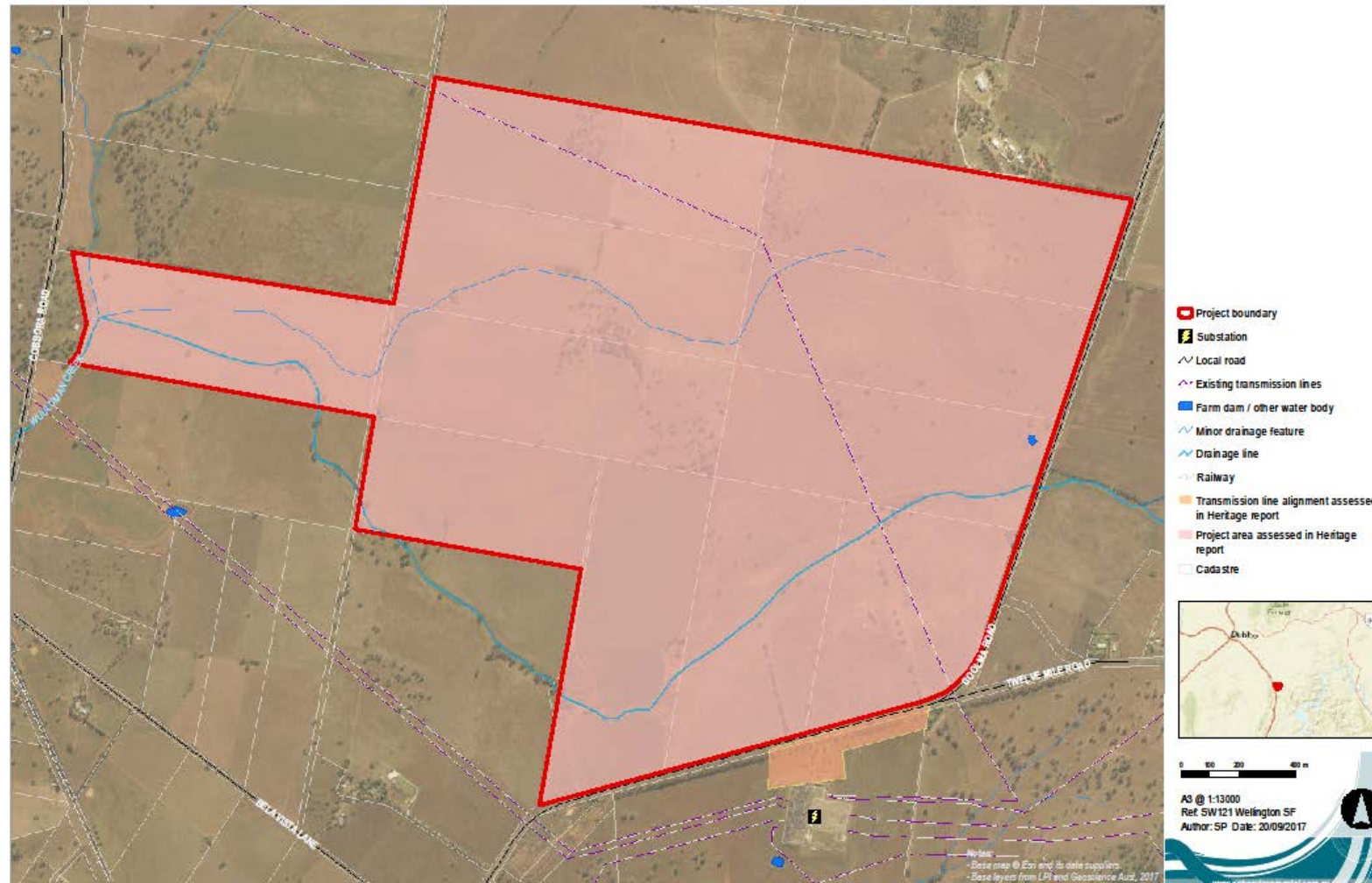


Figure 4. Area assessed within report.

## 1.2 PROJECT PROPOSAL

The Wellington Solar Farm proposal would comprise of the installation of a solar plant with an upper capacity up to 174 MW that would supply electricity to the national electricity grid. The power generated will be fed into the National Electricity Market (NEM) at the transmission level from the adjacent substation on the southern side of Goolma Rd.

First Solar proposes to develop around 316 ha of the 493 ha proposal site, retaining existing viable native vegetation remnants that occur. An indicative development area is illustrated in Figure 3.

There are a number of existing transmission lines within the proposal site, which connect to the substation south of Goolma Road. The proposal would require an additional transmission line to connect to the substation, which would be overhead.

The key infrastructure for proposal would include:

- PV modules (solar panels).
- Single Axis horizontal tracking (likely) or fixed mounting frames.
- 30-50 inverter stations with associated transformer.
- An onsite substation or substation within the existing Transgrid substation containing one transformer and associated switchgear.
- A 33kV, 132kV or 330kV transmission line to the adjacent existing Wellington Substation (100m).
- Underground or aboveground electrical conduits and cabling to connect the inverters to the onsite substation, or substation within the existing Transgrid substation.
- 22-33kV underground and aboveground (mounted to module structure) DC cabling to connect the modules to the inverter stations.
- Permanent site office and maintenance building with associated vehicle parking.
- Internal access tracks to allow for site maintenance.
- Perimeter security fencing up to 2.3 m high.
- Energy storage
- Native vegetation screening, where required to break up views of infrastructure to specific receivers, will be planted prior to commencement of operation.
- An access track off Goolma Road, approximately 4.6km north east of Mitchell Highway junction.

During the construction period some additional temporary facilities would be located within the site boundary and may include:

- Material laydown areas.
- Temporary construction site offices.
- Temporary car and bus parking areas for construction worker's transportation. Once the plant has been commissioned, a small car park would remain for the minimal staff required and occasional visitors during operation.

The Wellington Solar Farm would be expected to operate for approximately 30 years. The construction phase of the proposal would take approximately 12 months. After the initial 30 year 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.

### 1.3 PROJECT PERSONNEL

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

Consultation with the Aboriginal community was undertaken following the process outlined in OEH's *Aboriginal cultural heritage consultation requirements for proponents 2010*. Five Aboriginal groups registered their interest in the proposal.

These groups were:

- Wellington Local Aboriginal Land Council;
- Wellington Valley Wiradjuri Aboriginal Corporation;
- Gallangabang Aboriginal Corporation;
- Binjang Wellington Wiradjuri Heritage Survey; and
- Wiradjuri Central West Republic.

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

### 1.4 REPORT FORMAT

For the purposes of this assessment of the Wellington 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 Wellington LALC and various statutory authorities including OEH, as identified under the ACHCRP. An advertisement was placed in the local newspaper, Daily Liberal Advertiser on the 26<sup>th</sup> of April 2017 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, five groups contacted the consultant to register their interest in the proposal. The groups who registered interest were Wellington Local Aboriginal Land Council, Wellington Valley Wiradjuri Aboriginal Corporation, Gallangabang Aboriginal Corporation, Binjang Wellington Wiradjuri Heritage Survey and the Wiradjuri Central West Republic.

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

**Stage 2.** On the 28<sup>th</sup> of June 2017, an Assessment Methodology document for the Wellington Solar Farm was sent to all registered parties. 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.

Billy Stanley (Heritage Officer for Wellington LALC) replied for the Wellington LALC that he was satisfied with the methodology.

The Wiradjuri Central West Republic informed NGH that Jamie Gray with the Binjang Wellington Wiradjuri Heritage Survey would respond for both these registered Aboriginal parties. Jamie Gray responded that he was satisfied with the methodology.

The Gallangabang Aboriginal Corporation informed NGH that Bradley Bliss with the Wellington Valley Wiradjuri Aboriginal Corporation would respond for both these registered Aboriginal parties. The main points raised in the comments received from the Bradley Bliss on the methodology were in relation to:

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



These comments were addressed by NGH in reply letters sent to the Wellington Valley Wiradjuri Aboriginal Corporation on the 3<sup>rd</sup> of August 2017. No further correspondence was received regarding the letters from NGH Environmental that addressed the comments on the methodology.

**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. No response regarding cultural information was received.

At this stage, the fieldwork was organised and all of the registered parties were asked to participate in fieldwork. Wiradjuri Central West Republic informed NGH that Binjang Wellington Wiradjuri Heritage Survey would represent them during the fieldwork. Therefore, two representatives from Binjang Wellington Wiradjuri Heritage Survey participated in the survey with a single representative from each of the other three RAPs also participating in the fieldwork. The fieldwork was carried out in August 2017 with five representatives from the registered parties participating in the survey.

The Aboriginal community representatives who participated in the field survey were:

- Jamie Gray- Binjang Wellington Wiradjuri Heritage Survey;
- Fonua Havili- Binjang Wellington Wiradjuri Heritage Survey;
- William (Billy) Stanley- Wellington LALC;
- Bradley Bliss- Wellington Valley Wiradjuri Aboriginal Corporation; and
- Stephan Lamb- Gallangabang Aboriginal Corporation.

**Stage 4** In October 2017 a draft version of this *Aboriginal Cultural Heritage Assessment Report* for the proposal (this document) was forwarded to each registered Aboriginal party 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**

Community consultation occurred throughout the project. The draft report was provided to each of the Registered Aboriginal Parties (RAPs) and feedback was sought on the recommendations, the assessment and any other issues that may have been important.

Report feedback was provided in writing by Jamie Gray for Binjang Wellington Wiradjuri Aboriginal Heritage Surveys and the Wiradjuri Central West Republic. Report feedback was provided in writing by Bradley Bliss for Wellington Valley Wiradjuri Aboriginal Corporation and the Gallangabang Aboriginal Corporation. The Wellington LALC provided comments on the draft report during a phone call to NGH archaeologist Kirsten Bradley on the 5 of February 2018.

A copy of the letters from the RAPs are provided in the consultation log in Appendix A. Below is a summary of the main points from the consultation with each of the groups who responded.

Wellington LALC were happy with the findings and the report and noted that they did not have any objections to the report being finalised. No additional comments were provided and they did not raise any concerns with the recommendations outlined in the report.

Binjang Wellington Wiradjuri Aboriginal Heritage Surveys and the Wiradjuri Central West Republic were happy with the findings and the report. No additional comments were provided and Binjang Wellington Wiradjuri Aboriginal Heritage Surveys and the Wiradjuri Central West Republic did not raise any concerns with the recommendations outlined in the report.

Wellington Valley Wiradjuri Aboriginal Corporation and the Gallangabang Aboriginal Corporation provided some additional comments on the recommendations in the report that needed to be addressed. The main points raised to be addressed were:

- Requested a meeting in Wellington for Elders to be able to attend to meet First Solar representatives face to face.
- If Wellington Scarred Tree 1 should it fall over it was request that a suitable structure be erected by Frist Solar that is deemed suitable to the Aboriginal Community.
- That a smoking ceremony take place to cleanse the artefacts and reburial site during the salvage program of works.
- While a minimum 5m buffer was agreed to in principal a preference for a 10m buffer was noted.
- Requested a rotating monitor program for all ground disturbance works.
- Requeued that the RAPs are informed of any unexpected finds within 24hrs of a discovery.

NGH responded to the comments raised by the Wellington Valley Wiradjuri Aboriginal Corporation and the Gallangabang Aboriginal Corporation. A copy of this letter is provided in Appendix A and a brief outline of the response provided by NGH outlined below.

- NGH informed First Solar of request for meeting in Wellington. First Solar will contact RAPs directly for this.
- First Solar accepted the request to house the scar tree should it fall and the continued monitoring of the trees condition will be included as part of the CHMP for the project.
- First Solar accepted the request for Cultural Smoking Ceremony as part of the salvage works.
- NGH will recommend that to improve the effectiveness of the 5m buffer for sites not salvaged prior to construction that they be fenced.
- Noted that the request for RAPs to be present on a rotating monitoring programs for all ground disturbance within the project area is not warranted. NGH provided additional information to support this conclusion.
- It was reiterated that First Solar have agreed to undertake excavations within the PAD 1 and PAD 2. The testing of these PAD areas for subsurface material prior to development negates the need for a monitoring program. The results of the testing will also inform the need for any further management recommendations.
- The Unexpected Finds protocol will be developed as part of the CHMP.

Bradley Bliss responded for the Wellington Valley Wiradjuri Aboriginal Corporation and the Gallangabang Aboriginal Corporation that they were satisfied with the responses provided by NGH and that they agreed that monitoring of ground disturbance would not be required given the subsurface testing of PAD 1 and PAD 2. The individual Larry Foley was noted as for a suitable person to perform the smoking ceremony during salvage works.

The recommendations in the final report have been amended to include the request for a Cultural Smoking Ceremony as part of the salvage works and that to improve the effectiveness of the 5m buffer for sites not salvaged prior to construction that they be fenced.

## 3 BACKGROUND INFORMATION

### 3.1 REVIEW OF LANDSCAPE CONTEXT

#### 3.1.1 *Geology and Topography*

The landscape context assessment is based on a number of classifications that have been made at national and regional level for Australia. The national IBRA system identifies the proposal area as located within the NSW South Western Slopes Bioregion and the Inland Slopes Subregion (DE&E 2016). The dominant IBRA subregion affected by the proposal is the Inland Slopes Subregion.

The NSW South Western Slopes Bioregion extends north of Cowra through southern NSW into western Victoria along the lower inland slopes of the Great Dividing Range. This region is characterised by foothills and isolated ranges, 93% of which occur in NSW. The NSW portion of the bioregion occupies about 10.1 per cent of the state.

The bioregion lies within the eastern section of the Lachlan Fold Belt consisting of a series of north to north westerly trending folded bodies of Cambrian to Early Carboniferous sedimentary and volcanic rocks. Granites form a dominate part of this bioregion, generally occurring as central basins surrounded by steep hills. Hilly landscapes developed on sedimentary and volcanic rocks typically form lines of hills, following the strike of more resistant rocks such as quartzite. The valleys between these features are generally granite or softer rocks such as shale or slate.

To the west and north of the bioregion wide valleys filled with Quaternary alluvium and lakes become the dominate landform. On the western edge however, alluvial fans from the Riverine Plain have buried most of the bedrock. Gravel deposition in these fans form terraces in valleys and gravel outwash plains and are attributed to higher river discharges in the past.

Notably there are several areas of fossil bearing limestone outcropping with developed karst topography and a narrow belt of serpentinite with chemically distinctive soil that runs northwest from Tumut to Cootamundra.

There are three subregions identified within the NSW South Western Slopes, the Inland Slopes, Lower Slopes and the Capertee Valley. The proposal area is situated within the Inland Slopes Subregion.

The area is geologically dominated by Ordovician to Devonian folded and faulted sedimentary sequences with inter-bedded volcanics and intrusive granites. The soils tend to be shallow and stony forming on steep slopes. The soils grade from red subsoils on upper slopes to yellow on the lower slopes comprised of alluvial sands, loams and clays.

The Dubbo Geological map (1:250,000 SI/55-4) indicates that geology underlying the proposal area consists of the Quaternary, Silurian and Ordovician Cainozoic and Palaeozoic geological sequences as shown in Figure 5 and detailed below (Colquhoun et al. 1999). The majority of the proposal area is within the Oakdale Formation (Oco).

- **Oco** Basalt, basaltic andesite, latite lava and intrusions, volcanoclastic breccia, conglomerate, sandstone and siltstone, minor allochthonous limestone.
- **Qa** Alluvial silt, clay and sand, variable humic content, sporadic pebble- to cobble-sized unconsolidated conglomeratic lenses.
- **Smq** Massive to bedded highly fossiliferous limestone; siltstone.

- **Smb** Poorly bedded to laminated, buff to brown to grey, quartzose shale and siltstone; minor rhyolitic tuff and tuffaceous sandstone; calcareous sandstone and siltstone.
- **Smd** Rhyolitic to felsitic tuff and tuffaceous sandstone; siltstone; mafic to felsic lava; limestone.
- **Smdw** Felsic crystal-lithic sandstone and fossiliferous limestone.

The proposal area is encompassed by two Mitchell Landscapes, the Mullion Slopes and the Macquarie Alluvial Plains. The Mitchell Landscape descriptions are provided in Table 1 below and shown in Figure 6.

- Macquarie Alluvial Plains occurs surrounding Wuuluman Creek through the centre of the proposal area.
- Mullion Slopes occurs on the rest of the proposal area, 200m north and south of Wuuluman Creek.

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



Mitchell Landscape
<p><b>Mullion Slopes</b></p> <p>Steep hills and strike ridges on tightly folded Ordovician andesite, conglomerate and tuff, Silurian rhyolite and shale, Devonian quartz sandstones, slate and minor limestone, general elevation 500 to 830m, local relief 200m. Stony uniform sand and loam in extensive rock outcrop along crests, stony red and brown texture-contrast soil on slopes, yellow harsh texture-contrast soil in valleys with some evidence of salinity. Gravel and sand in streambeds.</p> <p>Open forest to woodland of; white gum (<i>Eucalyptus rossii</i>), brittle gum (<i>Eucalyptus mannifera</i>), broad-leaved peppermint (<i>Eucalyptus dives</i>), red box (<i>Eucalyptus polyanthemus</i>), mountain grey gum (<i>Eucalyptus cypellocarpa</i>), white box (<i>Eucalyptus albens</i>) with yellow box (<i>Eucalyptus melliodora</i>) on lower slopes and river oak (<i>Casuarina cunninghamiana</i>) along the streams.</p>
<p><b>Macquarie Alluvial Plains</b></p> <p>Holocene fluvial sediments of backplain facies of the Marra Creek Formation associated with the Macquarie River main alluvial fan and distributary stream system, relief 1 to 3m. Dark yellow-brown silty clay with patches of sand and carbonate nodules deposited from suspended sediments in floodwater, often with gilgai. Slightly elevated areas with red-brown texture-contrast soils.</p> <p>Open grasslands with scattered coolibah (<i>Eucalyptus microtheca</i>), black box (<i>Eucalyptus largiflorens</i>), river cooba (<i>Acacia stenophylla</i>), bimble box (<i>Eucalyptus populnea</i>), belah (<i>Casuarina cristata</i>), lignum (<i>Muehlenbeckia cunninghamii</i>) and myall (<i>Acacia pendula</i>).</p>

Three watercourses run through the proposal area as detailed below. These watercourses flow into the Macquarie River, approximately 2.5km downstream.

- Wuuluman Creek, a 3<sup>rd</sup> Order Stream runs though the west and south-eastern portions of the proposal area. In the east of the site Wuuluman Creek is slow flowing shallow creek with steep banks. Streamside vegetation is degraded consisting of exotic grasses grazed by stock and some scattered Boxthorn (*Lycium ferocissimum*). As the creek flows towards the west, banks become shallow and water deeper. The stream banks were well vegetated and consisted of plants such as Couch (*Cynodon dactylon*) and Bulrush (*Typha* sp.). Some scattered White Box (*Eucalyptus albens*) occurred along the length of the stream.
- An unnamed drainage channel, a 1<sup>st</sup> Order Stream runs through the south-eastern portion of the proposal area and joins up with Wuuluman Creek. This drainage line is a dry gully,

flowing only after rain events. Vegetation in these gullies is degraded and dominated by exotic grasses that had been grazed by stock.

- An unnamed drainage channel, a 1<sup>st</sup> Order Stream runs from the North of the proposal area and joins up with Wuuluman Creek on the Western edge of the site. This drainage line is a dry gully, flowing only after rain events. Vegetation in these gullies is degraded and dominated by exotic grasses that had been grazed by stock.

	
<p>Plate 1 Wuuluman Creek in the east of the Proposal area.</p>	<p>Plate 2 Wuuluman Creek in the centre of the Proposal area.</p>

The topography of the proposal area is generally flat to undulating and sits at an elevation of between 300 and 415 metres above sea level (ASL). The site includes the following topographic features:

- A small steep hill is located in the north-eastern part of the site (rising to 415 metres ASL).
- Three small low hills with low quality outcropping rocks.
- Wuuluman Creek runs through the west and south-eastern portions of the proposal area.
- Two unnamed drainage lines that join up with Wuuluman Creek in the proposal area.

Soils within the proposal area are typically a reddish-brown clay loam. The 1:250,000 Dubbo Soils Landscape series sheet indicates that a single soil landscape, Bodangora Soil landscape with Euchrozems soils, occurs within the proposal site as detailed below in Table 2 (Murphy and Lawrie 1998).

Table 2 Soil descriptions of Euchrozem Soils within the Bodangora Soil Landscape

Bodangora Soil Landscape with Euchrozem Soils	
Description	
<b>Topsoil</b>	Dark reddish-brown clay loams to light clays, moderately well-structured with sub-angular or angular blocky peds. Field pH increases from 5.5 to 7.0 in the A horizon; to 35 cm depth. Gradual boundary to—
<b>Subsoil</b>	Moderate to strongly structured reddish-brown light to medium clays with smooth-faced, sub-angular or polyhedral peds. Gravel increases with depth and soft nodules of calcium carbonate begin to appear at about 90 cm depth. Field pH 8.0 to 8.5.

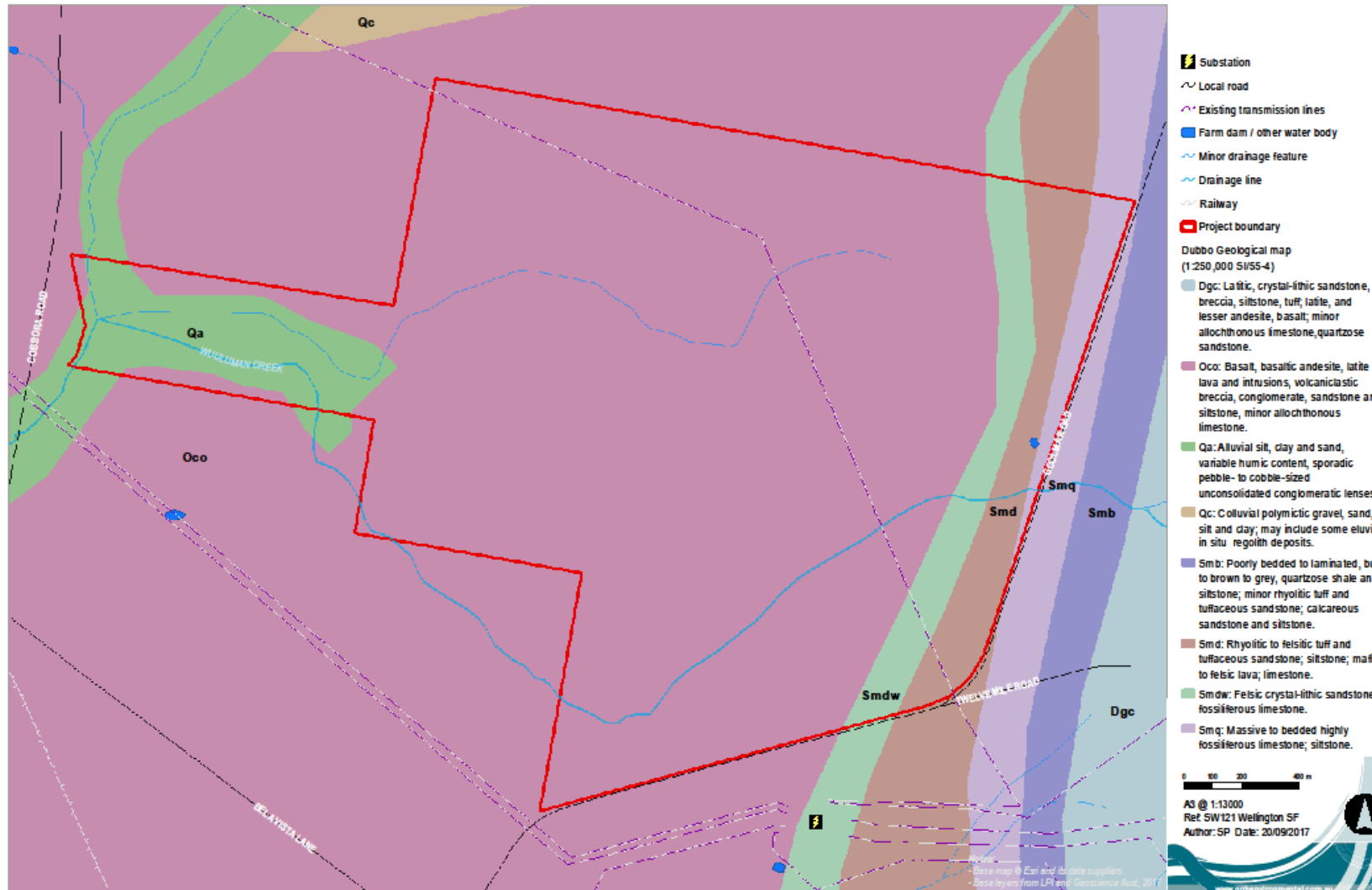


Figure 5. The Dubbo Geological map

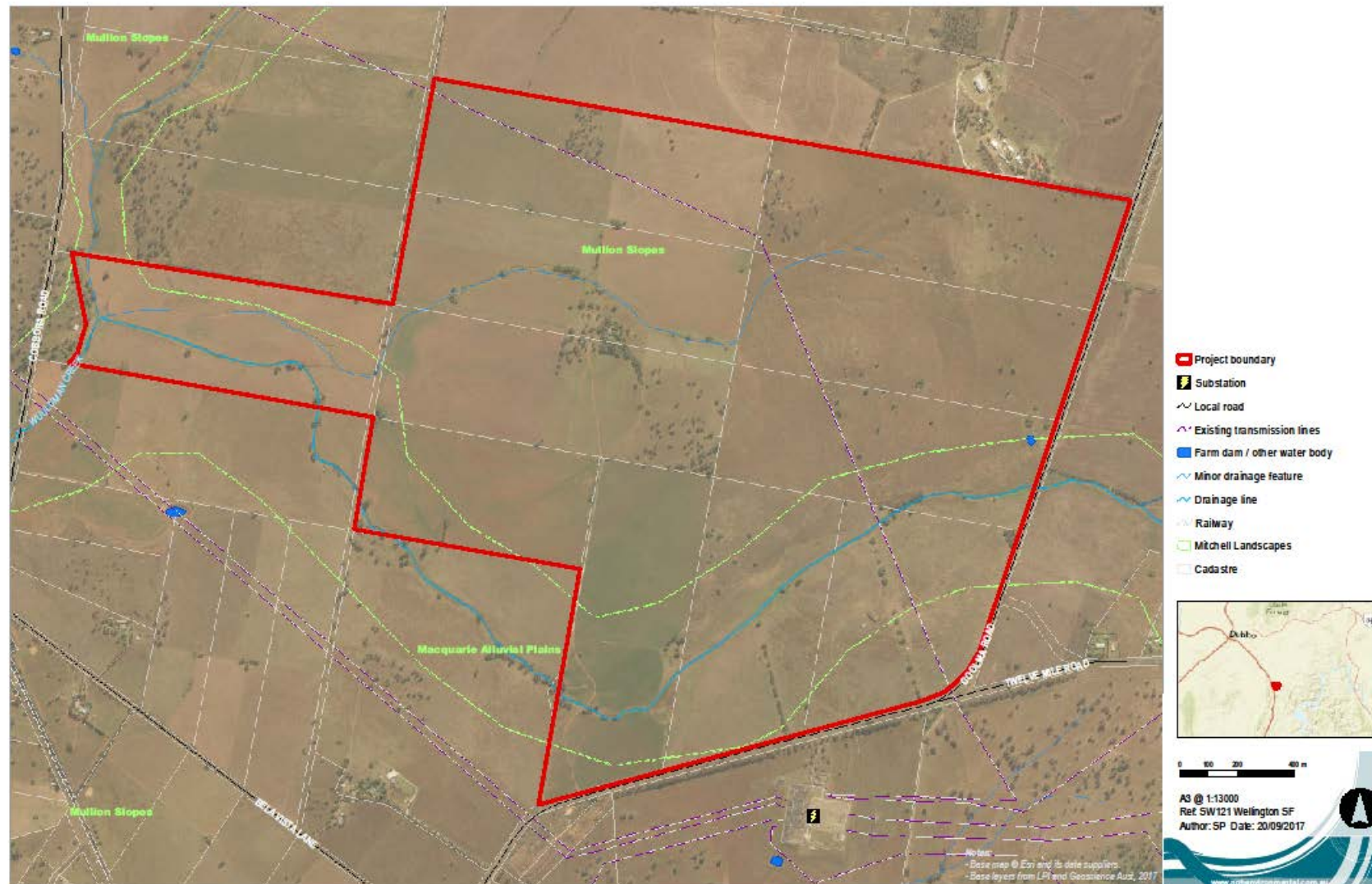


Figure 6. Location of Mitchell landscapes.

### 3.1.2 Flora and Fauna

The biodiversity assessment carried out by NGH Environmental identified two plant communities within the proposal area. These include:

1. White Box grassy woodland in the upper slopes sub-region of the NSW South Western Slopes. Within the woodland vegetation, the overstorey was characteristically dominated by White Box (*Eucalyptus albens*) with occasional Kurrajong (*Brachychiton populneus subsp. populneus*). Understorey vegetation was comprised of native grasses and herbs such as Cotton Panic Grass (*Digitaria brownii*), Red Grass (*Bothriochloa macra*), Windmill Grass (*Chloris truncata*), Twining Glycine (*Glycine clandestina*) and Oxalis (*Oxalis perennans*). Exotic species present included Perennial Rye Grass (*Lolium perenne*), Brome (*Bromus sp.*), Saffron Thistle (*Carthamus lanatus*), Spear Thistle (*Cirsium vulgare*), Variegated Thistle (*Silybum marianum*), White Clover (*Trifolium repens*), Hop Clover (*Trifolium campestre*). This community occurs as several areas of woodland vegetation in moderate to good condition (6.3 ha); woodland vegetation in moderate to good condition comprised from a previous tree planting (2.64ha); woodland vegetation in low condition (2.3ha); derived grassland in moderate to good condition (12.1ha); and derived grassland in low condition (162.6ha).
2. Blakely's Red Gum – Yellow Box grassy tall woodland. The overstorey was dominated by Yellow Box (*Eucalyptus melliodora*), Fuzzy Box (*Eucalyptus conica*). The groundcover was heavily disturbed having been heavily impacted by stock. Exotic species such as Soft Brome (*Bromus hordeaceus*), Lucerne (*Medicago sativa*), Rye Grass (*Lolium perenne*) and small flowered Mallow (*Malva parviflora*) dominated the groundcover. Only one native species, Hogweed (*Zaleya galericulata*) was recorded in the 20m plot. This community occurs as a small patch of low condition woodland vegetation

The majority of the proposal area is cleared and cropped farmland containing exotic species of grass and commercial crops.

The vegetation communities provide numerous habitat types for fauna. Canopy trees provide foraging and nesting/resting habitat for birds and arboreal fauna. The mid-storey provides foraging and nesting habitat for smaller birds, as well as refuge for small-medium sized mammals and reptiles. Ground cover plants, logs and fallen leaves also provide shelter and foraging habitat for terrestrial fauna.

### 3.1.3 Historic Landuse

The proposal area has a history of intensive agricultural and pastoral use. The majority of the area has been utilised for grazing and crop production since European settlement in the mid 1800's. The impacts from farming activities over many decades has meant that any cultural material within the proposal area has been extensively disturbed and potentially destroyed.

The current landowner of the eastern lots within the proposal area has undertaken grazing with occasional cropping for approximately 25 years. It is assumed similar land use preceded this. The dilapidated abattoir and office buildings present onsite have sometimes been used for storage of grains. These buildings were constructed by a previous landowner and were never completed or utilised as an abattoir. An old single room building is also located onsite that may have been used by shearers or as a milk separating shed in the past.

Additionally, the current landowner of the western lots has undertaken cropping and grazing for the last 30 years. It is assumed similar land use preceded this. Additional structures onsite include a small building in the western portion as well as sheds and pumping equipment.



The construction of the existing powerlines through the proposal area has also caused disturbance to the proposal area. There are also several man-made dams within the proposal area that have modified the ground.

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

### 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 Mullion Slopes with a low hill in the north-eastern corner or within the Macquarie Alluvial Plains surrounding Wuuluman Creek.

The 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 soils and geological landscapes on the Dubbo Sheet were not readily identifiable within the survey area and were not used as means of landscape differentiation. However, the Mitchell landscapes were readily identifiable and used as means of landscape differentiation. The landforms for the survey was therefore determined to be two units, undulating plains and the slopes of the Mullion Slopes or the Macquarie Alluvial Plains surrounding Wuuluman Creek. This landform division is based on landscape maps of the proposal 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, pp. 8 & 16).

Wellington 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 (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 (Fraser 1892, Pearson 1981). 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).

On the 22<sup>nd</sup> of August 1817 John Oxley, the first European to explore the Wellington Valley observed an abundance of fish, emus, swans and ducks' as well as very large mussels growing among the reeds in many stretches of the river. He noted that in such country there was no fear of being in want of food (Oxley 1820, pp. 191–192).

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 undertaken on the 10<sup>th</sup> of April 2017 over an area approximately 40kms east-west by 40kms north-south centred on the proposal area. The search coordinates were from Lat, Long -32.6541, 148.7358 to Lat, Long -32.3678, 149.1898 with a Buffer zone of 50 meters. The AHIMS Client Service Number was: 275928. There are 98 Aboriginal sites and no declared aboriginal places recorded in the search area. Table 3 below shows the site types previously recorded in the region and Figure 7 shows the location of AHIMS sites in relation to the Wellington Solar Farm proposal area.

None of the sites are located within the current proposal area. There are three sites within 2kms of the proposal area, AHIMS #36-4-0081 a modified tree to the south west, AHIMS #36-4-0099 an isolated find to the north east and AHIMS #36-4-0108 two artefacts located to the south east.

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

Site Type	Number
Artefact	43
Modified Tree	30
PAD	4
Artefact and PAD	3
Artefact and Hearth	3
Artefact and Shell	2
Burial	2
Grinding Groove	2
Aboriginal Ceremony and Dreaming and Modified Tree	1
Aboriginal Ceremony and Dreaming and Stone Arrangement	1
Aboriginal Resource and Gathering	1
Burial and Modified Tree	1
Ceremonial Ring and Artefact	1
Ceremonial Ring and Modified Tree	1
Habitation Structure	1
Stone Arrangement, Stone Quarry and Artefact	1
Stone Arrangement and Stone Quarry	1
<b>TOTAL</b>	<b>98</b>

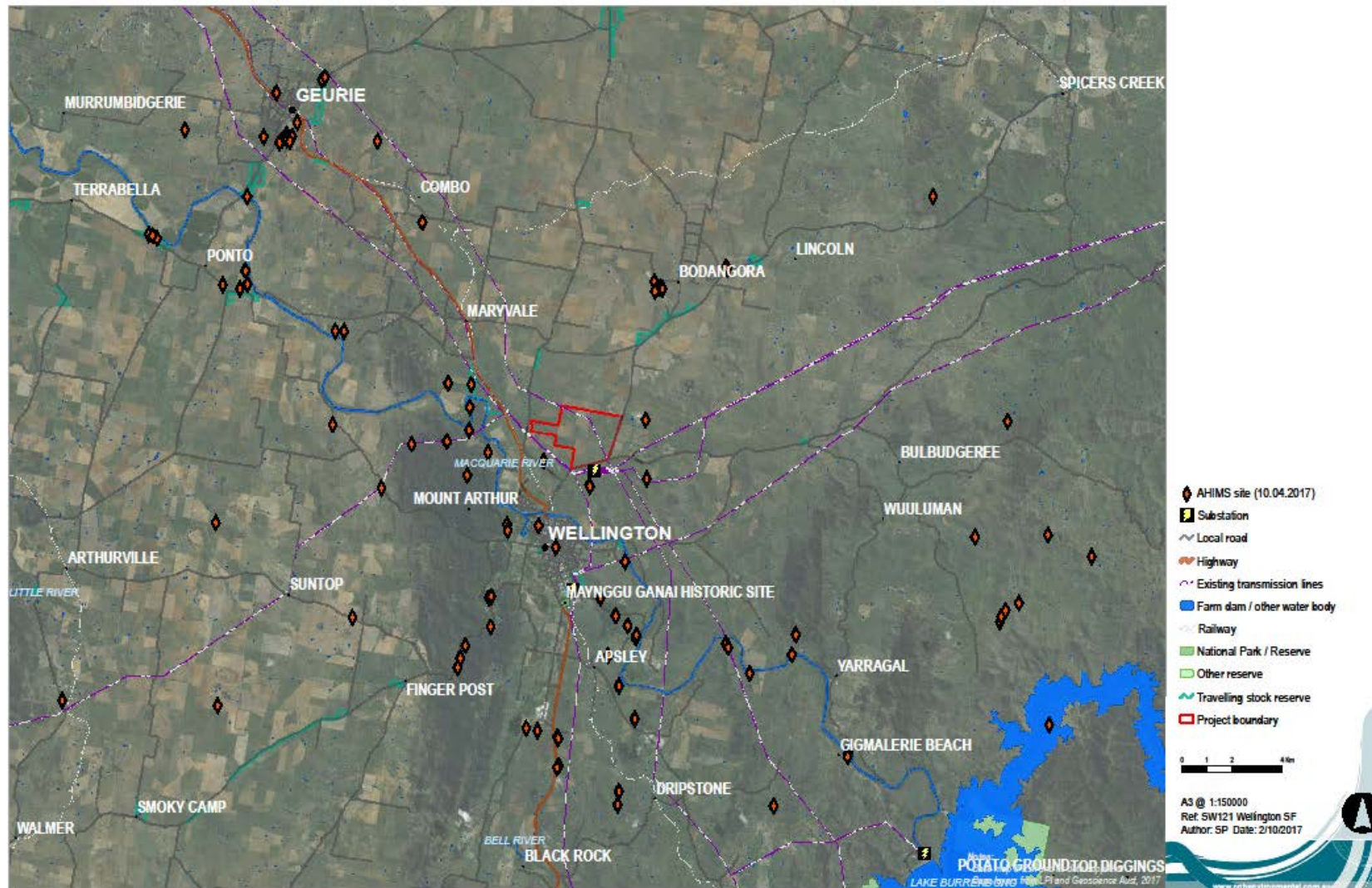


Figure 7. AHIMS sites near the project area.

### 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 (Mulvaney and Kamminga 1999, Hiscock 2007). While no regional synthesis of the archaeology has been completed for the Wellington 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 i.e. 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 70 km to the west, is relevant as one of only a few wide-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 (1985) 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.

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. 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 proposal 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.

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 “sandy monkey” palaeochannels. Water is scarce.	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

OzArk (2007) conducted a cultural heritage review of the Dubbo LGA that overlaid all recorded sites within the LGA on a mapped geomorphological GIS layer of landforms. The study confirmed that most Aboriginal sites are recorded within 100 m of water accompanied by a general trend of there to be fewer sites recorded further away from water. Additionally, the majority of the recorded sites were identified to be located on Quaternary alluvium soils that once supported the more complex ecological communities in the region. This geological unit in the region occurs near major waterways and consequently, the likelihood of associated Aboriginal objects and sites in such landforms increases.

### 3.2.4 Previous archaeological studies

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

In 1982 Cubis surveyed the proposed electrical transmission line between Wellington and Lithgow. Cubis identified 55 Aboriginal sites consisting of stone and glass artefact scatters and quarry sites. Most sites were located in close proximity to drainage lines and/or located on ridges close to gullies, streams or swamps. Cubis assessed the Central Western Region as being of archaeological significance due to the presence of both prehistoric and contact archaeological sites (AMBS 2008, pp. 24–25).

A subsequent appraisal by Bowdler (1982) of five sites in the transmission corridor originally identified by Cubis (1982) was undertaken. Bowdler (1982) established that none of the five sites were of significant future research potential and the quarries identified by Cubis (1982) were not in fact quarries. It was suggested that no further archaeological work was required for the proposal (AMBS 2008:25).

In 1985 McIntyre surveyed the proposed reconstructed route of two proposed Electricity Commission transmission lines between Wellington and Dubbo. The survey of these proposed transmission lines began at the Wellington substation and followed the line of the Mitchell Highway approximately 54 km northwest

to Dubbo. A total of 27 sites were recorded generally situated within close proximity to water. McIntyre noted that the areas of high archaeological sensitivity were areas adjacent to reliable seasonal water sources and stands of mature native vegetation. (AMBS 2008, p. 25).

Lance (1985) surveyed a proposed transmission line between Wellington and Forbes. It is assumed that the transmission line began at the Wellington Substation however this is not clearly stated in the report. During the survey 16 open camp sites, 14 isolated finds and two scarred trees were identified. Lance noted that there was a direct correlation between the location of archaeological sites and water sources in the area. Lance further concluded that in the Wellington area, quartz was the predominant raw material, while further to the south, meta-sedimentary and meta-volcanic and other volcanic materials become dominant

In 1995 Barber undertook a survey of a proposed communications GSM Tower approximately 6 km south east of the proposal area. A single White Box scarred tree was identified in the survey area. Barber (1995) suggested that the relative lack of archaeological material at this site was a true reflection as most camp sites would be located on the flats, closer to rivers and creeks rather than on the crest of a hill. The presence however, of the scarred tree demonstrates that 'Aboriginal people utilised all of the resources available to them and covered most of the country in which they lived' (Barber 1995:6).

Kelton (1999) undertook a survey of a proposed sewage treatment plant approximately 4 km south west of the current proposal area. No archaeological sites were identified within the study area although a scarred tree was identified on a creek flat adjacent to the site. Kelton (1999) suggests that the presence of the scarred tree indicates that prior to European land clearing of old growth trees there would have been potential for such sites to have occurred within the study area.

AMBS (2008) recorded four Aboriginal heritage sites within the 100 km corridor of the proposed Wellington gas pipeline, power station and compressor station. The proposed location of the power station was directly adjacent to the southern boundary of the Wellington 330kV substation which will connect via overhead powerlines to the current assessment area. Three artefact scatters consisting of chert, silcrete and quartz and a single scarred tree were recorded. All sites were identified on low slopes and flats within proximity of a creek line or water source. None of the sites recorded were in close proximity to the current assessment area. Furthermore, it was noted that the local Aboriginal community considered the scarred tree to be highly culturally significant.

OzArk (2009) surveyed 9 km for the proposed upgrade of the existing 11kV electricity transmission line, proposed extensions and associated access tracks south-west of Wellington. This survey was approximately 4.5 km south of the current proposal area. Four Aboriginal sites were identified consisting of three open sites with potential archaeological deposits (PAD) and one isolated find. The open sites consisted of a range of raw material types including silcrete, chert, greywacke, hornfels and quartz. These sites were all located on elevated creek confluences or spur crests overlooking water.

Pardoe (2010) carried out the Aboriginal cultural heritage assessment for the proposed Young to Wellington Gas pipeline Project. Eighteen sites were identified consisting of 13 scarred trees and 5 open artefact scatters. The artefact scatters tended to be on slightly raised ground associated with source of permanent water, just above or within a few hundred meters of swampy ground and manufactured from locally sourced quartz and volcanic stone. Most scars were on Yellow Box trees and the location of the scarred trees is suggested to 'largely reflect retention of trees on or near watercourses, or on sections of land that were too rough to warrant clearing' (Pardoe 2010:109).

The Bodangora Wind Farm, approximately 10 km north east of the proposal area was surveyed by Dibden in 2011. Two Aboriginal sites were recorded on crests, comprised of an artefact scatter and a possible quartz



procurement site (2011). Dibden noted that all the artefacts were recorded on crests with no artefacts recorded on the simple slopes.

### 3.2.5 Summary of Aboriginal land use

The results of previous archaeological surveys in the Wellington 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. Scarred trees area also prevalent in the region.

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 Wellington Solar Farm proposal area would be stone artefacts and scarred trees where old growth native 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 Wellington 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 Wellington 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 such as spur and ridge crests. Within the proposal area, Wuuluman Creek is an obvious resource. The proximity of this ephemeral 3<sup>rd</sup> order creek to the proposed works area suggests artefact scatters are likely to occur within the proposal area. Artefact scatters are likely to occur within 500m of the creek line.

**Burials** – are generally found in elevated sandy contexts or in association with rivers and major creeks. No such features exist with the proposal 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 proposal area. Therefore, it is possible that 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 proposal 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 proposal area contains natural outcropping therefore such sites could occur.

**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 Wellington Solar Farm proposal area indicate that this area would likely have been part of the Wiradjuri landscape, particularly with Wuuluman Creek within the proposal area. Therefore, the proposal 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 or as scarred trees.

### 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 Wellington area there have been 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 many sites that exist that have yet to be identified although the scale of farming and 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 agricultural and pastoral activities and development.

Regarding 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, we have not been told of any such places within the proposal area. There is always the potential for such places to exist but insofar as the current proposal is concerned, no such places or values have been identified.

## 4 ARCHAEOLOGICAL INVESTIGATION RESULTS

### 4.1 SURVEY STRATEGY

The survey strategy was to cover as much of the ground surface as possible within the proposal area. Although the actual ground impact from the construction method for the proposed solar farm 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 the proposal area was generally a cleared undulating plain with exotic dominated pasture used for grazing livestock or recently ploughed fields ready for cropping, transects were spaced evenly with the survey team spread apart at 25m 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 survey team consisted of seven people which allowed a 175 m wide tract of the proposal 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.

While First Solar plan to retain existing viable native vegetation remnants where possible the areas of remnant vegetation were deemed to have high archaeological potential for mature trees within the proposal area and were inspected for any evidence of Aboriginal scarring (Long 2005).

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 per the Mitchell landscapes that intersected the proposal area as shown in Figure 5 and detailed below:

- Macquarie Alluvial Plains- undulating plains surrounds Wuuluman Creek through the centre of the proposal area.
- Mullion Slopes- occurs on the rest of the proposal area, 200 m north and south of Wuuluman Creek with low undulating slopes and hills.

These areas were then further dived into either grazed paddocks with low visibility or recently ploughed fields with high visibility.

The survey was undertaken by the team from the 8<sup>th</sup> to the 10<sup>th</sup> of August 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.

## **4.2 SURVEY COVERAGE**

The solar farm area comprised primarily of a cleared undulating alluvial plain and low undulating slopes with a creek and two associated drainage lines running through the proposal area. A very steep hill is located in the far north-eastern portion of the proposal area with three other low hills are also within the proposal area. The hills generally had low quality outcropping rocks and shallow soil deposits on the crest and associated steep slopes.

The slopes within the proposal area were generally gentle and undulating. The steep slopes were only associated with the very steep hill located in the north-eastern portion of the proposal area. The entire proposal area had been subject to clearing and ploughing activities. Given that no finer detailed mapping was available as the topographic maps in the Wellington area are mapped at 20 m contours, the landforms were dived into units based on the Mitchell landscapes as they were deemed to adequately represent and map the major topographic change in landscape from an alluvial plain to the slopes. These areas were then further dived into either grazed paddocks with low visibility or recently ploughed fields with high visibility.

Survey transects were undertaken on foot and traversed all the proposal area including the proposed powerline easement to the substation. Visibility within the proposal area was variable however the proposal area as a whole generally had either a low grass cover or recently ploughed bare ground. The effective visibility in the paddocks ranged from 90% in exposures and recently ploughed areas to less the 5% in areas of dense grass. The average visibility was 30% but overall was quite good. Between the survey participants, over the course of the field survey, approximately, 280 km of transects were walked across proposal area.

Table 5 below shows the calculations of effective survey coverage and Figure 6 shows the division of landforms within the proposal area as per the Mitchell Landscapes. Plates 3-12 show examples of the transects within the proposal area.

Given the variability in the ground visibility across the proposal area overall the survey effectively examined 7.7% of the proposal area. It is considered that the survey of Wellington Solar Farm proposal area had sufficient and effective survey coverage.

The discovery of 27 Aboriginal sites indicates that the survey technique was effective enough to identify the presence of Aboriginal occupation in the area. While visibility was generally low in the paddocks used to graze livestock, archaeological objects and sites were identified in both the grazed paddocks with low visibility and the recently ploughed and burned fields with high visibility. Therefore, the results identified are considered a true reflection of the nature of the Aboriginal archaeological record present within the proposal area.

	
<p>Plate 3 View west across the alluvial flats adjacent to Wuuluman Creek in a paddock with grazing livestock, note low grass cover.</p>	<p>Plate 4 View North from Wuuluman Creek in a paddock with grazing livestock up towards the low slopes.</p>
	
<p>Plate 5 View north across the low slopes down towards Wuuluman Creek in a ploughed paddock, note high visibility.</p>	<p>Plate 6 View south-east across low slope in a ploughed paddock towards farm house, note high visibility.</p>



Plate 7 View west across the low slopes in a ploughed paddock in the western portion of proposal area, note good visibility.



Plate 8 View west from crest of very steep hill located in the north-eastern portion of the proposal area looking across to another low hill.



Plate 9 View west across the alluvial flats and low slopes from Wuuluman Creek from the far eastern portion of the proposal area. Note the hills in the background.



Plate 10 View north from the low slopes looking up towards the hill in the centre of the proposal area.



Plate 11 View north to outcropping the in the proposal area near the existing power line easement.



Plate 12 View east across low slope with the hill in centre of the proposal area in the background.

Table 5. Transect information.

Survey Section/ Mitchell landscape	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
Macquarie Alluvial Plains	26	Undulating plains surrounds Wuuluman Creek.	Ploughed and burnt fields, plough lines vehicle tracks, animal tracks, eroded and disturbed ground.	Recently ploughed fields within Solar farm area: 20ha	2,200 x 35	77,000	80% average	61,600	6.16	30.8	2 isolated finds
				Grazed paddocks within Solar farm area 120ha	11,000 x 35	385,000	5% average	19,250	1.92	1.6	1 hearth 5 isolated finds 5 artefact scatters
Mullion Slopes	32	200m north and south of Wuuluman Creek with low undulating slopes and hills	Ploughed and burnt fields, plough lines vehicle tracks, animal tracks, eroded and disturbed ground.	Transmission line:6.5ha	1,200x 35	42, 0000	5% average	2,100	0.21	3.2	Nil
				Recently ploughed fields within Solar farm area 110 ha	9,700 x 35	339,500	80% average	271,600	27.16	24.7	1 scarred tree 4 isolated finds 5 artefact scatters
				Grazed paddocks within Solar farm area 240 ha	15, 700 x 35	549,500	5% average	27,475	2.75	1.2	4 isolated finds

### 4.3 SURVEY RESULTS

Despite the variable visibility encountered during the survey, there were 61 stone artefacts found across the proposal area that were recorded as 25 site occurrences. These archaeological features have been recorded as ten artefact scatters and 15 isolated finds. A single scarred tree and a possible hearth were also recorded. The details of the sites are outlined below and in Table 6. Their locations are shown in Figures 8-10.



*Wellington Solar Farm IF1 AHIMS # 36-4-0142*

This site consisted of a single artefact on an alluvial plain adjacent to a fence line in a cleared paddock. The artefact was a quartzite flake located approximately 200 m north of an unnamed drainage line. The deposits consisted of a reddish brown sandy loam and visibility within the area was 15%. The area has been subject to disturbance from ploughing in the past.

	
<p>Plate 13. View east, scale tape shows artefact location.</p>	<p>Plate 14. Close up of Wellington Solar Farm IF 1.</p>



*Wellington Solar Farm IF2 AHIMS # 36-4-0155*

This site consisted of a single artefact on a livestock track on an undulating alluvial plain adjacent to a fence line in a cleared paddock. The artefact was a quartz flake located approximately 40 m north of Wuuluman Creek. The deposits consisted of a reddish brown sandy loam and visibility within the general area was 5%. The area has been subject to disturbance from ploughing in the past.

	
<p>Plate 15. View east, scale pole shows artefact location.</p>	<p>Plate 16. Close up of Wellington Solar Farm IF 2.</p>

Wellington Solar Farm IF3 AHIMS # 36-4-0156

This site consisted of a single artefact on a basal slope in a cleared paddock. The artefact was a worked core manufactured from a volcanic material. The deposits consisted of a reddish brown loam with numerous unworked rocks in close proximity. Visibility within the general area was approximately 5%. The area has been subject to disturbance from ploughing in the past and it is likely the high density of rocks in close proximity to the artefact is the result of these farming activities.

	
<p>Plate 17. View west, scale pole shows artefact location.</p>	<p>Plate 18. Close up of Wellington Solar Farm IF 3.</p>

Wellington Solar Farm IF4 AHIMS # 36-4-0158

This site consisted of a single artefact on a slope in a cleared paddock that had recently been harvested. The artefact was a flake manufactured from a volcanic material with 10% riverine cortex. The deposits consisted of a reddish brown loam and visibility within the general area was approximately 15%. The area has been subject to disturbance from ploughing in the past and had been recently harvested. The artefact was noted to have some plough damage.

	
<p>Plate 19. View east, scale pole shows artefact location.</p>	<p>Plate 20. Close up of Wellington Solar Farm IF 4.</p>



Wellington Solar Farm IF5 AHIMS # 36-4-0159

This site consisted of a single artefact on the basal slope in a cleared paddock. The artefact was a flake manufactured from a volcanic material with 40% riverine cortex. The deposits consisted of a reddish brown loam with large volcanic rocks scattered throughout the paddock. Visibility within the general area was approximately 5% with a low dense grass cover. The area has been subject to disturbance from ploughing in the past.

	
<p>Plate 21. View west, scale pole shows artefact location.</p>	<p>Plate 22. Close up of Wellington Solar Farm IF 5.</p>



Wellington Solar Farm IF6 AHIMS # 36-4-0157

This site consisted of a single artefact on a slope in a cleared and recently ploughed paddock. The artefact was a flake manufactured from quartz. The deposits consisted of a reddish brown loam with large volcanic rocks scattered across the paddock. Visibility within the general area was approximately 80% as the crop stubble had been recently burnt off. The area has been subject to disturbance from ploughing in the past.

	
<p>Plate 23. View south, scale pole shows artefact location.</p>	<p>Plate 24. Close up of Wellington Solar Farm IF 6.</p>



Wellington Solar Farm IF7 AHIMS # 36-4-0141

This site consisted of a single artefact on a slope adjacent to a fenceline in a cleared paddock currently used to graze cattle. The artefact was a sandstone grindstone with multiple grinding surfaces. The deposits consisted of a reddish brown loam with large volcanic rocks scattered across the paddock. Visibility within the general area was approximately 10%. The area has been subject to disturbance from ploughing in the past and the construction of two small single room sheds.

	
<p>Plate 25. View south, scale pole shows artefact location.</p>	<p>Plate 26. Close up of Wellington Solar Farm IF 7.</p>



Wellington Solar Farm IF8 AHIMS # 36-4-0138

This site consisted of a single artefact on a slope adjacent to an exposure in a cleared paddock currently used to graze cattle. The artefact was a single platform volcanic core with four scars. The deposits consisted of a reddish brown loam with livestock disturbance around a nearby tree. Visibility within the general area was approximately 10%. While cattle disturbance was noted in the general area the object did not appear to be damaged by the livestock. The area has however also been subject to disturbance from ploughing in the past.

	
<p>Plate 27. View north, scale pole shows artefact location.</p>	<p>Plate 28. Close up of Wellington Solar Farm IF 8.</p>

Wellington Solar Farm IF9 AHIMS # 36-4-0139

This site consisted of a single artefact in a large exposure in a gateway on a flat alluvial deposit disturbed by livestock adjacent to Wuuluman Creek. The artefact was a flake of quartz. The deposits consisted of a reddish brown loam highly disturbed by livestock. Visibility within the area was approximately 60%. While cattle disturbance was noted in the general area the object did not appear to be damaged by the livestock.

	
<p>Plate 29. View north-east, scale pole shows artefact location.</p>	<p>Plate 30. Close up of Wellington Solar Farm IF 9.</p>

Wellington Solar Farm IF10 AHIMS # 36-4-0140

This site consisted of a single artefact on a basal slope approximately 100 m south of Wuuluman Creek. The artefact was a flake of quartz. The deposits consisted of a reddish brown loam with livestock disturbance and large volcanic rocks scattered across the proposal area. Visibility within the general area was approximately 10%. The area has been subject to disturbance from ploughing in the past.

	
<p>Plate 31. View north, scale pole shows artefact location.</p>	<p>Plate 32. Close up of Wellington Solar Farm IF 10.</p>

Wellington Solar Farm IF11 AHIMS # 36-4-0137

This site consisted of a single artefact on the alluvial flats approximately 40 m south of Wuuluman Creek. The artefact was a quartz core. The deposits consisted of a reddish brown loam with and large volcanic rocks scattered across the paddock. Visibility within the general area was approximately 5%. The area has been subject to disturbance from ploughing in the past and the construction of a nearby abandoned abattoir.

<p>Plate 33. View north, scale tape shows artefact location.</p>	<p>Plate 34. Close up of Wellington Solar Farm IF 11.</p>

Wellington Solar Farm IF12 AHIMS # 36-4-0136

This site consisted of a single artefact on the alluvial flats approximately 120 m south of Wuuluman Creek. The artefact was a flaked piece manufactured from volcanic rock. The deposits consisted of a reddish brown loam with and large volcanic rocks scattered across the paddock. Visibility within the general area was approximately 5%. The area has been subject to disturbance from ploughing in the past and the construction of a nearby abandoned abattoir.

<p>Plate 35. View south-east, scale pole shows artefact location with abandoned abattoir in background.</p>	<p>Plate 36. Close up of Wellington Solar Farm IF 12.</p>

Wellington Solar Farm IF13 AHIMS # 36-4-0135

This site consisted of a single artefact on the gentle slope approximately 50 m south of an abandoned abattoir. The artefact was a core manufactured from volcanic rock. It was noted that there is some possible trampling damage from livestock. The deposits consisted of a reddish brown loam with and large volcanic rocks scattered across the paddock. Visibility within the general area was approximately less then 5%. The area has been subject to disturbance from ploughing in the past and the construction of a nearby abandoned abattoir.

<p>Plate 37. View north, scale pole shows artefact location with abandoned abattoir in background.</p>	<p>Plate 38. Close up of Wellington Solar Farm IF 13.</p>


Wellington Solar Farm IF14 AHIMS # 36-4-0134

This site consisted of a single artefact on the gentle slope approximately 90 m south Wuuluman Creek in a recently ploughed and cleared field. The artefact was a quartz core. The deposits consisted of a reddish brown loam with large volcanic and river rocks scattered across the paddock. Visibility within the general area was approximately 90%.

<p>Plate 39. View east, scale pole shows artefact location.</p>	<p>Plate 40. Close up of Wellington Solar Farm IF 14.</p>



Wellington Solar Farm IF15 AHIMS # 36-4-0143



This site consisted of a single artefact on the gentle slope approximately 60 m south Wuuluman Creek in a recently ploughed and cleared field. The artefact was a volcanic core manufactured from a large river pebble. The deposits consisted of a reddish brown loam with large volcanic and river rocks scattered across the paddock. Visibility within the general area was approximately 90%.

	
<p>Plate 41. View north, scale pole shows artefact location.</p>	<p>Plate 42. Close up of Wellington Solar Farm IF 15.</p>

Wellington Solar Farm AS1 AHIMS # 36-4-0144



This site consisted of two artefacts approximately 5 m apart from each other on a gentle slope in a recently ploughed and burnt cleared paddock. The artefacts were a broken edge-ground axe manufactured from a volcanic material and a flaked piece of quartz. The axe was broken; it is unclear if this damage was the result of ploughing activities. The artefacts were located on a reddish brown sandy loam deposits and visibility within the area was 80%. The axe was noted by some of the Aboriginal representatives onsite to be relatively rare and concerns were raised that upcoming farming activities may damage and/or move the axe. Consequently, temporary protection fencing was erected with the permission of the landowner around the axe to the satisfaction of the Aboriginal representatives onsite. It was also noted by the Aboriginal representatives onsite that this temporary protection fencing should stay in place until the axe can be salvaged and relocated outside the proposed Wellington Solar Farm development area. Some of the Aboriginal representatives onsite further requested that when the objects are salvaged they should not be placed or buried in plastic due to cultural reasons.



	
<p>Plate 43. Close up of broken edge-ground axe at Wellington Solar Farm AS 1.</p>	<p>Plate 44. Close up of broken edge-ground axe at Wellington Solar Farm AS 1.</p>

	
<p>Plate 45. View east, scale pole shows axe artefact location.</p>	<p>Plate 46. Temporary protection fencing erected around axe at Wellington Solar Farm AS 1.</p>

*Wellington Solar Farm AS2 AHIMS # 36-4-0145*

This site consisted of two artefacts approximately 5 m apart from each other on a gentle slope in a recently ploughed and burnt cleared paddock. The artefacts were a sandstone grinding stone fragment and a core from a volcanic material. The grindstone was broken and had two ground surfaces; it is unclear if the damage was the result of ploughing activities. The artefacts were located on a reddish brown sandy loam deposits and visibility within the area was 80%. The grindstone fragment was noted by some of the Aboriginal representatives onsite to be relatively rare and concerns were raised that upcoming farming activities may damage and/or move the fragment. Consequently, temporary protection fencing was erected with the permission of the landowner around the two artefacts to the satisfaction of the Aboriginal representatives onsite. It was also noted by the Aboriginal representatives onsite that this temporary protection fencing should stay in place until the artefacts can be salvaged and relocated outside the proposed Wellington Solar Farm development area. Some of the Aboriginal representatives onsite further requested that when the objects are salvaged they should not be placed or buried in plastic due to cultural reasons.

	
<p>Plate 47. Close up of broken grindstone fragment at Wellington Solar Farm AS 2.</p>	<p>Plate 48. Close up of core at Wellington Solar Farm AS 2.</p>

	
<p>Plate 49. View north, scale tape shows grindstone fragment location.</p>	<p>Plate 50. Temporary protection fencing erected around Wellington Solar Farm AS 2 artefacts.</p>

Wellington Solar Farm AS3 AHIMS # 36-4-0147



This site consisted of 11 artefacts spread over a relatively flat area approximately 100 x 20m on a gentle slope. The site consisted of three clusters of artefacts along the same landform in a recently ploughed and burnt cleared paddock. Five flakes, three flaked pieces, two cores and a broken flake were recorded. Artefacts were manufactured from a volcanic material (n= 6; 54.5%), quartz (n= 4; 36.4%) and a piece of silcrete (9.1%). The artefacts were located on a reddish brown sandy loam deposits and visibility within the area was 80%. It was also noted by the Aboriginal representatives onsite that this location likely had a spring which has since been destroyed by farming activities. A large number of volcanic rocks were also scattered across the paddock.

	
<p>Plate 51. Close up of core at Wellington Solar Farm AS 3.</p>	<p>Plate 52. Close up of flake at site WSF AS 3</p>
	
<p>Plate 53. View south from northern most artefacts</p>	<p>Plate 54. View north from southern most artefacts.</p>





Wellington Solar Farm AS4 AHIMS # 36-4-0146

This site consisted of two artefacts approximately 5 m apart on a gentle slope in a recently ploughed and burnt cleared paddock. The artefacts were a volcanic core and a flaked piece of quartz. The artefacts were located on a reddish brown sandy loam and visibility within the area was 60%. It was also noted that the core was a large flake core that had 20% riverine cortex. The area has been subject to ploughing in the past.

	
<p>Plate 55. Close up of core at Wellington Solar Farm AS 4.</p>	<p>Plate 56. View west, scale pole shows core location.</p>

Wellington Solar Farm AS5 AHIMS # 36-4-0148



This site consisted of two artefacts approximately 1.5 m apart on a gentle slope in a cleared paddock. The artefacts were a flake of quartz and a silcrete hammerstone. The artefacts were located on a reddish brown sandy loam deposits and visibility within the area was 5%. It was also noted that the hammerstone had three grounded surfaces and possible pitting. The area has been subject to disturbance from ploughing in the past

	
<p>Plate 57. Close up of quartz flake at Wellington Solar Farm AS5.</p>	<p>Plate 58. View north-west, scale pole shows artefact location.</p>

Wellington Solar Farm AS6 AHIMS # 36-4-0149


This site consisted of two artefacts approximately 13 m apart from each other on a gentle slope in a cleared paddock. The artefacts were a volcanic flake and a quartzite hammerstone. The artefacts were located on a reddish brown sandy loam deposits and visibility within the area was 5%. It was also noted that the

hammerstone had pitting on two surfaces while the flake had been retouched on the right lateral margin. The area has been subject to disturbance from ploughing in the past.

	
<p>Plate 59. Close up of volcanic flake at Wellington Solar Farm AS 6.</p>	<p>Plate 60. View south-east, scale pole shows artefact location.</p>



Wellington Solar Farm AS7 AHIMS # 36-4-0150

This site consisted of four artefacts within an area approximately 7 x 2 m on the alluvia flats in a cleared paddock 50 m north of Wuuluman Creek. The artefacts were flakes (n=3; 75%) and a flaked piece (n=1; 25%). The artefacts were primarily manufactured from quartz with a single flake manufactured from a silcrete material. The artefacts were located on a reddish brown sandy loam deposits and visibility within the area was 5%. The area has been subject to disturbance from ploughing in the past.

	
<p>Plate 61. Close up of silcrete flake at Wellington Solar Farm AS 7.</p>	<p>Plate 62. View south-east, scale pole shows artefact location.</p>


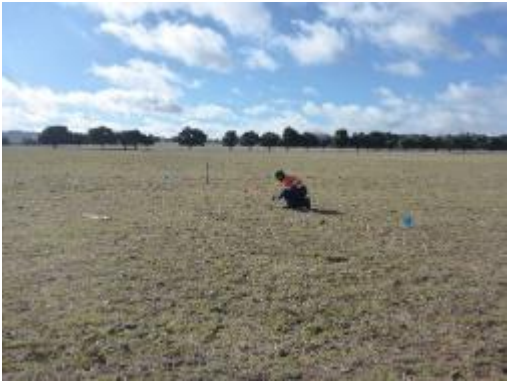
Wellington Solar Farm AS8 AHIMS # 36-4-0151

This site consisted of five artefacts within an area approximately 30 x 10 m on the gentle slope in a cleared paddock. The artefacts were flakes (n=3; 60%) and cores (n=2; 40%). The artefacts were primarily manufactured from a volcanic material (n= 3; 60%) with quartz (n=1; 20%) and a fine grained siliceous material (n=1; 20%). The artefacts were located on a reddish brown sandy loam deposits and visibility within the area was 5%. The area has been subject to disturbance from ploughing in the past.

	
<p>Plate 63. Close up of volcanic flake at Wellington Solar Farm AS 8.</p>	<p>Plate 64. View south-east, scale pole shows artefact location.</p>

Wellington Solar Farm AS9 AHIMS # 36-4-0152



This site consisted of 12 artefacts within an area approximately 50 x 20 m on the alluvia flats approximately 40 m south of Wuuluman Creek in a cleared paddock. The artefacts were flaked pieces (n=6; 50%), flakes (n=4; 33.5%) and cores (n=2; 16.5%). The artefacts were primary manufactured from quartz (n=7; 58.5%) and a volcanic material (n= 5; 41.5%). The artefacts were located on a reddish brown sandy loam deposits and visibility within the area was 10%. The area has been subject to disturbance from ploughing in the past.

	
<p>Plate 65. Close up of volcanic flake at Wellington Solar Farm AS 9.</p>	<p>Plate 66. View east, scale pole shows artefact location.</p>

Wellington Solar Farm AS10

AHIMS # 36-4-0153



This site consisted of four artefacts on a slope that spread down a track within an area approximately 40 x 5 m. While the track had ploughed paddocks either side the site did not appear to extend beyond the track area. It is possible that this may be the result of ploughing and other farming activities. The artefacts were all flakes with one noted to have been retouched. The artefacts were manufactured from silcrete (n=2; 50%) and a volcanic material (n=2; 50%). The artefacts were located on gravelled track with a reddish brown loam deposited and visibility within the area was 90%. The area has been subject to disturbance from ploughing in the past and the construction and use of the track.

	
<p>Plate 67. Close up of silcrete flake at Wellington Solar Farm AS 10.</p>	<p>Plate 68. View north-west down track, scale pole shows artefact location.</p>

Wellington Solar Farm ST1

AHIMS # 36-4-0154



This site consists of a single scarred tree considered to be Aboriginal in origin within a cleared paddock. The tree is a dead, standing and of undetermined species, in poor condition that has a single scar assessed as conforming to the standard scarring morphology accepted for Aboriginal modification (cf. Long 2005). The tree is located along the properties driveway fence line near the homestead and is approximately 5m in height. It was noted that the tree had been subject to significant weathering and that a number of upper branches had been cut off by chain saw. The lower trunk had evidence of stock damage with old fencing wire wrapped around it. The oval scar is located on the trunk of the tree facing southeast. The scar measure 81 cm in length by 28 cm in width and has a depth of 10 cm. The base of the scar is approximately 87 cm above the ground. No axe marks were noted.

	
<p>Plate 69. Close up of scar at Wellington Solar Farm ST1.</p>	<p>Plate 70. View north-west of Wellington Solar Farm ST1.</p>

*Wellington Solar Farm HTH 1 (possible Hearth)*

This site comprises a small concentration of burnt clay on an alluvial flat adjacent to Wuuluman Creek. The concentration measures 25 cm by 15 cm, however fragments of burnt clay extend over a 3 m by 2 m surrounding area. No other cultural evidence such as shell or bone was observed within or near the feature. The underlying substrate is a reddish brown sandy loam and visibility in the areas was limited to 5% with a low dense grass cover. During the survey the feature was recorded as a hearth at the behest of the Aboriginal representatives who also noted that the area had potential for subsurface archaeological deposits.

Desktop assessment of aerial photographs of the burnt clay area indicate there was previously a low shrub at this location. It is likely that the burnt clay pieces originate from a recent burning event and therefore the cultural origins of this site are unable to be unequivocally established. This feature is however outside the development footprint and will not be impacted by the proposed works. Furthermore, the archaeological potential of the area is recognised and falls within PAD 2.

	
<p>Plate 71. Close up of burnt clay at Wellington Solar Farm HTH 1.</p>	<p>Plate 72. View north, scale pole shows central feature location.</p>

**4.3.1 Consideration of Potential for Subsurface material**

Discussion were held in the field with the representatives present to assess the potential for subsurface deposits generally across the proposal area. Based on the land use history, visibility, an appraisal of the results from the field survey and the archaeological background of the area it was concluded that two areas within the proposal area have potential archaeological deposits (PAD) PAD 1 and PAD 2. Both of these PAD areas have a higher density of surface artefacts compared to the rest of the proposal area and appear to have a good depth of deposit.

PAD 1 covers approximately 2 ha of a cleared and recently ploughed paddock and encompassed two artefact scatters (Wellington Solar Farm AS 3 and Wellington Solar Farm AS 4) on a relatively flat area in an otherwise undulating landscape with gentle slopes. It was noted by the Aboriginal representatives onsite that this location likely had a spring which has since been destroyed by farming activities. This was supported by a notable change in the retention of moisture in the soil compared to the surrounding area.

PAD 2 covers approximately 45 ha of cleared paddocks used for grazing livestock and ploughed fields that extends approximately 100m north and south from Wuuluman Creek and its associated drain line in the south-eastern portion of the proposal area. This PAD area was assessed to be archaeologically sensitive and to have potential for subsurface deposits given the density of surface finds, the presence of slightly elevated flats in close proximity to water and appear to have a good depth of deposit. PAD 2 encompasses five artefact scatters (Wellington Solar Farm AS 5, Wellington Solar Farm AS 6, Wellington Solar Farm AS 7 and Wellington

Solar Farm AS 8), five isolated finds (Wellington Solar Farm IF 9, Wellington Solar Farm IF 10, Wellington Solar Farm IF 11, Wellington Solar Farm IF 14 and Wellington Solar Farm IF 15) and a possible hearth (Wellington Solar Farm HTH1).

If the complete avoidance of the two PADs within the proposal area is not possible, further archaeological assessment should be undertaken in the form of test excavations in order to establish the nature and significance of any sub surface deposits should be taken. Surface salvage and excavations would need to be conducted prior to any earthworks taking place. The excavations could form part of the salvage. A technical report should be produced describing the surface salvage and excavations methodology and results.

It was deemed that there was negligible potential for the presence of intact subsurface deposits with high densities of objects or cultural material within the proposal area outside the two areas identified as PADs. It was assessed that subsurface testing was only warranted within the PAD areas.

	
<p>Plate 73. View north across PAD 1.</p>	<p>Plate 74. View south-east across PAD 1.</p>
	
<p>Plate 75. View north across PAD 2 from Wellington Solar Farm AS 9.</p>	<p>Plate 76. View south-east across PAD 2 from Wellington Solar Farm AS 8.</p>

Table 6. Artefact, scarred tree and hearth characteristics

Artefact #	Site Name	Artefact Type	Raw Material	Dimensions (mm)			Comments
				Length	Width	Thickness	
1	Wellington Solar Farm IF1	flake	quartzite	38	36	10	In eroded area near fence line on flat associated with drainage line. Flake scar platform, feather termination, tertiary stage of reduction.
2	Wellington Solar Farm IF2	flake	quartz	19	23	11	On stock track, adjacent to creek. Flake scar platform, feather termination, tertiary stage of reduction.
3	Wellington Solar Farm IF3	core	volcanic	79	26	18	Single platform core on simple slope.
4	Wellington Solar Farm IF4	flake	volcanic	44	56	14	Cortex platform and feather termination. Secondary level of reduction, riverine cortex 10% with some plough damage noted.
5	Wellington Solar Farm IF5	flake	volcanic	45	52	15	Cortex platform and feather termination. 1 negative flake scar, 40% riverine cortex, secondary stage of reduction, large volcanic rocks scatter across paddock.
6	Wellington Solar Farm IF6	flake	quartz	22	20	6	Flake scar platform and feather termination. On simple slope in ploughed paddock.
7	Wellington Solar Farm IF7	grindstone	sandstone	80	65	50	Small cobble with 5 ground surfaces. Located 1m off fence line on gentle slope.
8	Wellington Solar Farm IF8	core	volcanic	150	150	42	single platform core river pebble on simple slope.
9	Wellington Solar Farm IF9	core	quartz	27	30	40	single platform core 1 scar 1 platform. In exposure, adjacent gate near creek
10	Wellington Solar Farm IF10	flake	quartz	27	29	9	Flake scar platform and feather termination, tertiary stage of reduction. On simple slope near creek.
11	Wellington Solar Farm IF11	core	quartz	87	89	55	River pebble core with single scar (49 x 30) on flat adjacent to creek.

Artefact #	Site Name	Artefact Type	Raw Material	Dimensions (mm)			Comments
				Length	Width	Thickness	
12	Wellington Solar Farm IF12	flaked piece	volcanic	23	35	12	retouched, use wear around 50% margin, no cortex
13	Wellington Solar Farm IF13	core	volcanic	50	40	30	1 negative flake scar on core located on gentle slope
14	Wellington Solar Farm IF14	core	quartz	44	45	39	single platforms core on simple slope in ploughed paddock
15	Wellington Solar Farm IF15	core	silcrete	170	75	55	River pebble single platform core
16	Wellington Solar Farm AS1	axe	volcanic	69	71	17	
17	Wellington Solar Farm AS1	flaked piece	quartz	21	21	8	
18	Wellington Solar Farm AS2	core	volcanic	45	45	45	8 negative scar from 2 platforms associated with grind stone
19	Wellington Solar Farm AS2	grindstone fragment	sandstone	120	80	50	broken grindstone with 2 ground surfaces broken in ploughed field on very low gradient slope
20	Wellington Solar Farm AS3	broken flake	volcanic	26	10	6	Flake scar platform, feather termination, tertiary stage of reduction. cluster of artefacts in ploughed paddock on low simple slope
21	Wellington Solar Farm AS3	flake	volcanic	28	17	6	Flake scar platform, feather termination, tertiary stage of reduction. cluster of artefacts in ploughed paddock on low simple slope
22	Wellington Solar Farm AS3	flake	quartz	20	19	9	Flake scar platform, feather termination, tertiary stage of reduction. cluster of artefacts in ploughed paddock on low simple slope
23	Wellington Solar Farm AS3	flaked piece	quartz	<10mm	n/a	n/a	
24	Wellington Solar Farm AS3	flaked piece	quartz	<30mm	n/a	n/a	



Artefact #	Site Name	Artefact Type	Raw Material	Dimensions (mm)			Comments
				Length	Width	Thickness	
25	Wellington Solar Farm AS3	flake	volcanic	36	32	8	Flake scar platform, feather termination.
26	Wellington Solar Farm AS3	core	volcanic	32	48	18	multiplatform core 3 platforms 10 flake scars same material as other volcanic flakes
27	Wellington Solar Farm AS3	core	silcrete	23	50	28	flake core single platforms 7 flake scars adjacent to road
28	Wellington Solar Farm AS3	flake	volcanic	31	21	6	Flake scar platform, feather termination, tertiary stage of reduction
29	Wellington Solar Farm AS3	flaked piece	volcanic	<60mm	n/a	n/a	pebbles cortex 20%
30	Wellington Solar Farm AS3	flake	quartz	15	17	5	
31	Wellington Solar Farm AS4	core	volcanic	85	80	27	flake core 20% riverine on simple slope
32	Wellington Solar Farm AS4	flaked piece	quartz	<30mm	n/a	n/a	
33	Wellington Solar Farm AS5	flake	quartz	21	28	8	Flake scar platform, feather termination, tertiary stage of reduction
34	Wellington Solar Farm AS5	hammer stone	silcrete	140	80	50	3 grounded surfaces and possible pitting
35	Wellington Solar Farm AS6	hammer stone	quartzite	90	80	35	hammer stone pitted on 2 surfaces
36	Wellington Solar Farm AS6	flake	volcanic	90	56	32	cortex platform, feather termination, secondary stage of reduction. Overhang removal noted and retouched on right lateral margin 40mm 35% terrestrial cortex on simple slope approx 3m from hammer stone
37	Wellington Solar Farm AS7	flake	quartz	18	25	16	Flake scar platform, feather termination, tertiary stage of reduction. On flat between drainage and creek
38	Wellington Solar Farm AS7	flake	quartz	38	30	6	Flake scar platform, feather termination, tertiary stage of reduction

Artefact #	Site Name	Artefact Type	Raw Material	Dimensions (mm)			Comments
				Length	Width	Thickness	
39	Wellington Solar Farm AS7	flake	silcrete	32	32	8	Flake scar platform, feather termination, tertiary stage of reduction
40	Wellington Solar Farm AS7	flaked piece	quartz	<30mm	n/a	n/a	
41	Wellington Solar Farm AS8	core	fine-grained siliceous	65	50	60	multi-platform core with 10 neg flake scars riverine cortex remaining over 25%
42	Wellington Solar Farm AS8	flake	quartz	20	12	6	Flake scar platform, feather termination, tertiary stage of reduction
43	Wellington Solar Farm AS8	flake	volcanic	48	38	15	Flake scar platform, feather termination, tertiary stage of reduction, retouched for 28mm along distal edge
44	Wellington Solar Farm AS8	flake	volcanic	22	16	6	Flake scar platform, feather termination, tertiary stage of reduction. Broken possible blade
45	Wellington Solar Farm AS8	core	volcanic	35	22	18	weathered
46	Wellington Solar Farm AS9	flake	volcanic	50	57	28	cortex platform, feather termination, secondary stage of reduction
47	Wellington Solar Farm AS9	core	volcanic	75	79	41	single platform core- river pebble
48	Wellington Solar Farm AS9	flaked piece	quartz	14	9	6	
49	Wellington Solar Farm AS9	flake	quartz	22	20	8	Flake scar platform, feather termination, tertiary stage of reduction
50	Wellington Solar Farm AS9	flaked piece	quartz	20	13	9	
51	Wellington Solar Farm AS9	core	volcanic	66	64	48	single platform core 5 scars 40% terrestrial cortex heat damage note
52	Wellington Solar Farm AS9	flaked piece	volcanic	35	24	15	
53	Wellington Solar Farm AS9	flaked piece	volcanic	22	20	10	

Artefact #	Site Name	Artefact Type	Raw Material	Dimensions (mm)			Comments
				Length	Width	Thickness	
54	Wellington Solar Farm AS9	flake	quartz	26	30	12	Flake scar platform, feather termination, tertiary stage of reduction
55	Wellington Solar Farm AS9	flaked piece	quartz	<20mm	n/a	n/a	
56	Wellington Solar Farm AS9	flaked piece	quartz	<20mm	n/a	n/a	
57	Wellington Solar Farm AS9	flake	quartz	12	13	6	Flake scar platform, feather termination, tertiary stage of reduction. on drive way track between ploughed paddocks artefacts on track sloping down towards creek
58	Wellington Solar Farm AS10	flake	silcrete	32	32	11	Flake scar platform, feather termination, tertiary stage of reduction. Overhang removal noted with 28mm retouch on distal margin
59	Wellington Solar Farm AS10	flake	silcrete	32	38	15	Flake scar platform, feather termination, tertiary stage of reduction
60	Wellington Solar Farm AS10	flake	volcanic	40	36	12	Flake scar platform, feather termination, secondary stage of reduction. weathered recent plough/vehicle damage noted
61	Wellington Solar Farm AS10	retouched flake	volcanic	52	39	11	retouched around 3/4 margin initiated from dorsal surface. dark grey materials with pale\white weathered surface on slope next to track
n/a	Wellington Solar Farm ST 1	Scarred tree	Unknown species	810	280	100	Dead in situ tree, unknown species, 1.6m trunk circumference stock damage, fencing wire and upper limbs removed with chain saw, significant weathering. scar on opposite side deemed not cultural, single oval cultural scar facing south east. Tree height 5-10 m, scar height above ground 87cm
n/a	Wellington Solar Farm HTH 1 (possible site)	Hearth	Burnt clay	250	150	n/a	Small cluster of burnt clay nodules with single concentration with smaller scatter of nodules distributed over 3 x 2m area adjacent to creek.

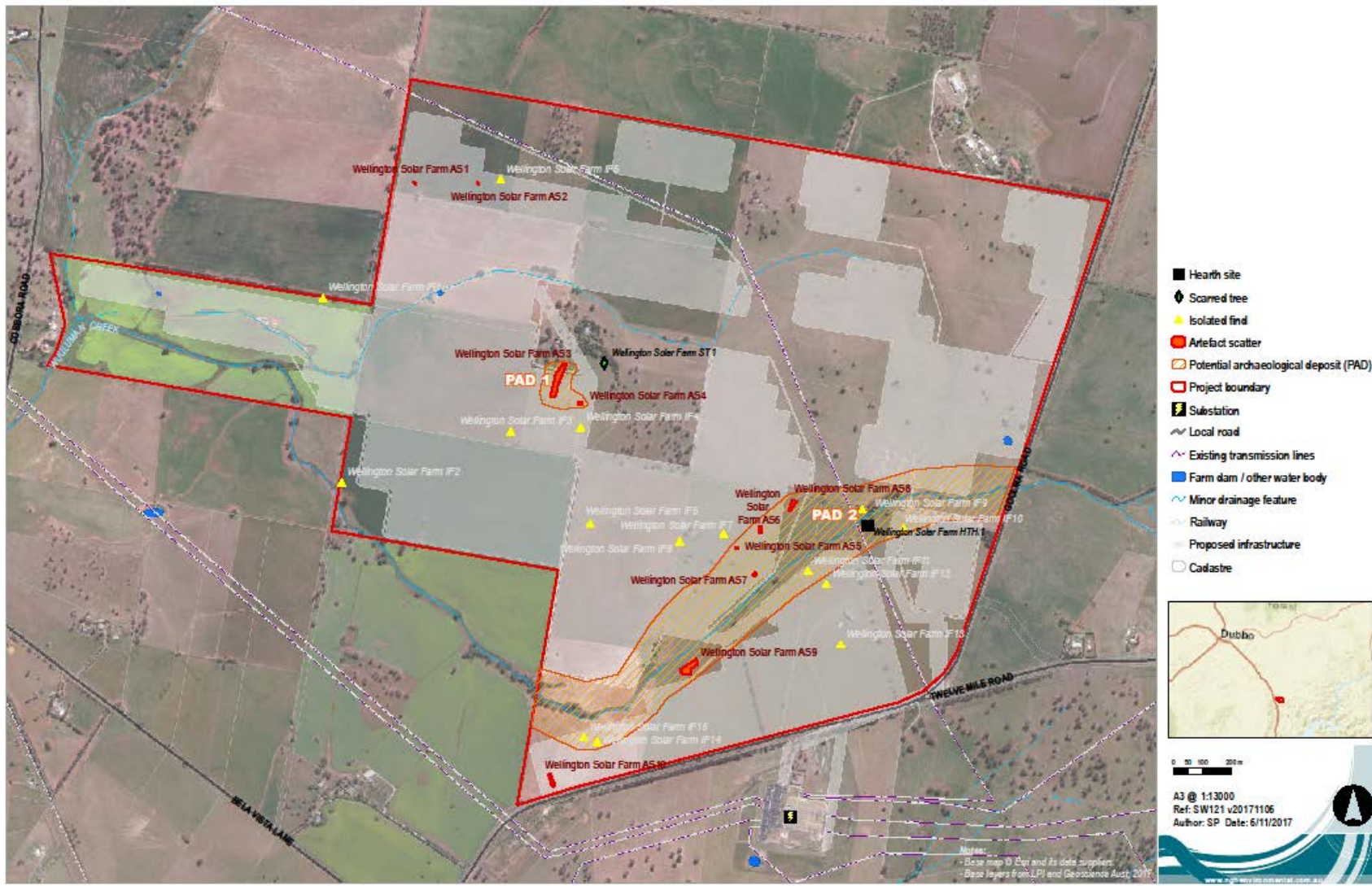


Figure 8. Overview of recorded sites.



Figure 9. Close up of recorded sites (1 of 2).

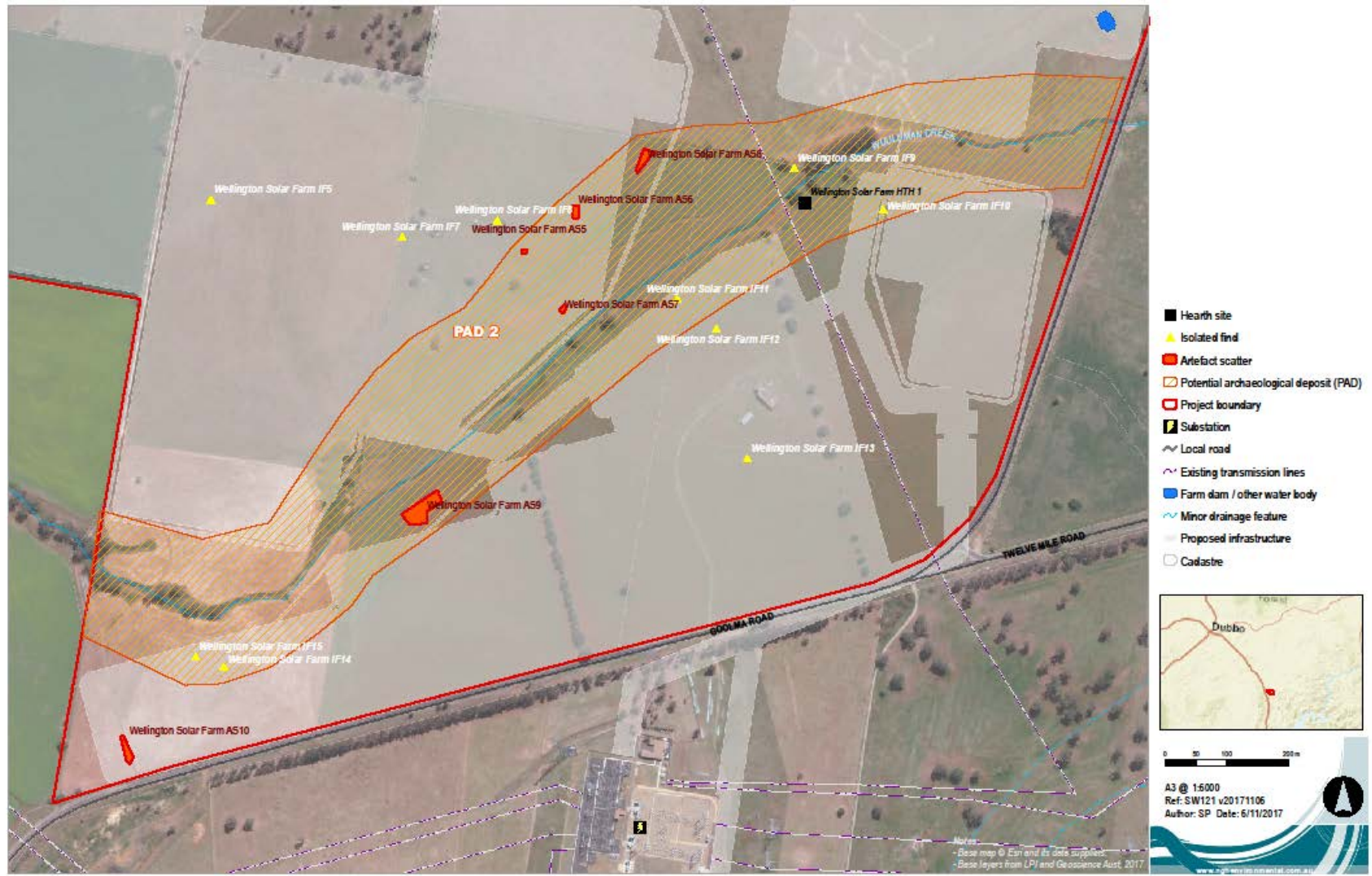


Figure 10. Close up of recorded sites (2 of 2).

## 4.4 DISCUSSION

The results of previous archaeological surveys in the Wellington region show that there are sites and artefacts present across the landscape. 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 while Aboriginal sites may be expected throughout all landscapes the most archaeologically sensitive areas occur in proximity to water. The survey results have confirmed this prediction with stone artefacts recorded as isolated finds and artefact scatters across the proposal area. The sites were all identified on low slopes and flats within proximity of a creek line or water source, even in areas highly disturbed by farming activities.

Given the level of clearing within the proposal area the presence of only a single scarred tree is not surprising with few mature native trees remaining within the assessment area. The presence of a burnt clay feature was unexpected given that the three hearths recorded to date within the AHIMS search area are all located adjacent to or within 600 m of the Macquarie River which would have been a major focus of long term repeated Aboriginal occupation in the area. It is likely that the burnt clay identified within the proposal area is actually the result of a more recent burning event.

The sites recorded are all located within 500 m of a watercourse with the highest density of stone artefacts (n= 42; 68.9%) located within 300 m from a watercourse within the proposal area. It was also noted that over 40% of the artefacts recorded (n=26; 42.6%) and the possible hearth were located within 100 m of Wuuluman Creek and its associated drainage lines. Additionally, the majority of the artefact scatters (n=8; 80%) are located within 300 m of a water source on slightly elevated slopes or flats. 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 the drainage channels and water courses, like Wuuluman Creek, that are associated with the Macquarie River and its tributaries. 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 across the proposal area. Based on this assumption, there is every chance that there are similar stone artefacts across similar landscapes in the Wellington area.

The artefacts recorded were manufactured primarily from quartz and volcanic material that is common for the area. A lesser number of silcrete, sandstone, fine-grained siliceous and quartzite artefacts were recorded, suggesting these materials may have been brought into the area. The presence of cores, hammer stones and flakes indicates that tool manufacture likely occurred onsite, although the presence of an edge ground axe may imply some completed tools were also brought to the site. The high number of cores (n=15; 24.6%) may be representative of the high discard rate of raw material in the area. A number of the cores were noted to be river pebbles and/or to have riverine cortex. This suggests the opportune selection of materials that were possibly sourced from the Macquarie River given that no pebble beds were identified in Wuuluman Creek within the proposal area.

It was noted by the Aboriginal representatives that the onsite outcropping material was of poor quality and that it would not have been suitable for artefact manufacture. No evidence of quarrying from the outcrops was identified. In addition to artefact manufacture occurring onsite food processing (seed grinding) activities may have also taken place as indicated by the presence of grindstone fragments.

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 two grinding grooves have been recorded to date within the AHIMS search area. The recorded grinding groove sites are respectively recorded 13 km south-west and 15.5 km south-

east of the proposal area. This suggests that edge-grounded axes in the Wellington area may have been shaped and sharpened within the general area and used locally.

It should also be noted that the results of this investigation have increased the number of sites recorded in the local area by 21.6% from 98 to 125. The dominance of artefacts and scarred trees as a common site type within the area is further supported by the results of this survey. The implications for this relate to significance assessments and the related appraisal of site representativeness. We would argue that there are likely to be many hundreds of such sites in the local area, and that the low number of sites recorded in AHIMS is merely an indication that few surveys have been undertaken in the area and therefore they are yet to be found.

In terms of the current proposal therefore, extrapolating from the results of this survey, it is possible that additional artefacts could occur within the proposed development footprint. These would most likely occur within the paddocks where visibility was reduced by pasture grasses. The potential for large undetected sites to occur within the eastern paddocks with recently ploughed, burned and cleared crop stubble is considered low. However, there 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, visibility, an appraisal of the results from the field survey and the archaeological background of the area it was concluded that two areas, PAD 1 and PAD 2, have potential for subsurface finds. Both of these PAD areas have a higher density of surface artefacts compared to the rest of the proposal area along with deeper soil deposits. It was deemed that there was negligible potential for the presence of intact subsurface deposits with high densities of cultural material within the proposal area outside the two areas identified as PADs.

## 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 and 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 Bradley Bliss who represented Wellington Valley Wiradjuri Aboriginal Corporation during the field survey indicated that all sites hold equal cultural value to the local Aboriginal community.

Jamie Gray noted that while all sites hold cultural value to the local Aboriginal community the broken edge-ground axe identified in Wellington Solar Farm AS1 and the grindstone fragment from Wellington Solar Farm AS2 have a higher significance to the local Aboriginal community given the rarity of the objects and their relative proximity to each other.

It was also clear that the scarred tree was important and a particular site type that should be avoided by development. It was also clear from the conversations held in the field that the community view the stone artefacts as important and would like to see them collected before any damage or development occurs. It was noted during the conversations that there was importance placed on collecting the artefacts and placing them in a safe location to avoid future disturbance.

Jamie Gray noted that when the stone artefacts are salvaged prior to development these should not be reburied in plastic containers (as required under the Code of Practice) due to cultural reasons and should instead be reburied as per their natural and current state.

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 to moderate. 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. However, there is potential that the undisturbed subsurface deposits of the two PAD areas identified may contain subsurface artefacts and unequivocal cultural charcoal that would provide a means for dating the Aboriginal occupation of the sites.

While the artefacts identified 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 axe is considered of higher value due its relative rarity compared to common 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 from tree hollows. The presence of an axe would indicate that woodworking activities occurred in the area.

The scarred tree most likely represents the opportunistic use of the landscape but any further observations are restricted due to the clearing of the area. The isolated nature of the tree and the fact that the surrounding landscape has been cleared means that as a representative example of this site type, it has high value. While scarred trees are a common site type in the district they are relatively rare within a 5km buffer of the proposal area. Given that the scar tree is dead and in poor condition the viability of its medium term survival, therefore its integrity is low. The fact that survival of scarred trees is subject to natural factors such as death and decay and bushfires, as well as man-made threats such as land clearing, their long term survival prospects are diminished. This leads to the conclusion that the remaining scarred trees in the landscape have high value as examples of an ever reducing Aboriginal cultural feature. The tree therefore is assessed overall as having high conservation value.

The research potential of the possible hearth site (Wellington Solar Farm HTH 1) located during this assessment is generally considered to be low given the possibility that it may in fact be representative of a recent burning event rather than cultural. However, should the clusters of burnt clay be cultural it can be used to assist in the development of site modelling for the region. Additionally, the un-eroded and/or disturbed deposits around the hearth feature may have potential for occurrences of *in situ* artefacts and other cultural material. There is also potential that the undisturbed subsurface deposits of the hearth feature may contain unequivocal cultural charcoal that would provide a means for dating of the sites, or be dated through optical stimulated luminescence (OSL) techniques. Excavation of the feature would be the only way to determine its likely origin.

The two PADs identified within the proposal area have the highest potential for additional Aboriginal information to be obtained from the current assessment. These locations are likely to yield the best information about Aboriginal land use and to potentially contain unequivocal cultural charcoal that could potentially be dated.

The only other potential area of research would be to analyse the edge-ground axe (Wellington Solar Farm AS1) and the grindstone fragments (Wellington Solar Farm AS2 and Wellington Solar Farm IF7) 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.

### **Aesthetic value.**

There are no aesthetic values associated with the archaeological sites *per se*, apart from the presence of Aboriginal artefacts and a modified tree 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 associated with the proposal 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 clearing, ploughing, grazing. It has also been impacted through the construction of an abattoir, powerlines, dams and house structures.

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. The implication for the burnt clay nodules is that they may have been damaged or moved but are likely to remain in the general area of the initial concentration.

Despite these impacts, Aboriginal artefacts, a scarred tree and a possible hearth 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 connection to the nearby substation via an overhead transmission. The development will result in the disturbance of approximately 316 ha of the 493 ha property.

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

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

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.

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 substation.

During the construction period some additional temporary facilities may be constructed and a laydown area used

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 30 year 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 transmission line to the existing 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 2019.

### **6.3 ASSESSMENT OF HARM**

As described in this report, 27 archaeological sites were located within the proposal 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 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 across the majority of the proposal area. Two PADs have been identified within the proposal area that require further archaeological research to be undertaken in the form of excavations in order to establish the presence or absence sub surface deposits. It was assessed that subsurface testing was only warranted within the PAD areas.

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 proposal 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 proposal is therefore assessed as low.

### **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 scientific values for this development are summarised in Section 5 and Table 7 below with most sites rated as having low loss of scientific value. The impact to the edge-ground axe (Wellington Solar Farm AS1) and the grindstone fragments (Wellington Solar Farm AS2 and Wellington Solar Farm IF7) are considered to have moderate loss of scientific value. However, the intrinsic values of the artefacts themselves may be affected by the development of the proposal area. Any removal of the artefacts, or their breakage would reduce the low to moderate scientific value they retain.

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

Table 7 Identified risk to known sites

Site name	Site integrity	Scientific significance	Type of harm	Degree of harm	Consequence of harm	Recommendation
<b>Wellington Solar Farm IF 1</b>	Poor – 100+ year history of agricultural and pastoral use	Low	Nil- outside of development area or access tracks	Nil- outside of development area or access tracks	Nil- outside of development area or access tracks	N/A- outside of development area. Ensure minimum 5m buffer to avoid inadvertent disturbance to site.
<b>Wellington Solar Farm IF 2</b>	Poor – 100+ year history of agricultural and pastoral use	Low	Nil- outside of development area or access tracks	Nil- outside of development area or access tracks	Nil- outside of development area or access tracks	N/A- outside of development area. Ensure minimum 5m buffer to avoid inadvertent disturbance to site.
<b>Wellington Solar Farm IF 3</b>	Poor – 100+ year history of agricultural and pastoral use	Low	Direct	Total	Total loss of value	Salvage object prior to development of proposal area.
<b>Wellington Solar Farm IF 4</b>	Poor – 100+ year history of agricultural and pastoral use	Low	Direct	Total	Total loss of value	Salvage object prior to development of proposal area.
<b>Wellington Solar Farm IF 5</b>	Poor – 100+ year history of agricultural and pastoral use	Low	Direct	Total	Total loss of value	Salvage objects prior to development of proposal area.
<b>Wellington Solar Farm IF 6</b>	Poor – 100+ year history of agricultural and pastoral use	Low	Direct	Total	Total loss of value	Salvage object prior to development of proposal area.
<b>Wellington Solar Farm IF 7</b>	Poor – 100+ year history of agricultural and pastoral use	Low to moderate	Direct	Total	Total loss of value	Salvage object prior to development of proposal area.
<b>Wellington Solar Farm IF 8</b>	Poor – 100+ year history of agricultural and pastoral use	Low	Direct	Total	Total loss of value	Salvage object prior to development of proposal area.

Site name	Site integrity	Scientific significance	Type of harm	Degree of harm	Consequence of harm	Recommendation
<b>Wellington Solar Farm IF 9</b>	Poor – 100+ year history of agricultural and pastoral use	Low	Nil- outside of development area or access tracks	Nil- outside of development area or access tracks	Nil- outside of development area or access tracks	N/A- outside of development area. Ensure minimum 5m buffer to avoid inadvertent disturbance to site.
<b>Wellington Solar Farm IF 10</b>	Poor – 100+ year history of agricultural and pastoral use	Low	Direct	Total	Total loss of value	Salvage object prior to development of proposal area.
<b>Wellington Solar Farm IF 11</b>	Poor – 100+ year history of agricultural and pastoral use	Low	Direct	Total	Total loss of value	Salvage object prior to development of proposal area.
<b>Wellington Solar Farm IF 12</b>	Poor – 100+ year history of agricultural and pastoral use	Low	Direct	Total	Total loss of value	Salvage object prior to development of proposal area.
<b>Wellington Solar Farm IF 13</b>	Poor – 100+ year history of agricultural and pastoral use	Low	Direct	Total	Total loss of value	Salvage object prior to development of proposal area.
<b>Wellington Solar Farm IF 14</b>	Poor – 100+ year history of agricultural and pastoral use	Low	Direct	Total	Total loss of value	Salvage object prior to development of proposal area.
<b>Wellington Solar Farm IF 15</b>	Poor – 100+ year history of agricultural and pastoral use	Low	Direct	Total	Total loss of value	Salvage object prior to development of proposal area.
<b>Wellington Solar Farm AS 1</b>	Poor – 100+ year history of agricultural and pastoral use	Low to moderate	Direct	Complete	Total loss of value	Salvage object prior to development of proposal area.
<b>Wellington Solar Farm AS 2</b>	Poor – 100+ year history of agricultural and pastoral use	Low to moderate	Direct	Total	Total loss of value	Salvage object prior to development of proposal area.

Site name	Site integrity	Scientific significance	Type of harm	Degree of harm	Consequence of harm	Recommendation
<b>Wellington Solar Farm AS 3</b>	Poor – 100+ year history of agricultural and pastoral use	Low to moderate	Direct	Partial	Minimal loss of value	Salvage object prior to development of proposal area.
<b>Wellington Solar Farm AS 4</b>	Poor – 100+ year history of agricultural and pastoral use	Low	Direct	Total	Total loss of value	Salvage object prior to development of proposal area.
<b>Wellington Solar Farm AS 5</b>	Poor – 100+ year history of agricultural and pastoral use	Low	Direct	Total	Total loss of value	Salvage object prior to development of proposal area.
<b>Wellington Solar Farm AS 6</b>	Poor – 100+ year history of agricultural and pastoral use	Low	Direct	Total	Total loss of value	Salvage object prior to development of proposal area.
<b>Wellington Solar Farm AS 7</b>	Poor – 100+ year history of agricultural and pastoral use	Low	Direct	Total	Total loss of value	Salvage object prior to development of proposal area.
<b>Wellington Solar Farm AS 8</b>	Poor – 100+ year history of agricultural and pastoral use	Low	Direct	Total	Total loss of value	Salvage object prior to development of proposal area.
<b>Wellington Solar Farm AS 9</b>	Poor – 100+ year history of agricultural and pastoral use	Low to moderate	Nil- outside of development area or access tracks	Nil- outside of development area or access tracks	Nil- outside of development area or access tracks	N/A- outside of development area. Ensure minimum 5m buffer to avoid inadvertent disturbance to site.
<b>Wellington Solar Farm AS 10</b>	Poor – 100+ year history of agricultural and pastoral use	Low	Direct	Total	Total loss of value	Salvage object prior to development of proposal area.
<b>Wellington Solar Farm Scar Tree (ST) 1</b>	Poor- <i>in situ</i> dead tree	Low	Nil- outside of development area or access tracks	Nil- outside of development area or access tracks	Nil- outside of development area or access tracks	N/A- outside of development area. Avoid with a minimum 10m buffer placed around site.

Site name	Site integrity	Scientific significance	Type of harm	Degree of harm	Consequence of harm	Recommendation
<b>Wellington Solar Farm Hearth (HTH) 1</b>	Moderate – some disturbance from 100+ year history of agricultural and pastoral use	Low	Nil- outside of development area or access tracks	Nil- outside of development area or access tracks	Nil- outside of development area or access tracks	N/A- outside of development area. Ensure minimum 5m buffer to avoid inadvertent disturbance to site.
<b>PAD 1</b>	0-20cm below ground surface - Poor/Moderate Below 20cm from surface- High	Yet to be determined - high potential for additional artefact.	Direct	Partial	Unknown loss of value	Further archaeological research should be undertaken in the form of excavations in order to establish the presence or absence sub surface deposits
<b>PAD 2</b>	-20cm below ground surface - Poor/Moderate Below 20cm from surface- High	Yet to be determined - high potential for additional artefact.	Direct	Partial	Unknown loss of value	Further archaeological research should be undertaken in the form of excavations in order to establish the presence or absence sub surface deposits



## 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 Wellington 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 Wellington region. Currently there is no clear regional synthesis of the nature, number, extent and content for archaeological sites within the Dubbo 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 results of this Aboriginal heritage assessment suggest that more sites could be expected to occur in the area than was previously envisaged.

The implications for ESD principles is that in fact more sites are likely to be present in the region than previously thought, which reduces the individual value of the particular sites within the proposed proposal area, as they are likely to be represented elsewhere. It must be recognised that large parts of the region have been heavily cleared, farmed and developed through the construction and maintenance of roads and residential structures and therefore other sites are also likely to have been disturbed. The conclusion that more such sites exist reduces the representative values of the sites within the proposal area. It should also be noted that not all sites recorded during this survey fall within the proposed development footprint and that the sites outside the development footprint will not be impacted by the proposed solar farm development.

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 estimate, that while the current development proposal will impact the majority of the identified sites, the overall cumulative impact on the archaeological record for the region is likely to be minimal, assuming a similar density of sites remain across the wider region. Therefore, 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 all the 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 sites, 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 with stone artefacts 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 Wellington Solar Farm IF 3, Wellington Solar Farm IF 4, Wellington Solar Farm IF 5, Wellington Solar Farm IF 6, Wellington Solar Farm IF 7, Wellington Solar Farm IF 8, Wellington Solar Farm IF 10, Wellington Solar Farm IF 11, Wellington Solar Farm IF 12, Wellington Solar Farm IF 13, Wellington Solar Farm IF 14, Wellington Solar Farm IF 15, Wellington Solar Farm AS 1, Wellington Solar Farm AS 2, Wellington Solar Farm AS 3, Wellington Solar Farm AS 4, Wellington Solar Farm AS 5, Wellington Solar Farm AS 6, Wellington Solar Farm AS 7, Wellington Solar Farm AS 8 and Wellington Solar Farm AS 10 are situated within the development footprint area of the proposed solar arrays, tracks, cables, office parking and temporary facilities. 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, track and underground cabling.

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, most likely in the form of isolated artefacts or very small, low density scatters. 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. However, all these sites are conducive to salvage as a mitigation strategy as requested by the Aboriginal community representatives onsite during the field survey.

As identified above, it is recommended that the sites recorded within the proposed Wellington Solar Farm development area 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. It is also recommended that if the two PAD areas cannot be entirely avoided by the proposed Wellington Solar Farm development area that further archaeological research be undertaken in the form of excavations in order to establish the presence or absence of sub surface deposits and their significance at these two locations prior to any development. This may be able to be achieved as part of the salvage of the other sites.

The Aboriginal community representatives onsite during the field survey noted their preference for the surface artefacts to be relocated and buried at another location prior to development commencing. Jamie Grey requested that the artefacts are not buried in plastic due to cultural reasons.

## 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 proposals. 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 Wellington 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. The development must avoid the site Wellington Scarred Tree 1, as per the current development design plans detailed in this report. A minimum 10m buffer around the tree should be in place to protect the tree given its current condition.
2. If complete avoidance of the ten artefacts scatters and 15 isolated find sites recorded within the proposal area is not possible, the artefacts within the development footprint 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.
3. 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. The Aboriginal community requests that a Cultural Smoking Ceremony take place to cleanse any artefacts salvaged and the reburial location.
4. A minimum 5m buffer should be observed around all sites including those outside the development footprint. To improve the effectiveness of the 5m buffer for sites not salvaged prior to construction it is recommended that they be fenced.
5. If the complete avoidance of PAD1 and PAD2 is not possible, further archaeological investigation in the form of test excavations in order to establish the nature and significance of any sub surface deposits should be undertaken. Alternatively, if PAD 1 and PAD 2 impacts are significantly reduced, monitoring certain areas for archaeological material during construction, could be undertaken. Excavations would be conducted prior to any development and would be undertaken in consultation with the Registered Aboriginal Parties in compliance with the OEH Code of Practice. A technical report on the results of the testing would be provided and management strategies recommended depending on the outcome. The testing would be conducted by a qualified archaeologist and members of the registered Aboriginal parties. Any monitoring or testing would be undertaken in consideration of OEH advice and outlined through a Cultural Heritage Management Plan.
6. First Solar should prepare a Cultural Heritage Management Plan (CHMP) to address the potential for finding additional Aboriginal artefacts during the construction of the Solar Farm and management of known sites and artefacts. The Plan should include the unexpected finds procedure to deal with construction activity. Preparation of the CHMP should be undertaken in consultation with the registered Aboriginal parties.
7. 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.
8. Further archaeological assessment would be required if the proposal activity extends beyond the area of the current investigation as detailed in this report. This would include consultation with the registered Aboriginal parties and may include further field survey.

## 10 REFERENCES

- AMBS, 2008. *Wellington Gas Pipeline, Power Station & Compressor Station Heritage Assessment*. Unpublished report to Parsons Brinckerhoff.
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# APPENDIX A ABORIGINAL COMMUNITY CONSULTATION

Removed.



## **APPENDIX B AHIMS SEARCH**



SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status	SiteFeatures	SiteTypes	Reports		
36-4-0080	MH-ST-01	AGD	55	682746	6388532	Open site	Valid	Modified Tree (Carved or Scarred) : -	Scarred Tree	102779,10280 0		
<u>Contact</u>		<u>Recorders</u>		Unknown Author							<u>Permits</u>	
36-4-0081	R-ST-01	AGD	55	682210	6399610	Open site	Valid	Modified Tree (Carved or Scarred) : 1	Scarred Tree	102211,10277 9		
<u>Contact</u>		<u>Recorders</u>		Lloyd Nolan							<u>Permits</u>	
36-4-0082	MH-ST-03	AGD	55	682830	6387380	Open site	Valid	Modified Tree (Carved or Scarred) : -	Scarred Tree	102779		
<u>Contact</u>		<u>Recorders</u>		Unknown Author							<u>Permits</u>	
36-4-0083	MH-ST-04	AGD	55	682750	6387290	Open site	Valid	Modified Tree (Carved or Scarred) : -	Scarred Tree	102779		
<u>Contact</u>		<u>Recorders</u>		Unknown Author							<u>Permits</u>	
36-4-0084	MH-GT-02	AGD	55	682790	6388460	Open site	Valid	Modified Tree (Carved or Scarred) : -	Scarred Tree	102779		
<u>Contact</u>		<u>Recorders</u>		Unknown Author							<u>Permits</u>	
36-4-0078	Nanima 1	AGD	55	685600	6393000	Open site	Valid	Artefact : -	Open Camp Site	102779		
<u>Contact</u>		<u>Recorders</u>		Ms,Jillian Comber,Carole Gartside							<u>Permits</u>	
36-4-0079	Wellington	AGD	55	682000	6397000	Open site	Valid	Burial : -	Burial/s	2641,102779		
<u>Contact</u>		<u>Recorders</u>		Ms.Adrienne Howe-Piening							<u>Permits</u>	
36-1-0256	Ponto Hill	AGD	55	670000	6406500	Open site	Valid	Artefact : -	Open Camp Site	1333		
<u>Contact</u>		<u>Recorders</u>		Warren Bluff							<u>Permits</u>	
36-4-0025	Wellington;WF 1;Baalbek;	AGD	55	679980	6399950	Open site	Valid	Artefact : -	Open Camp Site	975,102779		
<u>Contact</u>		<u>Recorders</u>		Mr.Allan Lance							<u>Permits</u>	
36-4-0028	Macquarie Park;WF4;Macquarie Park;	AGD	55	675690	6398510	Open site	Valid	Artefact : -	Open Camp Site	975,102211		
<u>Contact</u>		<u>Recorders</u>		Mr.Allan Lance							<u>Permits</u>	
36-1-0038	Maryvale Creek	AGD	55	678375	6402718	Open site	Valid	Stone Arrangement : -, Stone Quarry : -, Artefact : -	Quarry	102211		
<u>Contact</u>		<u>Recorders</u>		Michael Pearson							<u>Permits</u>	
36-1-0041	Maryvale Creek 2	AGD	55	679288	6402684	Open site	Valid	Modified Tree (Carved or Scarred) : -	Scarred Tree	102211		
<u>Contact</u>		<u>Recorders</u>		Michael Pearson							<u>Permits</u>	

Report generated by AHIMS Web Service on 10/04/2017 for Kirsten Bradley for the following area at Lat, Long From : -32.6541, 148.7358 - Lat, Long To : -32.3678, 149.1898 with a Buffer of 50 meters. Additional info : background info. Number of Aboriginal sites and Aboriginal objects found is 98

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SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status	SiteFeatures	SiteTypes	Reports
36-1-0042	Maryvale Creek 1	AGD	55	679288	6402684	Open site	Valid	Modified Tree (Carved or Scarred) : 1	Scarred Tree	102211
	<a href="#">Contact</a>	<a href="#">Recorders</a>	Michael Pearson							
36-1-0043	Geurie;Bald Hill;	AGD	55	670972	6412599	Open site	Valid	Artefact : -	Open Camp Site	
	<a href="#">Contact</a>	<a href="#">Recorders</a>	Fettell							
36-1-0045	Geurie;Bald Hill;	AGD	55	675538	6412428	Open site	Valid	Artefact : -	Open Camp Site	
	<a href="#">Contact</a>	<a href="#">Recorders</a>	Fettell							
36-5-0009	Macquarie River;Gigmalarie Creek;	AGD	55	694457	6387889	Open site	Valid	Artefact : -	Open Camp Site	
	<a href="#">Contact</a>	<a href="#">Recorders</a>	G.W. Althofer,Michael Pearson							
36-5-0011	Ilgingerry Creek;	AGD	55	702555	6389003	Open site	Valid	Artefact : -	Open Camp Site	
	<a href="#">Contact</a>	<a href="#">Recorders</a>	Mr.Warwick Pearson							
36-5-0012	Driptstone;Red Hill;	AGD	55	691456	6385762	Open site	Valid	Grinding Groove : -	Axe Grinding Groove	
	<a href="#">Contact</a>	<a href="#">Recorders</a>	Mr.Warwick Pearson							
36-1-0047	Geurie;	AGD	55	667782	6412901	Open site	Valid	Artefact : -	Open Camp Site	
	<a href="#">Contact</a>	<a href="#">Recorders</a>	Fettell							
36-1-0159	B 1;Bodangora Aerodrome;	AGD	55	686900	6406550	Open site	Valid	Modified Tree (Carved or Scarred) : -	Scarred Tree	
	<a href="#">Contact</a>	<a href="#">Recorders</a>	Ms.Jillian Comber,D Ingray							
36-1-0160	B 2;Bodangora Aerodrome;	AGD	55	687000	6406500	Open site	Valid	Modified Tree (Carved or Scarred) : -	Scarred Tree	
	<a href="#">Contact</a>	<a href="#">Recorders</a>	Ms.Jillian Comber,D Ingray							
36-1-0161	B 3;Bodangora Aerodrome;	AGD	55	686650	6406800	Open site	Valid	Modified Tree (Carved or Scarred) : -	Scarred Tree	
	<a href="#">Contact</a>	<a href="#">Recorders</a>	Ms.Jillian Comber,D Ingray							
36-1-0162	B 4;Bodangora Aerodrome;	AGD	55	686700	6406400	Open site	Valid	Modified Tree (Carved or Scarred) : -	Scarred Tree	
	<a href="#">Contact</a>	<a href="#">Recorders</a>	Ms.Jillian Comber,D Ingray							
36-4-0049	Baalbek/WF 2;Wellington;	AGD	55	678340	6400400	Open site	Valid	Artefact : -	Open Camp Site	975,102211
	<a href="#">Contact</a>	<a href="#">Recorders</a>	Mr.Allan Lance							
36-4-0050	Macquarie Park/WF3;Wellington;Macquarie Park;	AGD	55	676900	6400280	Open site	Valid	Artefact : -	Open Camp Site	975,102211
	<a href="#">Contact</a>	<a href="#">Recorders</a>	Mr.Allan Lance							

Report generated by AHIMS Web Service on 10/04/2017 for Kirsten Bradley for the following area at Lat. Long From : -32.6541, 148.7358 - Lat. Long To : -32.3678, 149.1898 with a Buffer of 50 meters. Additional Info : background info. Number of Aboriginal sites and Aboriginal objects found is 98

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SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status	SiteFeatures	SiteTypes	Reports
36-3-0142	Spring Ck;	AGD	55	673840	6404800	Closed site	Valid	Shell : -, Artefact : -	Shelter with Midden	1333
	<a href="#">Contact</a>	<a href="#">Recorders</a>	Warren Bluff					<a href="#">Permits</a>		
36-5-0018	Eaglehawk;Eaglehawk 1;	AGD	55	689522	6392272	Open site	Valid	Artefact : -	Open Camp Site	83,232,102779,102800
	<a href="#">Contact</a>	<a href="#">Recorders</a>	L Cubis					<a href="#">Permits</a>		
36-5-0020	Eaglehawk;Eaglehawk 2;	AGD	55	689625	6392141	Open site	Valid	Artefact : -	Open Camp Site	232,102779,102800
	<a href="#">Contact</a>	<a href="#">Recorders</a>	L Cubis					<a href="#">Permits</a>		
36-1-0214	Geurie Tip;	AGD	55	673300	6414900	Open site	Valid	Modified Tree (Carved or Scarred) : -	Scarred Tree	1333
	<a href="#">Contact</a>	<a href="#">Recorders</a>	Warren Bluff					<a href="#">Permits</a>		
36-5-0031	Burill Creek;Gigmalarie Creek 2;	AGD	55	690510	6391088	Open site	Valid	Shell : -, Artefact : -	Midden	102779
	<a href="#">Contact</a>	<a href="#">Recorders</a>	L Cubis					<a href="#">Permits</a>		
36-2-0034	Mitchell Creek;	AGD	55	689600	6407290	Open site	Valid	Modified Tree (Carved or Scarred) : -	Scarred Tree	1333
	<a href="#">Contact</a>	<a href="#">Recorders</a>	Warren Bluff					<a href="#">Permits</a>		
36-2-0035	Mitchell Creek;	AGD	55	689540	6407380	Open site	Valid	Modified Tree (Carved or Scarred) : -	Scarred Tree	1333
	<a href="#">Contact</a>	<a href="#">Recorders</a>	Warren Bluff					<a href="#">Permits</a>		
36-4-0071	Nanima Huts	AGD	55	685950	6392600	Open site	Valid	Habitation Structure : -		102779
	<a href="#">Contact</a>	<a href="#">Recorders</a>	Ms.Jillian Comber,Carole Gartside					<a href="#">Permits</a>		
36-1-0218	Porto Hill;	AGD	55	669300	6406660	Open site	Valid	Modified Tree (Carved or Scarred) : -	Scarred Tree	1333
	<a href="#">Contact</a>	<a href="#">Recorders</a>	Warren Bluff					<a href="#">Permits</a>		
36-5-0040	CM 1;	AGD	55	692189	6391834	Open site	Valid	Hearth : -, Artefact : -	Open Camp Site	1543
	<a href="#">Contact</a>	<a href="#">Recorders</a>	Mary Dallas Consulting Archaeologists, Miss.Lisa Smith					<a href="#">Permits</a>		
36-5-0041	CM 2;	AGD	55	692350	6392650	Open site	Valid	Artefact : -	Open Camp Site	1543
	<a href="#">Contact</a>	<a href="#">Recorders</a>	Mary Dallas Consulting Archaeologists, Miss.Lisa Smith					<a href="#">Permits</a>		
36-5-0045	Geurie	AGD	55	671471	6414376	Open site	Valid	Modified Tree (Carved or Scarred) : -	Scarred Tree	2650
	<a href="#">Contact</a>	<a href="#">Recorders</a>	S Davies,Davies Heritage Consultants Pty Ltd					<a href="#">Permits</a>	3208,3209	

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SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status	SiteFeatures	SiteTypes	Reports
36-4-0009	Wellington Caves;Bell River;	AGD	55	681513	6388881	Open site	Valid	Modified Tree (Carved or Scarred) : -	Carved Tree	65,102779
	<a href="#">Contact</a>	<a href="#">Recorders</a>	David Bell					<a href="#">Permits</a>		
36-4-0012	Apsley.	AGD	55	685235	6390570	Open site	Valid	Artefact : -	Open Camp Site	102779
	<a href="#">Contact</a>	<a href="#">Recorders</a>	Michael Pearson					<a href="#">Permits</a>		
36-4-0014	Baalveck;Micketymulga Hill;	AGD	55	679219	6400857	Open site	Valid	Ceremonial Ring (Stone or Earth) : -, Artefact : -	Bora/Ceremonial,O pen Camp Site	102211
	<a href="#">Contact</a>	<a href="#">Recorders</a>	Michael Pearson					<a href="#">Permits</a>		
36-4-0003	Suntop;	AGD	55	669019	6397125	Open site	Valid	Grinding Groove : -	Axe Grinding Groove	
	<a href="#">Contact</a>	<a href="#">Recorders</a>	Bert Button					<a href="#">Permits</a>		
36-4-0006	Macquarie River 2	AGD	55	682701	6396153	Open site	Valid	Ceremonial Ring (Stone or Earth) : -, Modified Tree (Carved or Scarred) : 28	Bora/Ceremonial,C arved Tree	65,102779
	<a href="#">Contact</a>	<a href="#">Recorders</a>	David Bell,R Etheridge					<a href="#">Permits</a>		
36-4-0007	New Oakleigh	AGD	55	669110	6389805	Open site	Valid	Burial : -, Modified Tree (Carved or Scarred) : -	Burial/s,Carved Tree	65
	<a href="#">Contact</a>	<a href="#">Recorders</a>	David Bell,D.H Simmons					<a href="#">Permits</a>		
36-4-0072	Namima Church;	AGD	55	685930	6392500	Open site	Valid	Aboriginal Ceremony and Dreaming : -, Modified Tree (Carved or Scarred) : -		102779
	<a href="#">Contact</a>	<a href="#">Recorders</a>	Ms,Jillian Comber,Carole Gartside					<a href="#">Permits</a>		
36-4-0073	TC 2	AGD	55	684800	6391800	Open site	Valid	Modified Tree (Carved or Scarred) : -	Scarred Tree	102779
	<a href="#">Contact</a>	<a href="#">Recorders</a>	Ms,Jillian Comber,D Ingray					<a href="#">Permits</a>		
36-1-0028	Grange View;	AGD	55	677350	6409180	Open site	Valid	Modified Tree (Carved or Scarred) : -	Carved Tree	65
	<a href="#">Contact</a>	<a href="#">Recorders</a>	David Bell					<a href="#">Permits</a>		
36-4-0074	TC 3	AGD	55	685100	6393400	Open site	Valid	Modified Tree (Carved or Scarred) : -	Scarred Tree	102779

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SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status	SiteFeatures	SiteTypes	Reports
36-4-0076	-36-6-607Namina Scarred Tree;	AGD	55	685960	6392600	Open site	Valid	Modified Tree (Carved or Scarred) : -	Scarred Tree	102779
	<u>Contact</u>	<u>Recorders</u>	Ms.Jillian Comber;D Ingray					<u>Permits</u>		
36-4-0077	Nanima Rd 1;	AGD	55	684490	6394100	Open site	Valid	Modified Tree (Carved or Scarred) : 1	Scarred Tree	3701,102779
	<u>Contact</u>	<u>Recorders</u>	Ms.Jillian Comber;Carole Gartside					<u>Permits</u>		
36-5-0001	Burganbungie;Gigmalarie;	AGD	55	694445	6387728	Open site	Valid	Hearth : -, Artefact : -	Open Camp Site	102800
	<u>Contact</u>	<u>Recorders</u>	Robert "Ben" Gunn					<u>Permits</u>		
36-1-0032	Ponto Falls;	AGD	55	670292	6406680	Open site	Valid	Artefact : -	Open Camp Site	
	<u>Contact</u>	<u>Recorders</u>	Michael Pearson					<u>Permits</u>		
36-2-0001	Mt Bodangora;	AGD	55	697863	6410220	Open site	Valid	Artefact : -	Open Camp Site	
	<u>Contact</u>	<u>Recorders</u>	Glen Morris					<u>Permits</u>		
36-1-0126	Curra Creek;	AGD	55	680000	6394100	Open site	Valid	Modified Tree (Carved or Scarred) : -	Scarred Tree	1333
	<u>Contact</u>	<u>Recorders</u>	Warren Bluff					<u>Permits</u>		
36-4-0016	Macquarie Park;	AGD	55	673740	6401063	Open site	Valid	Hearth : -, Artefact : -	Open Camp Site	102211
	<u>Contact</u>	<u>Recorders</u>	G.W. Althofer;Michael Pearson					<u>Permits</u>		
36-4-0017	Maryvale Creek;Micketymulga Hill;	AGD	55	679254	6401770	Open site	Valid	Artefact : -	Open Camp Site	102211
	<u>Contact</u>	<u>Recorders</u>	Mr.Warwick Pearson					<u>Permits</u>		
36-4-0020	Maryvale Creek;	AGD	55	678375	6402718	Open site	Valid	Stone Quarry : -, Stone Arrangement : -	Stone Arrangement	102211
	<u>Contact</u>	<u>Recorders</u>	G.W. Althofer;Michael Pearson					<u>Permits</u>		
36-4-0021	Baalveck;	AGD	55	679151	6399030	Open site	Valid	Aboriginal Ceremony and Dreaming : -, Stone Arrangement : -	Stone Arrangement	102779
	<u>Contact</u>	<u>Recorders</u>	G.W. Althofer;Michael Pearson					<u>Permits</u>		
36-4-0001	Bell River;Triplet Cave;	AGD	55	681966	6388772	Open site	Valid	Burial : -	Burial/s	102779
	<u>Contact</u>	<u>Recorders</u>	Osbourne					<u>Permits</u>		
36-4-0090	W/STP-ST-1	AGD	55	680750	6397060	Open site	Valid	Modified Tree (Carved or Scarred) : 1		97979,102779
	<u>Contact</u>	<u>Recorders</u>	Jim Kelton					<u>Permits</u>		

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SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status	SiteFeatures	SiteTypes	Reports
36-4-0088	Arthurville	AGD	55	662846	6389993	Open site	Valid	Modified Tree (Carved or Scarred) : 1		
	<a href="#">Contact</a>									
36-4-0089	Suntop Road	AGD	55	674505	6393326	Open site	Valid	Modified Tree (Carved or Scarred) : 1		
	<a href="#">Contact</a>									
36-4-0092	PR-ST-01	AGD	55	680110	6394170	Open site	Valid	Modified Tree (Carved or Scarred) : -		
	<a href="#">Contact</a>									
36-4-0097	STP-1F-1	AGD	55	680780	6396810	Open site	Valid	Artefact : -		102779
	<a href="#">Contact</a>									
36-1-0450	BBS; Dubbo LALC; Geurie Tip	AGD	55	673416	6414994	Open site	Valid	Modified Tree (Carved or Scarred) : 1		99169
	<a href="#">Contact</a>									
36-1-0452	BBS; Dubbo LALC; Geurie Flora Reserve	AGD	55	671676	6412467	Open site	Valid	Modified Tree (Carved or Scarred) : 1		99169
	<a href="#">Contact</a>									
36-1-0453	BBS; Dubbo LALC; Scabby Flat Reserve	AGD	55	670292	6410215	Open site	Valid	Artefact : 50		99169
	<a href="#">Contact</a>									
36-1-0454	BBS; Dubbo LALC; Geurie Flora Reserve 1	AGD	55	671868	6412714	Open site	Valid	Artefact : 30		99169
	<a href="#">Contact</a>									
36-1-0455	BBS; Dubbo LALC; Geurie Flora Reserve 2	AGD	55	671602	6412382	Open site	Valid	Artefact : 4		99169
	<a href="#">Contact</a>									
36-1-0456	BBS; Dubbo LALC; Geurie Flora Reserve 3	AGD	55	671859	6412647	Open site	Valid	Aboriginal Resource and Gathering : 1		99169
	<a href="#">Contact</a>									
36-1-0457	BBS; Dubbo LALC; Geurie Flora Reserve 4	AGD	55	671888	6412508	Open site	Valid	Artefact : 3		99169
	<a href="#">Contact</a>									
36-1-0459	BBSBBS; Dubbo LALC; RLPB / Terrabella Rd	AGD	55	666665	6408539	Open site	Valid	Artefact : 2		99169
	<a href="#">Contact</a>									
36-1-0460	BBS; Dubbo LALC; RLPB / Terrabella Rd TSR	AGD	55	666347	6408701	Open site	Valid	Artefact : 1		99169
	<a href="#">Contact</a>									

Report generated by AHIMS Web Service on 10/04/2017 for Kirsten Bradley for the following area at Lat, Long From : -32.6541, 148.7358 - Lat, Long To : -32.3678, 149.1898 with a Buffer of 50 meters. Additional info : background info. Number of Aboriginal sites and Aboriginal objects found is 98

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SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status	SiteFeatures	SiteTypes	Reports
36-1-0461	BBS; Dubbo LALC; Terrabella Rd TSR 1	AGD	55	666499	6408640	Open site	Valid	Modified Tree (Carved or Scarred) :		99169
	<u>Contact</u>	<u>Recorders</u>	Phil Purcell,Dubbo LALC				<u>Permits</u>			
36-4-0099	Isolated Artefact CC-IF-01	AGD	55	686314	6401244	Open site	Valid	Artefact : 1		102779
	<u>Contact</u> T Russell	<u>Recorders</u>	Lloyd Nolan				<u>Permits</u>			
36-1-0538	GC-OS2	AGD	55	672314	6413196	Open site	Valid	Artefact : 8		
	<u>Contact</u> Searle	<u>Recorders</u>	OzArk Environmental and Heritage Management				<u>Permits</u>			
36-1-0537	GC-OS1	AGD	55	672111	6412628	Open site	Valid	Artefact : 8		
	<u>Contact</u> Searle	<u>Recorders</u>	OzArk Environmental and Heritage Management				<u>Permits</u>			
36-1-0575	GC-OS1 - Geurie	GDA	55	672111	6412628	Open site	Valid	Artefact : 8		
	<u>Contact</u> Searle	<u>Recorders</u>	OzArk Environmental and Heritage Management				<u>Permits</u>			
36-3-0143	Spring Ck;	AGD	55	674190	6404810	Open site	Valid	Artefact : -	Open Camp Site	1333
	<u>Contact</u>	<u>Recorders</u>	Warren Bluff				<u>Permits</u>			
36-4-0108	Yarrahapani 1	AGD	55	686370	6398880	Open site	Valid	Artefact : 2		101380,102779
	<u>Contact</u>	<u>Recorders</u>	Mr.Neville Baker,Doctor.Jodie Benton,Gallangabang Aboriginal Corporation				<u>Permits</u>			
36-4-0110	WETL-IF1	GDA	55	678987	6391870	Open site	Valid	Artefact : 1		101691
	<u>Contact</u>	<u>Recorders</u>	Doctor.Jodie Benton				<u>Permits</u>			
36-4-0111	WETL-OS2 with PAD	GDA	55	679188	6392398	Open site	Valid	Artefact : 1, Potential Archaeological Deposit (PAD) :-		101691
	<u>Contact</u>	<u>Recorders</u>	Doctor.Jodie Benton				<u>Permits</u>			
36-4-0112	WETL-OS3	GDA	55	678876	6391510	Open site	Valid	Artefact : 1, Potential Archaeological Deposit (PAD) :-		101691
	<u>Contact</u>	<u>Recorders</u>	Doctor.Jodie Benton				<u>Permits</u>			
36-4-0113	WETL-OS1 with PAD	GDA	55	680208	6393131	Open site	Valid	Artefact : 1, Potential Archaeological Deposit (PAD) :-		101691
	<u>Contact</u>	<u>Recorders</u>	Doctor.Jodie Benton				<u>Permits</u>			
36-4-0117	Power Station CMT 1	GDA	55	684165	6398827	Open site	Valid	Potential Archaeological Deposit (PAD) : 1		
	<u>Contact</u> Gallangabang Aboriginal Cor	<u>Recorders</u>	Doctor.Colin Pardoe				<u>Permits</u>			
36-4-0118	Power Station CMT 2	GDA	55	684191	6398780	Open site	Valid	Potential Archaeological Deposit (PAD) : 1		

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SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status	SiteFeatures	SiteTypes	Reports
	<a href="#">Contact</a>	Gallangabang Aboriginal Cor						<a href="#">Permits</a>		
36-4-0119	Cooyong old well CMT 1	GDA	55	685305	6385988	Open site	Valid	Potential Archaeological Deposit (PAD) : 1		
	<a href="#">Contact</a>	Gallangabang Aboriginal Cor						<a href="#">Permits</a>		
36-4-0120	Cooyong old well CMT 2	GDA	55	685365	6386526	Open site	Valid	Potential Archaeological Deposit (PAD) : 1		
	<a href="#">Contact</a>	Gallangabang Aboriginal Cor						<a href="#">Permits</a>		
36-4-0121	Watson Creek 1	GDA	55	685999	6389436	Open site	Valid	Artefact : 19		
	<a href="#">Contact</a>	Gallangabang Aboriginal Cor						<a href="#">Permits</a>		
36-5-0170	UWF SU22/L1	GDA	55	702596	6396808	Open site	Valid	Artefact : -		
	<a href="#">Contact</a>							<a href="#">Permits</a>		
36-5-0172	UWF SU26/L1	GDA	55	704363	6395945	Open site	Valid	Artefact : -		
	<a href="#">Contact</a>							<a href="#">Permits</a>		
36-5-0179	UWF SU44/L1	GDA	55	700681	6393326	Open site	Valid	Artefact : -		
	<a href="#">Contact</a>							<a href="#">Permits</a>		
36-5-0180	UWF SU44/L2	GDA	55	700738	6393527	Open site	Valid	Artefact : -		
	<a href="#">Contact</a>							<a href="#">Permits</a>		
36-5-0181	UWF SU44/L3	GDA	55	700901	6393784	Open site	Valid	Artefact : -		
	<a href="#">Contact</a>							<a href="#">Permits</a>		
36-5-0182	UWF SU44/L4	GDA	55	701428	6394094	Open site	Valid	Artefact : -		
	<a href="#">Contact</a>							<a href="#">Permits</a>		
36-5-0183	UWF SU46/L1	GDA	55	699686	6396742	Open site	Valid	Artefact : -		
	<a href="#">Contact</a>							<a href="#">Permits</a>		
36-5-0184	UWF SU49/L1	GDA	55	700987	6401383	Open site	Valid	Artefact : -		
	<a href="#">Contact</a>							<a href="#">Permits</a>		
36-1-0683	Macquarie River DZP ETL-Isolated Find 1 (MR DZP ETL-1F1)	GDA	55	670335	6407428	Open site	Valid	Artefact : -		
	<a href="#">Contact</a>							<a href="#">Permits</a>		
36-4-0128	Blacks Camp Wellington	GDA	55	685616	6395743	Open site	Valid	Artefact : -		103476
	<a href="#">Contact</a>							<a href="#">Permits</a>		

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## APPENDIX C SITE CARDS

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