# Submissions Report

## TARLEIGH PARK SOLAR FARM

APRIL 2018

## Document Verification

Project Title: Tarleigh Park Solar Farm

Project Number: 17-100

Project File Name: Tarleigh Park Submissions Report final v2

| Revision | Date | Prepared by (name) | Reviewed by (name) | Approved by (name) |
|---|---|---|---|---|
| Draft v1 | 01/03/18 | Jane Blomfield<br>Zoe Quaas<br>Paul McPherson | Nick Graham-Higgs | Nick Graham-Higgs |
| Draft v2 | 22/03/18 | Paul McPherson | Brooke Marshall | Brooke Marshall |
| Final V1 | 23/03/18 | Brooke Marshall (minor change) | | Brooke Marshall |
| Final V2 | 4/04/18 | Paul McPherson | Brooke Marshall | Brooke Marshall |



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## TABLES

# ACRONYMS AND ABBREVIATIONS

| | |
|---|---|
| ABS | Australian Bureau of Statistics |
| AC | Alternating current |
| ACHAR | Aboriginal Cultural Heritage Assessment Report |
| ACHCRP | *Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010* |
| AEMO | Australian Energy Market Operator |
| AHIMS | Aboriginal Heritage Information Management System |
| ANZECC | Australian and New Zealand Environment Conservation Council |
| APZ | Asset Protection Zone (bushfire) |
| ARENA | Australian Renewable Energy Agency |
| BAR | Biodiversity Assessment Report |
| BOS | Balance of Systems |
| BSAL | Biophysical Strategic Agricultural Land |
| CCP | Community Consultation Plan |
| CEMP | Construction Environmental Management Plan |
| DA | Development Application |
| DEMP | Decommissioning Environmental Management Plan |
| DPE | Department of Planning and Environment (NSW) |
| DPI | Department of Primary Industries (NSW) |
| EEC | Endangered Ecological Community |
| EIS | Environmental Impact Statement |
| ELF | Extremely Low Frequency |
| EMF | Electric and magnetic field |
| EP&A Act | *Environmental Planning and Assessment Act 1979* |
| EPA | Environmental Protection Authority (NSW) |
| EPBC Act | *Environment Protection and Biodiversity Conservation Act 1999* |
| FBA | Framework for Biodiversity Assessment |
| ha | Hectares |
| HAZMAT | Hazardous Material |
| Hz | Hertz |
| IAL | Important Agricultural Land |
| km | Kilometre |
| LGA | Local Government Area |
| m | Metres |
| mm | Millimetres |
| MW | Megawatt |
| NSW | New South Wales |
| OEH | Office of Environment and Heritage (NSW) |
| OEMP | Operational Environmental Management Plan |
| PAD | Potential Archaeological Deposit |

| | |
|---|---|
| PBP | *Planning for Bushfire Protection Guidelines 2006* |
| PCT | Plant Community Type |
| PCU | Power Conversion Unit |
| POEO Act | *Protection of the Environment Operations Act 1997* |
| PV | Photovoltaic |
| PVP | Property Vegetation Plan |
| RAPs | Registered Aboriginal Parties |
| RES | RES Australia Pty Ltd (proponent) |
| RET | Renewable Energy Target |
| RFS | Rural Fire Service (NSW) |
| SEARs | Secretary's Environmental Assessment Requirements (DPE) |
| SF | Solar Farm |
| SSD | State Significant Development, as defined by section 89C of the EP&A Act *(c.f.)* |
| TMP | Traffic Management Plan |
| WHO | World Health Organisation |
| WMP | Waste Management Plan |

# 1 INTRODUCTION

## 1.1 BACKGROUND

The Tarleigh Park Solar Farm is proposed to be constructed on freehold rural land on Parfreys Road south of the Riverina Highway, 23 kilometres east of Deniliquin in the Edward River Local Government Area (LGA) of NSW (the 'proposal'). The proposal includes the construction, operation and decommissioning of a 90 megawatt photovoltaic (PV) solar farm and associated infrastructure.

The proposal requires development consent under Part 4 of the NSW *Environmental Planning and Assessment Act 1979* (EP&A Act). The proposal is considered State Significant Development (SSD) as it is development for the purpose of electricity generating works with a capital cost greater than $30 million (clause 20, Schedule 1 of the *State Environmental Planning Policy (State and Regional Development) 2011).*

An Environmental Impact Statement (EIS) was prepared by NGH Environmental on behalf of the proponent RES Australia Pty Ltd (RES) and was submitted to NSW Department of Planning and Environment (DPE) in November 2017. The EIS was placed on public exhibition from 21 November to 21 December 2017. Submissions were sought from the local community, government agencies, interested parties and other stakeholders.

## 1.2 THIS REPORT

This Submissions Report has been prepared to:

- consider and respond to the issues raised in the public and agency submissions in relation to the proposal
- describe any resulting changes to the proposal, including a revised set of proposed mitigation measures.

# 2 THE PROPOSAL

## 2.1 PROPOSAL AS EXHIBITED

The proposal involves the construction, operation and decommissioning of a PV solar farm that would produce up to 90 megawatts of electricity. The proposal remains as detailed in Section 4 of the EIS (NGH Environmental 2017). The indicative proposal layout is provided in Appendix A.

## 2.2 PROPOSAL CHANGES SINCE EIS EXHIBITION

The proposal has not substantively changed since the submission of the EIS to DPE. However, this Submissions Report provides clarification in relation to the detailed descriptions in section 4 of the EIS and other sections within the EIS. This includes confirmation that construction activities would be undertaken during standard daytime construction hours as follows:

- 7.00am to 6.00pm Monday to Friday
- 8.00am to 1.00pm on Saturdays
- No work on Sundays or Public Holidays.

The proposed mitigation measures have been revised in response to public and government agency submissions (refer section 6).

It is also confirmed that any required branch trimming of trees along Parfreys Road to allow the passage of construction traffic forms part of the proposal and the assessment. If branch trimming is required, the affected areas would be surveyed, the removal of habitat features such as nests or hollows would be supervised by an ecologist, and the BioBanking Calculator and offsets would be updated if required.

## 2.3 PROJECT BENEFITS

The identified benefits of the proposed Tarleigh Park Solar Farm remain unchanged. The proposal would provide the following benefits related to the transition to a reliable, secure and low carbon electricity sector and meeting Australia's 2030 international emissions reduction target under the Kyoto Protocol and the Commonwealth Government's Renewable Energy Target (RET) scheme under the *Renewable Energy (Electricity) Act 2000*:

- reducing greenhouse gas emissions in the electricity sector by generating around 208,926 MWh of electricity per year, representing the power consumption of approximately 35,300 homes and saving approximately 69,700 tonnes of carbon dioxide per year
- improving electricity reliability and security by providing embedded generation closer to local consumption centres and contributing to a more diverse mix of energy sources in the National Electricity Market
- assisting the transition towards cleaner, stable electricity generation through the potential construction of an Energy Storage Facility, comprising battery storage with an approximately 32MW/16MWh rated capacity
- attracting and improving expertise in renewable energy generation in Australia.

In addition, the proposal would benefit the region by supporting 150 direct and 240 indirect jobs over the construction period, and 3 direct and 9 indirect jobs during operation. The project would inject approximately $1.5 million in additional spending into the regional economy over the construction phase and provide an estimated economic stimulus of $18.1 million over 25 years (Essential Economics 2017). Local business transactions are expected to represent at least 50% of the proposal's procurement spend.

## 2.4 PROJECT JUSTIFICATION

The assessments and information in the EIS demonstrate that the proposal is justified and worthy of approval on the bases that:

- the proposal is permissible and meets all relevant planning requirements
- the identified impacts are generally minor, highly localised, capable of mitigation or offsetting and often confined to the construction phase
- the site is highly suited to utility scale solar electricity generation, with adequate capacity in the local transmission network and a high quality local solar resource
- the proposal reflects the technology best suited to the site and network requirements

- the proposal provides an important contribution to the urgent need to abate carbon emissions in the electricity sector
- the proposal offers a range of community benefits relating to electricity supply, economic activity, local employment opportunities and the establishment of a $20,000 pa community fund
- the proposal is reversible and would not result in any permanent loss of land use potential or restrict future land and resource use options
- the proposal site is not identified as 'prime agricultural land' or Biophysical Strategic Agricultural Land (BSAL) and has questionable Important Agricultural Land (IAL) status
- the proposal would not significantly affect local or regional agricultural production, in terms of area, production quantities or economic value. Some sheep grazing would be undertaken at the site in conjunction with the solar farm
- the proposal would not adversely affect any neighbouring businesses or land uses
- the proposal may incorporate an Energy Storage Facility which would regulate inputs to the network and help overcome limitations associated with intermittent solar generation.

Geographical and grid constraints modelling, and a comprehensive set of criteria were used to select the proposal site. The site provides a high quality solar resource, flat, stable and low-risk terrain, good road access and locally available transmission lines. The site location allows for an on-site substation enabling a reduced project footprint and avoiding potential environmental impacts associated with transmission lines.

The proposal is consistent with the objects and matters for consideration in the EP&A Act, and with the principles of Ecologically Sustainable Development.

# 3 CONSIDERATION OF SUBMISSIONS

## 3.1 EXHIBITION AND LOCATION

The EIS was on public exhibition from 21 November to 21 December 2017. Printed copies of the EIS were available at the following locations during the exhibition period:

- Edward River Council, 180 Cressy Street, Deniliquin
- Nature Conservation Council, 14/338 Pitt Street, Sydney.

Electronic copies of the EIS were available online at the Major Projects section of the DPE website.

DPE mailed all the adjoining residents directly to notify them of the EIS submission and exhibition period and placed advertisements in the local and regional papers announcing the exhibition period.

## 3.2 SUBMISSIONS RECEIVED

DPE received a total of 31 submissions related to the proposal. Twenty-three submissions were received from individual members of the public and eight submissions were received from government agencies. No submissions were received from special interest groups.

The key issues raised in each submission received by members of the community and by government agencies are summarised in sections 4 and 5 of this report. The full submissions can be found on the DPE Major Project Assessments website:

http://majorprojects.planning.nsw.gov.au/?action=view_job&job_id=8436

Table 3-1 Submissions received

| Category | No. responses received |
|---|---|
| **Public submissions** | **23** |
| Individual members of the public who raised objections | 20 |
| Respondents requesting extension of exhibition period (3 identical submissions) | 3 |
| **Government agency submissions**<br>1. NSW DPE Division of Resources and Geoscience<br>2. NSW Department of Industry, Crown Lands<br>3. Rural Fire Service<br>4. Roads and Maritime Services<br>5. Fire and Rescue NSW<br>6. NSW Office of Environment and Heritage<br>7. Edward River Council<br>8. Murray Local Land Services | **8** |
| **Total** | **31** |

# 4 PROPONENT'S RESPONSE TO COMMUNITY SUBMISSIONS

This section considers the issues raised in the public submissions and provides a response to each issue, rather than each submission. The issues raised in the submissions fell into the following categories:

- socio-economic and community impacts
- land use
- visual amenity
- traffic
- water use
- biodiversity
- policy and legislative requirements
- health and safety
- solar farms and electricity supply.

Table 4-1 Public submissions and proponent's response

| Issue and submission number | | RES Response |
|---|---|---|
| **4.1 SOCIO-ECONOMIC AND COMMUNITY IMPACTS** | | |
| **Consultation** | | |
| 237350<br>237139<br>237395 | Three respondents expressed disappointment in the community consultation prior to the submission of the proposal (particularly in relation to the site selection). Major concerns include failure to involve the community in site selection. | Consultation is discussed in Section 6 of the EIS. A Community Consultation Plan (CCP) has been prepared to provide a framework to engage with the community and stakeholders about the proposal and ensure opportunities to provide input into the assessment and development process are understood. The plan identifies:<br>• Community stakeholders for the proposal<br>• Issues/risks related to the engagement of each stakeholder group<br>• A consultation strategy for each stakeholder group |

| Issue and submission number | | RES Response |
|---|---|---|
| | One respondent (237395) raised concern over the consideration of the ARENA Social Licence to operate for the location of the project. | • A set of activities against the proposal development time line to facilitate consultation.<br>The following community consultation activities were undertaken in relation to the proposal, consistent with the CCP:<br>• Telephone calls to neighbours within two kilometres of the proposal site which resulted in discussions with landowners<br>• Meetings with neighbours where desired (some neighbours were happy with telephone discussions)<br>• A press release in the Deniliquin Pastoral Times to advertise the proposal<br>• A front page article in the Deniliquin Pastoral Times (25 April 2017)<br>• Development of a proposal website (www.tarleighpark-solarfarm.com)<br>• Newsletter (May 2017) providing details of the proposal, Community Consultation events, website and contact details sent to around 350 properties nearest the proposal, and made available at Edward River Council office reception<br>• Advertisements in the Deniliquin Pastoral Times and Southern Riverina News (Finley) (30 April 2017, 2 June 2017 and 6 June 2017) to advertise the Community Consultation Events being held on 8 June 2017<br>• article regarding the Community Information Sessions in the Deniliquin Pastoral Times (6 June 2017)<br>• Community Information Session at Blighty Hall (11.00am to 1.30pm, 8 June 2017)<br>• Community Information Session at Deniliquin RSL (3.00pm to 7.00pm, 8 June 2017)<br>• Advertisements in the Deniliquin Pastoral Times and Southern Riverina News (Finley) (12 September 2017, 15 September 2017 and 19 September 2017) to advertise the Community Consultation Events being held on 19 & 20 September 2017<br>• Article regarding the Community Information Sessions in the Deniliquin Pastoral Times (15 September 2017)<br>• Newsletter (September 2017) providing details of the proposal, Community Consultation events, website and contact details sent to around 350 properties nearest the proposal |

| Issue and submission number | | RES Response |
|---|---|---|
| | | • Community Information Session at Deniliquin Peppin Heritage Centre (3.00pm to 7.00pm, 19 September 2017 and 9.00am to 12.00pm 20 September 2017).<br>The results of the community consultation are discussed in section 6.1.4 of the EIS.<br>RES has used different techniques with the aim of capturing the broadest audience during their consultation activities. These include, as identified above, direct contact, advertisements, letter drops and open day events. They have followed up on queries and undertaken face to face meetings with numerous local landowners.<br>Since lodgement of the Development Application, RES has continued to meet and have telephone conversations with close neighbours, and meet with Edward River Council and Murray Irrigation Limited.<br>RES is committed to continuing engagement with the local community and stakeholders. Engagement activities would continue throughout the determination period, as set out in the CCP. Should RES gain planning consent for the project, neighbours and other consultees would be regularly updated on timing and progress towards commencement of construction. A number of pre-commencement management plans will seek input from neighbours as well as consultees on a number of topics including traffic management, the construction programme and screening.<br>RES also anticipates holding local events in collaboration with the chosen contractor to help identify and source local suppliers and sub-contractors.<br>In assessing social licences, the Ipsos Social Research Institute found that almost half of Australians (48%) view large scale solar facilities as beneficial for local economies, and a further 46% neither agreed nor disagreed, or didn't know. Almost half (47%) neither agreed nor disagreed, or didn't know if large scale solar facilities could have a negative effect on the health of the people living nearby. 40% disagreed that large scale solar has a harmful impact, while only 13% agreed. Attitudes are divided about the visual impacts of large scale solar farms; 30% agree and 26% disagree that large-scale solar farms have a negative visual impact.<br>**No changes to the EIS mitigation measures are considered to be required.** |
| **Extension of the exhibition period** | | |
| 237309<br>237372 | One respondent (three identical submissions) raised concern over the exhibition period | The EIS was placed on public exhibition for 31 days (between 21 November 2017 to 21 December 2017).<br>**No changes to the EIS mitigation measures are considered to be required.** |

| Issue and submission number | | RES Response |
|---|---|---|
| 237379 | coinciding with a key harvest period and key communities and agricultural groups being unable to have input. The 3 identical submissions requested an extension of the exhibition period. | |
| **Local economic impacts** | | |
| 235878<br>237139<br>237309<br>237350 | Four respondents are concerned about the economic loss to the area through the implementation of the solar farm. Respondents mentioned the land would be better used to produce crops and grazing for the area that would return annual economic benefit to the area through the use of service and sale of the product. | The solar farm would displace the following agricultural cropping, based on recent property production figures supplied by the landowner:<br>50 ha wheat @ 4t/ha @ $250 = $50,000<br>50ha canola @ 2.5t/ha @ $500 = $62,500<br>120ha barley @ 2t/ha @ $200 = $48,000<br>55ha rice @9t/ha @ $280 = $138,600 (summer crop).<br>These yield figures are representative of an average year. The figures are for current irrigated cropping but this does not represent lost yield for the region as the farm does not have water attached to it. All of the landowners' water allocation is used each year across a number of holdings. Lost production resulting from the solar farm is therefore dry land loss only. If rice is grown it can be grown on other properties using the existing water allocation, should the landowner decide to do so. The landowners' business returned a significant quantity of water under the basin plan as part of on-farm efficiency programs and have had to change their operations accordingly. In addition, they have in excess of 1500 acres of irrigable land that was purchased after previous owners had sold water to the government. The landowners will utilise their existing irrigators, relocated from the project area, to increase production in those areas.<br>Under climate change conditions the annual irrigation water allocation is highly variable and rainfall less predictable. The figures represent an average year with good rainfall, not drought conditions. The basin plan has removed around 30% of irrigation water from the area so it's now impossible for all irrigable land to have irrigation water. As such the solar farm is a great way to facilitate a continued agricultural use of the land by permitting stock grazing. In addition to this the landowner has diversified their income as well as provide drought protection to their farming business. |

| Issue and submission number | | RES Response |
|---|---|---|
| | | As noted in the EIS (section 8.4), the land used to accommodate the solar farm represents 0.03% of productive cropping land in the NSW Murray Region (Essential Economics 2017).<br>In 2016, the total gross value of agricultural production in the region was $1,569.7m and the total gross value of crop production was $888.4m (ABS 2017). The 3 most important crops in 2014-15 in terms of gross value were wheat ($355m), canola ($133m) and rice ($131m) (ABARES 2017a). In 2014-15 there were 167 rice farms in the Murray Region, and rice farms occupied 6.2% of the region (ABARES 2017a).<br>Broadacre cropping is the largest industry sector in the wider Riverina Murray region, contributing over 59% of Gross Value of Agricultural Production (GVAP). Within the region, the GVAP for wheat is $1,045m (31% of total GVAP in the region), barley is $232m (7%), canola is $226m (7%) and rice is $169m (5%) (RMCG 2016).<br>In terms of area, 91,000 $km^2$ is used for productive agriculture or 78% of the Riverina Murray region. Of the 31,000 $km^2$ of cropped land in 2011, wheat was the main crop grown (45% of the cropped area), followed by barley (12%), canola (8%) and rice/cotton (3%). Grain is grown across the region and both the area under crop and production levels have been steadily increasing (RMCG 2016). The local dominance of cropping and grazing at the sub-region level is shown on the land use map in Appendix E.<br>The area sown to rice is tied to annual water allocations and reached a peak in 2001 with 167,500 hectares sown. The main rice producing LGAs in 2010-11 were Griffith, Wakool, Murrumbidgee and Jerilderie (RMCG 2016). The relationship between area under rice and water availability and impacts on Important Agricultural Land are discussed in section 5.3 below.<br>The relatively small reductions in production resulting from the proposal would not affect agricultural viability at the region scale in terms of area or production value. These crops are well represented in the locality and the proposal would not significantly affect local production in terms of land area or economic value.<br>As noted above, the reduced production would be offset by increased yields on landowner properties elsewhere in the locality. In addition, the increased financial security provided by the solar farm would allow the landowner to purchase more temporary water to increase the summer cropping production of rice and corn. Some sheep grazing may continue to be undertaken at the proposal site for production purposes and to control grass and weed growth around the solar arrays. |

| Issue and submission number | | RES Response |
|---|---|---|
| | | The landowner has advised that the income security provided by the solar farm would allow them to employ an additional full time employee. The solar farm would 'drought-proof' the business, providing for stable staffing levels during periods of low agricultural income and reducing reliance on government drought assistance subsidies. The rent received by the landowners from the solar farm operator would provide a steady injection of money into the local economy over the life of the solar farm irrespective of other fluctuations that may otherwise influence the local economy.<br>The economic benefits of the proposal are discussed in section 2.1.3 of the EIS. The employment benefits extend through the local supply chains to fuel supply, vehicle servicing, uniform suppliers, hotels/motels, B&B's, cafés, pubs, catering and cleaning companies, tradespersons, tool and equipment suppliers and many other businesses.<br>Construction workers are expected to inject approximately $1.5 million in additional spending into the regional economy over the construction phase, supporting around 7.5 jobs in the service sector in Deniliquin and adjacent LGAs. During the operation phase of the project, approximately 4.5 ongoing new positions would be created in the region as a result of the proposal (Essential Economics 2017).<br>Data from the recent Nyngan and Broken Hill projects indicate that local goods and services accounted for approximately 56.3% of the project's procurement spend, including $66 million spent on cables, mounting structures and power conversion equipment from local companies (First Solar 2014). The $20,000 pa Community Fund is a further economic benefit for the local community and economy.<br>**No changes to the EIS mitigation measures are considered to be required.** |
| **Impacts on rural lifestyle** | | |
| 236438 | One respondent raised concerns relating to the future rural lifestyle of the region with the potential loss of agricultural viability due to the solar farm. | The solar farm would not affect agricultural production, existing agricultural practices or the capacity to pursue rural lifestyles on adjoining properties. The solar farm would not impose any restrictions on the ability of neighbours to manage their farms.<br>The impacts to agricultural production are discussed in detail under 'Local economic impacts', above. As noted in the EIS (section 8.4), the land used to accommodate the solar farm represents a very small proportion of productive cropping land in the NSW Murray Region (Essential Economics 2017). Irrigated cropping is also well represented in the locality and the proposal would not significantly affect local agricultural viability in terms of land area or economic value. |

| Issue and submission number | | RES Response |
|---|---|---|
| | | A range of mitigation measures would be applied to minimise potential visual amenity, noise and biosecurity impacts.<br>**No changes to the EIS mitigation measures are considered to be required.** |
| **Employment opportunities** | | |
| 237139<br>236436<br>237099 | Three respondents raised concerns that the construction of the solar farm would not create employment benefits on the basis that the short term employment wouldn't benefit the community and would cause job loss through the land being used as a solar farm instead of a productive agricultural land. | Socio-economic benefits are discussed in section 2.1.3 of the EIS. The proposal would support 150 direct and 240 indirect jobs over the construction period, and 3 direct and 9 indirect jobs during operation (Essential Economics 2017). In 2012, 24,000 Australians were employed in the renewable energy sector and the industry is set to generate an additional new 18,400 jobs by 2020 (CEC 2015). Large scale renewable projects create long term skilled employment opportunities, which are rare in many rural communities.<br>In addition, the farm enterprise which includes Tarleigh Park currently employs 6 full time staff (including owners) and a part time truck driver, with an additional casual employee at harvest. The landowner has advised that farm employment is not expected to decrease as a result of the solar farm; the income security provided by the solar farm would actually allow them to employ an additional full time employee. The solar farm would also drought-proof the enterprise, providing for stable staffing levels during periods of low agricultural income and reducing reliance on government drought assistance subsidies.<br>**No changes to the EIS mitigation measures are considered to be required.** |
| **Property values** | | |
| 235878<br>236436<br>236438<br>236493<br>237276<br>237135 | Five respondents noted concern over the marketability and value of adjoining and surrounding properties once the solar farm had been constructed.<br>Concerns raised included the certainty of the solar farm not devaluing the land. | Land values are discussed in section 9.4.2 of the EIS. The conclusions reached in the EIS are based on the available evidence, which strongly suggests that adjoining land values would not be affected by the proposal.<br>A recent solar farm impact assessment (Kirkland Appraisals 2016) examined the likely impact on adjoining property values of a solar farm proposed to be constructed on approximately 22 hectares of land in a low density residential and agricultural uses area in North Carolina, United States. The study involved background research, extensive consultation with real estate professionals and a series of matched pair analyses. The study noted the following:<br>• the solar farm would not produce hazardous wastes |

| Issue and submission number | | RES Response |
|---|---|---|
| | | • solar farms do not produce any noticeable odour<br>• noise emissions are limited<br>• additional traffic generated by the operating solar farm are minor<br>• there is no stigma associated with solar farms and people generally respond favourably<br>• solar farms are a passive land use and are in keeping with a rural/residential area<br>• visual impact would be similar to a large greenhouse, and less than residential development.<br>The study found that the proposed solar farm would be in harmony with the surrounding low density residential/rural area. The matched pair analysis comparing properties near solar farms and properties distant from solar farms showed no impact in home values and no impact to adjacent vacant residential or agricultural land. The study concluded that the proposed solar farm would maintain or enhance the value of adjoining properties.<br>The study highlighted that land values are affected by factors such as visual appearance and compatibility, noise and perceived health impacts. The flat terrain at Tarleigh Park and distance from receivers provides good opportunities to effectively screen the development using tree and shrub plantings. There would be no noticeable noise emissions from the operating solar farm. Operating solar farms are not associated with health risks or nuisance and would be unlikely to deter prospective property buyers.<br>Visual and landscape character impacts have been assessed in detail in Section 8.3 of the EIS and section 4.3 of this response to submissions below. These documents conclude that the proposal is unlikely to result in significant impact to receivers in the local area. The noise emissions from the operating solar farm would be minimal and would not affect neighbours. There would be no off-site impacts to water or air quality, fire risk or human health. With the implementation of mitigation measures identified in the EIS, including the establishment of screening vegetation where required, the solar farm is not considered likely to affect land values at and around the proposal site.<br>**No changes to the EIS mitigation measures are considered to be required.** |
| **Legal liability and accidental damage from agricultural practices** | | |
| 235878<br>235882 | Several public submissions raised concerns over landowner liability in relation to | The project does not foresee any liability for neighbouring properties undertaking lawful agricultural practices. The project will include a security fence which will ensure livestock will not enter the project |

| Issue and submission number | | RES Response |
|---|---|---|
| 236493 | damage/impacts the project as a result of agricultural practices (dust etc). | area. Panel dust will be monitored and panels cleaned if deemed necessary due to significant dust build-up.<br>**No changes to the EIS mitigation measures are considered to be required.** |
| **4.2 LAND USE** | | |
| **Agricultural impacts** | | |
| 235878<br>236436<br>236493<br>237276<br>237344<br>237350<br>236438<br>236440<br>236654<br>237080<br>237099<br>237135<br>237139<br>237276<br>237309<br>237395<br>237402 | Seventeen respondents outlined that the proposal shouldn't be built on the recently irrigated prime land as it would reduce the agricultural productivity of the land. Additional concerns raised included the removal of the irrigation system affecting the sustainability of the land and the possibility of drought with its removal.<br>Four respondents were specifically concerned about the operation of the solar farm affecting the farming practises that surrounding areas would be able to use. | Land use and agricultural impacts are discussed in section 8.4 of the EIS. The NSW land and soil capability assessment scheme (OEH 2012) describes and maps eight land and soil capability classes, based on key factors affecting agricultural production. NSW land and soil capability mapping (OEH 2018) is provided in Appendix E, for the sub-region level. The mapping was created in 2008 and in revised 2017, and is based on the method and rule set developed by OEH (2012), building on earlier work by the Soil Conservation Service (Emery 1986).<br>The proposal site is located on land mapped in capability classes 3 and 6. Class 3 occupies the majority of the site and class 6 occupies a small area in the south-west corner of the property. The land capabilities are described as:<br>• **Class 3** - High capability land: Land has moderate limitations and is capable of sustaining high-impact land uses, such as cropping with cultivation, using more intensive, readily available and widely accepted management practices. However, careful management of limitations is required for cropping and intensive grazing to avoid land and environmental degradation. Class 3 land is suited to grazing, including the use of improved pastures (OEH 2012). Cultivation is limited to cash or forage crops in rotation with pastures (LLS Riverina 2018). Class 3 land includes 'fair to good' agricultural land, but not 'prime' agricultural land (Emery 1988).<br>• **Class 6** - Low capability land: Land has very high limitations for high-impact land uses. Land use is restricted to low-impact uses such as grazing, forestry and nature conservation. Careful management of limitations is required to prevent severe land and environmental degradation (OEH 2012). Class 6 land is non-arable and often non-trafficable, unsuitable for cultivation. Perennial pastures and ground cover should be maintained (LLS Riverina 2018).<br>Class 3 land is common and widespread within the sub-region; refer Appendix E. |

| Issue and submission number | | RES Response |
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| | | The State Government has mapped Biophysical Strategic Agricultural Land (BSAL) across the State; this is land which features the best quality soil and water resources and is capable of sustaining high levels of productivity. BSAL has a rare combination of natural resources highly suitable for agriculture, with the best quality landforms, soil and water resources, inherently fertile and generally lacking significant biophysical constraints (NSW Government 2013). The site is not indicated as BSAL on state mapping and is not considered likely to represent BSAL. The vertosol soils at the site exhibit strong cracking, shrink-swell properties and dispersive subsoils (refer EIS section 9.1.1). It is noted that the flow chart for site assessment of BSAL in NSW Government (2013) excludes poorly drained sites from BSAL (this is the case at the proposal site).<br>The status of the site is unclear with respect to 'Important Agricultural Land' (IAL) as defined in Department of Primary Industries mapping as lands that are 'highly suitable for important agricultural industries at a local and regional scale'. This issue is discussed in section 5.3 below.<br>The proposal is not expected to adversely affect any of the biophysical factors or hazards which determine land and soil capability. During any broad area or trenchline excavations at the site, topsoil would be removed, stockpiled separately and replaced to restore the original soil profile. Topsoil salvaged from the construction of the access tracks and other works would also be securely stored for use in site rehabilitation. Following construction, a perennial cover would be established to protect soils, enhance landscape function and prevent wind and water erosion. Some soil nutrients are expected to run down over time with the cessation of the crop fertiliser regime. Soil impacts and mitigation measures are addressed in section 9.1 of the EIS. Soil restoration and treatments would be guided by the findings of the pre-works soil survey conducted at the site (McMahon Earth Science 2017).<br>By maintaining perennial cover, the proposal would positively affect soils at the site by providing many of the benefits of long term fallow, including increasing soil moisture, building soil carbon levels, allowing structural recovery and improving conditions for soil biota. Depending on the results of soil testing, treatment for acidity may be required prior to the establishment of groundcover. No loss of productive potential is expected to result from the proposal.<br>The works would not adversely affect the MIL irrigation system on or outside the property. The proponent would restore private irrigation channels, dams and other infrastructure as required following decommissioning of the solar farm. These actions would be included in the Site Rehabilitation Plan. |

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| | | The irrigation equipment and water entitlements currently used on Tarleigh Park would be relocated to another property in the locality at the owner's expense so there will be no net loss of land under irrigation.<br>The solar farm would not affect agricultural production or the capacity to undertake farm management activities on adjoining properties.<br>Impacts to agricultural production are addressed under 'Local economic impacts', above.<br>**No changes to the EIS mitigation measures are considered to be required.** |
| **Tonnage capability of the land** | | |
| 237139<br>237350 | Two respondents questioned the small capability of the property production in comparison to neighbouring properties and the effects of the loss to the local community. | Impacts to agricultural production are addressed under 'Local economic impacts', above. Crop production figures in the EIS were provided by the landowner. Section 2.3.3 of the EIS noted that the suspension of cropping for the life of the solar farm would represent a potential impact on only a small percentage of local and regional production, and would be potentially offset by increased productivity on other properties in the locality held by the landowner. It is anticipated sheep grazing would continue within the project site during the project life.<br>**No changes to the EIS mitigation measures are considered to be required.** |
| **Location** | | |
| 236436<br>236654<br>237309<br>236493<br>237139<br>237080<br>237192<br>237344<br>237402 | Eleven respondents expressed concern on the location of the solar farm affecting surrounding land owners, the productivity of the land, the removal of the recently government funded irrigation system and the placement of the solar farm in the irrigated footprint. Respondents believe alternative land is available down the road on drier land that is not irrigated. | Location and site suitability are discussed in section 2.3 and 11 of the EIS. Selecting the best site for the proposal reduces construction and operating costs, reduces environmental impacts and risks and maximises benefits in terms of generation performance and carbon emission reduction. The criteria used to select the proposed solar farm site include:<br>• Low environmental constraints (predominantly cleared cropping land) ensuring minimal loss of native vegetation<br>• Level terrain for cost effective construction, minimal shading between panels and a straight forward ongoing maintenance process<br>• High quality solar resource (estimated to be approximately 18MJ/$m^2$ annually)<br>• Negligible impact on heritage<br>• Low density population and limited close neighbouring properties<br>• Suitable planning context |

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| | | • Low flood risk<br>• Very good road access, located a short distance from Riverina Highway<br>• On-site access to the transmission network<br>• High levels of available capacity on the grid transmission system.<br>The site is of a scale that allows for flexibility in the design, allowing the proponent to avoid or effectively mitigate the ecological and other constraints that have been identified during the EIS process.<br>For a solar farm to be economically viable, it must meet all of the above criteria. Significant additional capital costs such as a requirement to construct significant access roads or considerable grid line infrastructure would likely render a project uncompetitive and therefore unlikely to be realised in a highly competitive electricity market.<br>The Tarleigh Park project is located on the Deniliquin to Finley 132kV line. This line was identified as having sufficient capacity to support a solar farm of this size. For this reason, our desktop assessment was focused on suitable areas (based on previously detailed search criteria) along the Deniliquin to Finlay 132kV line route. Areas away from this line would not have an economically viable grid connection, so were not considered. This site has been developed in tandem with the Currawarra project and has been designed to maximise the amount of renewable energy generation that can be connected into the two grid lines (Deniliquin to Finley for Tarleigh Park and Deniliquin to Coleambally for Currawarra).<br>The design of the proposal is the result of an iterative process, and has been adapted progressively as information regarding site constraints, and the potential impacts and risks associated with the development of the proposal have become available. Constraints related to irrigation and drainage infrastructure, electricity network easements, and biodiversity values in particular have been taken into account in developing the proposed layout. The relevant site constraints are shown on the proposal layout and constraints map in Appendix A.<br>Based on biodiversity, heritage and other studies carried out for the EIS, the proposed layout achieves the objective of efficient electricity production while avoiding and minimising environmental impacts.<br>In relation to existing irrigation infrastructure on the property, the proponent has committed to restoring irrigation channels, dams and other infrastructure as required following decommissioning of the solar farm. These actions would be included in the Site Rehabilitation Plan. The irrigation equipment and water |

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| | | entitlements currently used on Tarleigh Park would be relocated to another property in the locality at the owner's expense so there will be no net loss of land under irrigation.<br>**No changes to the EIS mitigation measures are considered to be required.** |
| **Restoration** | | |
| 237402 | One respondent raised concerns regarding the restoration of the land after the proposed 30 year life span | The restoration of the land is discussed in section 9.1.3 of the EIS. The EIS highlights that a Decommissioning Environmental Management Plan (DEMP) would be prepared and submitted to DPE for approval prior to decommissioning. The DEMP would include a Site Rehabilitation Plan covering:<br>• Criteria and indicators for the restoration of land capability and agricultural potential based on pre-works soil survey results<br>• Details of rehabilitation actions such as removal of infrastructure, remediation of soils, reinstatement of dams and irrigation/drainage channels as required and establishment of suitable groundcover vegetation on bare areas<br>• A monitoring and assessment process to demonstrate that the target state has been achieved<br>• An expected timeline for the rehabilitation program.<br>**No further changes to the EIS mitigation measures are considered to be required (refer section 5 below).** |
| **Landholder rights** | | |
| 237139<br>237350 | Two respondents raised concern over the landowner rights to the property and the solar farm when decommissioning commences in 30 years. Specific concerns are raised with the mention of RES selling the solar farm in a few short years. | Appropriate protection has been agreed in the lease agreement between RES and the landowner, to the satisfaction of the landowners and their legal representatives.<br>These and the restoration conditions discussed in section 9.1.3 of the EIS would be tied to the land and planning consent, regardless of project or land ownership during the project's life. |
| **4.3 VISUAL AMENITY** | | |
| **Visual impacts** | | |

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| 235878<br>236493<br>237276<br>237309 | Four respondents raised concern about the visual impacts of the proposal. Specific concerns included the visual impacts from adjoining roads and neighbouring houses and the amenity impacts through the elimination of the scenic farming environment.<br>One comment mentioned the Solar Farm would be an eyesore to a view that is attractive and fitting to the area. | The potential visual impacts of the proposal, particularly from local roads and residences, was investigated specifically in the Visual Impact Assessment, Appendix F (and summarised in Section 8.3) of the EIS. In assessing visual impacts from representative viewpoints, the EIS acknowledged that the solar array would be moderately visible from Parfreys Road, when road users approach the site from the north and south. However, this impact would be transient as road users move across this section of the road.<br>Further assessments found nearby receivers and users of Warragoon Road are unlikely to be impacted due to the vegetation surrounding the properties and the distance of the road from the site.<br>The low height infrastructure, opportunity for onsite screening, location of infrastructure and distance from the road would minimise the view shed (areas from which the site is visible) of the proposal, and therefore at the time of assessment visual impact was considered low at most locations assessed. To address community expectations, mitigation measures were outlined to break up views of the proposed infrastructure from these locations with sections of vegetation screening on the proposed solar farm site. This would reduce the impact to a low and acceptable level at all locations.<br>There would be no visibility of the solar farm from the Riverina Highway.<br>**No further changes to the EIS mitigation measures are considered to be required (refer updated measures in section 5 below).** |
| **Glare and glint** | | |
| 235878<br>236436<br>236493 | Three respondent raised concern about the solar farm producing glare and glint that would impact surrounding residents and cause visual impact from the air. It was suggested that a buffer should be considered for a nearby residence. | The potential risk of glare and glint from the proposal was discussed in section 9.6.4 of the EIS. Glint is a quick reflection that occurs when the sun is reflected on a smooth surface. Glare is a longer, sustained reflection.<br>Infrastructure at the site that may cause glint or glare depending on the sun angle, include:<br>• solar panels<br>• metal array mounting (steel or aluminium)<br>• site buildings<br>The potential for glint or glare associated with non-concentrating PV systems which do not involve mirrors or lenses is relatively limited. PV solar panels are designed to absorb as much solar energy as possible in order to maximise electricity generation. As such, they reflect only around 2% of the received light (Spaven |

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| | | Consulting 2011). The panels would also have an anti-reflective coating to further reduce the potential for glare and glint.<br>Spaven Consulting 2011 provides a comparative reflection analysis against other surfaces and solar panels. In relation to water and snow, a solar panel (with an anti- reflectivity coating) reflects a much lower percentage of light. In addition, the Department of Planning (2010) in their discussion paper on planning for renewable energy generation, stated that solar panels would not generally create noticeable glare compared with an existing roof or building surfaces.<br>For other infrastructure on site such as the buildings and steel mounting frames and transmission line poles, impacts from glint and glare is considered minor due to their small size and low surface area.<br>The EIS commits RES to using materials and colours of onsite infrastructure, where practical, that are non-reflective and in keeping with the materials and colouring of the landscape. Impacts of glint and glare as a result of the proposed solar farm's infrastructure are considered to be minor.<br>**No further changes to the EIS mitigation measures are considered to be required (refer updated measures in section 5 below).** |
| **Screening** | | |
| 237350 | One respondent raised concern on the preparation and timing of the tree screening. Additional concern was raised regarding who will be responsible for caring for the young trees once they are planted. | Visual mitigation measures are outlined in section 8.3.4 of the EIS. This involves developing a Landscape Management Plan to address the 'as built' visual impacts of the proposed solar farm. The plan would include on-site vegetation screening for viewers for which a medium impact is confirmed following construction of the solar farm. This would be aimed at 'breaking up', not blocking views of site infrastructure.<br>The following screening requirements would be met:<br>• Planting would be more than one row deep and preferably be located on the outside of the security fence, so that it breaks up views of the fencing as well as site infrastructure. The final location of planting and density would be undertaken following verification of actual impacts.<br>• The plant species to be used in the screen are to be native and consistent with existing vegetation types on the proposal site. They should be fast growing, with spreading habit. Species selection should be undertaken in consultation with a botanist. |

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| | | • Vegetation should include a high shrub layer which would provide a more effective visual screen compared to trees as the panels would be maximum 3 metres high. Where feasible, plants selected should be of adequate size when initially planted to allow immediate effect as a visual screen.<br>• The timing is recommended to be close to completion of construction so that actual and not predicted impacts of infrastructure are mitigated.<br>The screen would be maintained for the operational life of the solar farm. Dead plants would be replaced. Pruning and weeding would be undertaken as required to maintain the screens visual amenity and effectiveness in breaking up views.<br>A clarifying sentence would be included in the above commitment confirming that the proponent would be responsible for establishing, monitoring and maintaining the screen plantings in line with the Landscape Management Plan.<br>**The EIS mitigation measure dealing with landscape planting (no. 25) has been updated (refer also updated measures in section 5 below).** |
| **4.4 TRAFFIC** | | |
| **Damage to road infrastructure and safety** | | |
| 236878<br>236436<br>236493<br>237099<br>237276<br>236654 | Six respondents are concerned that the traffic generated by the construction of the solar farm will cause damage to the unsealed access road. Submissions state that the road is dangerous in wet conditions and not built to cope with large volumes of traffic. | The EIS identified during construction of the proposal there would be an increase in traffic along Parfreys Road, which could potentially result in damage to road infrastructure. It is outlined that the increased traffic and heavy vehicles required during the construction and decommissioning periods are likely to accelerate the degradation of the unsealed road, particularly after rain.<br>RES has committed to conducting a pre-condition survey of the relevant sections of the existing road network would be undertaken, in consultation with Edward River Council. During construction the road network would be monitored and maintained to ensure continued safe use by all road users, and any faults attributed to construction of the solar farm would be rectified. At the end of construction, a post-condition survey would be undertaken to ensure the road network is left in the same state as at the start of construction.<br>In addition to repairing any damage resulting from proposal traffic, the implemented mitigation measures identified in the EIS, including a Traffic Management Plan, consultation with relevant stakeholders and |

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| | | speed restrictions for heavy and oversized vehicles, the solar farm is not considered likely to affect traffic and public safety on Parfreys Road around the proposal site.<br>**No further changes to the EIS mitigation measures are considered to be required (refer updated measures in section 5 below).** |
| **Traffic movement** | | |
| 236436 | One responder raised concerns regarding the movement of traffic on Parfreys Road during construction and decommission. | Section 9.5.2 of the EIS discusses the traffic movements and increased delays along Parfreys Road. The proposal also has the potential to increase collision risks for stock and wildlife. Large vehicle traffic speeds would be restricted on Parfreys Road and at the proposal site to minimise collision risks and noise/dust impacts. The relatively short distance between the Highway and the proposal site entrance (2 kilometres) would limit potential delays caused by slow-moving vehicles.<br>Traffic impacts would largely be confined to standard hours of construction. Exceptions may occur as staff arrive and leave the site, before and after shifts. Wherever possible, traffic movements for personnel would be rationalised, such as through the provision of shuttle buses for workers or organising car-pooling. This objective would be a requirement of the TMP.<br>Large vehicles and oversized loads are likely to require temporary traffic controls at certain times during the construction phase, potentially at the proposal site entrance and across the Mulwala canal bridge on Parfreys Road. Where possible, large deliveries requiring stop/go traffic controls would not be scheduled during morning and evening commuting or school bus operating periods. However, given the long haulage distances, large deliveries within these periods, or outside normal working hours, may be unavoidable. The proponent would aim to restrict any traffic delays to a maximum of 10 minutes.<br>Subject to speed restrictions, safe intersections, rationalising staff travel, scheduling of deliveries and traffic controls and ongoing consultation with affected residents, the works are not considered likely to result in unacceptable delays or collision risks.<br>**No further changes to the EIS mitigation measures are considered to be required (refer updated measures in section 5 below).** |
| **Traffic numbers** | | |

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| 236493 | One responder raised concerns on the number of trucks involved in the construction of the solar farm. | The type and total number of vehicle movements are outlined in Section 4.5.4 of the EIS. Over an entire year, there would be an average of 5 Heavy Goods Vehicle movements and 42 light vehicle movements per day (average daily total 47 movements). During the 2 month peak construction period this would rise to a daily average of 31 Heavy Goods Vehicle movements and 254 light vehicle movements (average daily total 285 movements). One over dimensional vehicle would be required for the transportation of the substation transformer.<br>Where possible staff movements would be rationalised using minibus or bus transport, or car pooling. A special convoy and a 50T (or larger) mobile crane may be required for offloading the CPUs. Traffic would largely be confined to standard site working hours.<br>**No changes to the EIS mitigation measures are considered to be required.** |
| **4.5 WATER USE** | | |
| **Use of water on other properties** | | |
| 237139<br>237350 | Two respondents raised concerns over the use of water on other properties as a rationale for choosing the land. Respondents mentioned the limit set by the Commonwealth on the buyback of water in the district due to the effects that recent buy back scheme has had on the community. | Irrigation infrastructure within the property that is required to be removed can be readily restored after the decommissioning of the solar farm. The large storage dam on the property would be drained and retained for use following decommissioning of the solar farm.<br>As noted in the EIS, the landowner intends to utilise their 3,718 ML water entitlement on other properties (totalling 5000 ha) in the locality. The proposal would not affect demand for water, supply of water or the existing irrigation and drainage channel network. The proposal would not affect irrigation infrastructure, supply volumes or water use on neighbouring properties.<br>**No changes to the EIS mitigation measures are considered to be required.** |
| **4.6 BIODIVERSITY** | | |
| **Impact on native fauna generally** | | |
| 236436<br>237350 | Two respondents expressed concern in relation to the impacts to native fauna from the development. Specific concerns include the | Effects of the solar farm to native fauna are addressed in section 8.1 of the EIS and in the Biodiversity Assessment Report in Appendix D of the EIS. The Biodiversity Assessment Report (BAR) addresses the biodiversity matters raised in the SEARs and the requirements of the Framework for Biodiversity |

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| | potential for kangaroos to be trapped by the security fencing, | Assessment (FBA), developed for Major Projects as part of the NSW Biodiversity Offsets Policy for Major Projects. This section of the EIS summarises the key findings in the BAR.<br>Comprehensive field surveys were undertaken in April, May, August and December 2017 in accordance with the FBA to:<br>• identify vegetation communities and potential EECs present within the proposal area, their condition and extent.<br>• conduct targeted searches for threatened flora and fauna species predicted to occur in the proposal area<br>• assess the availability and extent of flora and fauna habitat, particularly threatened species habitat, such as hollow-bearing trees.<br>Targeted surveys were undertaken to determine whether specific threatened fauna occurred within the site, including spotlighting and call-playback surveys for Sloane's Froglet *Crinia sloanei* and targeted searches of hollow-bearing trees for evidence of breeding Superb Parrots within the development envelope.<br>The EIS highlights key potential impacts and risks associated with the proposal including the loss of threatened species habitat and the injury and mortality to fauna during clearing. The majority of the proposal area is not considered to constitute suitable habitat for threatened fauna species, having been previously cleared and extensively cropped. A number of trees occurring within the development envelope are potentially hollow-bearing. A total of 6 hollow-bearing trees and a further 5 paddock trees (isolated trees not containing hollows) were identified during surveys of the proposal area.<br>There were no threatened species or populations nominated by the SEARs for consideration were identified during targeted surveys.<br>The proposal will remove 11 isolated paddock trees, six of which contain hollows. No suitably large corvid or stick nests were detected to indicate the presence of larger raptors nesting permanently within the development envelope.<br>No threatened bird species were identified within the development envelope during surveys. Nonetheless, there is potential for some species to roost and forage within the development envelope on occasion. Additional surveys to inform avoidance and offset requirements would be undertaken for the threatened Superb Parrot. |

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| | | Pre-clearing surveys will be used to check for hollow-dependent fauna, stick nests, and the presence of any raptors roosting or breeding within the development envelope. A range of other mitigation measures will be implemented to ensure that impacts on biodiversity during the construction phase are avoided where possible, and minimised where they cannot be avoided.<br>A protocol for unexpected fauna finds within the fenced area will be included in site management plans, which will include specific detail about the actions to be undertaken should macropods become trapped within the fenced area.<br>**No further changes to the EIS mitigation measures are considered to be required (refer section 5 below).** |
| **Removal of trees** | | |
| 236139 | One respondent expressed concern in relation to the removal of hollow bearing trees and remnant vegetation and the proposed offsets. One respondent has stated the proposed offset area is in flood affected land that will be highly affected by a rain season. | Vegetation clearing is addressed in section 8.1.3 and in the BAR in Appendix D of the EIS. A total of 2.68 hectares of native vegetation comprising three Plant Community Types will be cleared as a result of the proposal, including 0.03 hectares of the NSW EEC Inland Grey Box Woodland as moderate to good condition woodland, and 0.9 hectares of the EEC as paddock trees (effective clearing area). The total clearing amounts to approximately 22% of the native vegetation found within the proposal area (12.05 hectares). The vegetation clearing would be offset, consistent with a Biodiversity Offset Strategy included in the BAR.<br>The clearing of native vegetation, which is a key threatening process at both State and Commonwealth level, is considered a major factor in the loss of biological diversity. The amount of native vegetation to be removed as a result of the proposal is, however, relatively minor compared to the size of the development and the low quality of the vegetation condition. The vast majority of the proposal area (95.5%) is located within existing highly modified and exotic dominated vegetation and the native vegetation to be removed is modified and degraded, having an extensive history of clearing and cropping.<br>A Biodiversity Offset Plan (BOP) will be developed and implemented as part of the proposal. The offset will be managed in perpetuity to ensure that threatened species habitats are enhanced in the future. It is proposed that an offset will be established subject to consent conditions within 2 years of the commencement of construction, which would be adequate for the retirement of biodiversity credits. The location of the offset and the preparation of offset management plans will account for potential land management issues such as flooding and fire.<br>**No further changes to the EIS mitigation measures are considered to be required (refer section 5 below).** |

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| **Superb Parrot** | | |
| 237139<br>237350 | Two respondents raised concern over the superb parrot habitat on nearby properties, the removal of potential habitat and the process of offsetting. | Assessment and analysis of the potential impacts on the Superb Parrot are discussed in the BAR.<br>Targeted surveys for the species recorded no sighting of the Superb Parrot, however records of the species exist within approximately 5 km of the Proposal Area. As such, it is considered likely that the species would utilise the Development Envelope as a foraging resource on occasion.<br>The species is both an ecosystem and species credit species under different circumstances. Where the species is utilising habitat for foraging only, the species is an ecosystem credit species, whereas where breeding habitat occurs, the species occurs as a species credit species. The species was not identified within the Biobanking Credit Calculator as being an ecosystem credit species associated with the PCTs found on site, however will be added as an additional species to ensure that any impacts and offsets to the species are adequately quantified.<br>In addition to avifaunal surveys undertaken as part of the initial assessment of the site, targeted surveys for the Superb Parrot were undertaken in December 2017. These surveys included observation of bird species utilising vegetation and paddock trees whilst threatened flora surveys were being undertaken. Walked transects searching wet and inundated areas for Floating Wallaby Grass *Amphibromus fluitans* were undertaken across the development envelope, which allowed for checks of hollow-bearing trees located within the development envelope to be undertaken. These surveys did not detect the species on or adjacent to the site, and in particular the species was not found to be utilizing any hollow-bearing trees on the site as a breeding resource.<br>Pre-clearing surveys to be completed prior to the commencement of any vegetation or trees by project ecologist to confirm presence of stick nests and nesting Superb Parrots. If Superb Parrots are found to be utilising hollows, those hollow-bearing trees are not to be cleared until the species has ceased using the hollows, and credit requirements updated to include an offset for the species as a species credit.<br>**No changes to the EIS mitigation measures are considered to be required.** |
| **Policing of offsets** | | |
| 237350<br>237139 | Two respondents raised concerns over the policing of offsets. This issue stems from a history of offsetting not occurring. | In section 8.1.4 of the EIS, the offset requirement outlines that a Biodiversity Offset Plan (BOP) will be developed and implemented as part of the proposal. The offset will be managed in perpetuity to ensure that threatened species habitats are enhanced in the future. It is proposed that an offset will be |

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| | | established subject to consent conditions within 2 years of the commencement of construction, which would be adequate for the retirement of biodiversity credits.<br>A Biodiversity Offset Strategy (BOS) has been provided in the BAR to demonstrate that the vegetation retained within the proposal area is adequate to offset the unavoidable impacts generated by the proposal. As no EPBC Act listed species are considered to be significantly affected by the proposal, an offset in accordance with the EPBC Offsets Policy is not required.<br>Retiring credits via a BioBanking agreement would be utilised to retire the required credits. Where possible, the BOS will aim to match ecosystem and species credits on a 'like for like' basis through the retirement of biodiversity credits, in accordance with the credit profiles provided in the project's credit report. Where this is not possible, payment to the Biodiversity Conservation Fund may be investigated in consultation with the consent authority.<br>**No changes to the EIS mitigation measures are considered to be required.** |
| **4.7 POLICY AND LEGISLATIVE REQUIREMENTS** | | |
| **Consideration of Primefact 1063** | | |
| 237395 | One respondent raised concern over the examination of the Primefact 1063. | The approach and methodology of the potential impacts of the solar farm to the proposal site is discussed in section 8.4.1 of the EIS. The land use and resource values of the proposal site and locality, and potential impacts of the proposed solar farm have been assessed with reference to the NSW land and soil capability assessment scheme, Primefact 1063 Infrastructure proposals on rural land, Biophysical Strategic Agricultural Land and Important Agricultural Land identification processes and the Land Use Conflict Risk Assessment Guide. Information sources include the eSPADE, Minview and Common Viewer databases, landholder records, ABS, ABARES agricultural production and water use figures and Australian Renewable Energy Agency (ARENA) funded research by the Ipsos Social Research Institute.<br>Primefact 1063 Infrastructure proposals on rural land (DPI 2013) provides the following guidelines to minimise impacts on agricultural resources and enterprises (summarised):<br>• proposals should be clearly justified in a regional context and merits and community benefits identified<br>• agricultural resource lands should be identified and avoided |

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| | | • land use conflicts should be minimised<br>• landholders should be effectively consulted during planning, construction and rehabilitation works and the expectations of local communities should be managed<br>• development proposals should identify suitable mitigatory/remediation responses for all likely agricultural impacts.<br>The EIS has strategically justified the proposal and identified community benefits (EIS sections 2 and 11). Biophysical Strategic Agricultural Land and Important Agricultural Land status are discussed in section 8.4 of the EIS with elaboration in this Submissions Report at sections 4.2 and 5.3. The proposal would result in reduced agricultural production for the life of the solar farm, but would not affect long term land capability or use options. A Community Consultation Plan has been developed to inform the community and respond to concerns (section 6 of the EIS). Neighbours in particular have been consulted to minimise risk of land use conflict. The landholder would lease the property to the proponent and has been involved in the development of lease terms and proposal plans. A comprehensive set of mitigation measures has been developed to avoid impacts to long term land use capability (section 10.2 of the EIS).<br>**No changes to the EIS mitigation measures are considered to be required.** |
| **Draft NSW guidelines on solar farms** | | |
| 237309<br>237395 | Two respondents mentioned the use of State guidelines on solar farms. The respondents queried the determination of the proposal until the guidelines are finalised. | The Draft Large-Scale Solar Energy Guideline for State Significant Developments (SSD) has been placed on exhibition from 24 November 2017 to 16 February 2018. The document provides general guidance on the planning framework for the assessment and approval of large-scale solar energy development proposals.<br>The draft guideline outlines issues considered by consent authorities when determining solar SSD applications and is intended to assist project design, development and assessment.<br>The guideline has no formal bearing on current project applications which were lodged with DPE prior to the release of the guideline.<br>The draft guideline focuses on:<br>• site selection<br>• project assessment, including EIS content<br>• community and stakeholder engagement |

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| | | • post-approval regulation and compliance.<br>**Site selection**<br>The proposal site broadly meets all of the preferable site conditions identified in the guideline. In relation to location within an area identified by Government as optimal for renewable energy development, the site is located within the zone mapped by NSW Resources and Energy as receiving solar exposure of 19 megajoules per square metre. The NSW Resources and Energy map states that the central, northern and western regions of NSW have low population densities, abundant open space, and high average global solar exposure which provide significant opportunities to expand the state's large-scale solar electricity industry (Wade *et al*. 2017). In relation to the criterion 'broad community support', the views of the broader community have not been surveyed but, based on existing surveys conducted at the national, state and region levels (EIS section 9.4.1), it is considered that there is likely to be general community acceptance of the proposal (notwithstanding submissions received).<br>Consistent with the guideline, the design of the solar farm was informed by a detailed constraints assessment (refer EIS section 4.2). All of the constraint factors identified in the guideline were addressed in the project planning process and the EIS. The relevant site constraints are shown on the proposal layout and constraints map in Appendix A.<br>**Project assessment**<br>The proponent has complied with all of the requirements of the guideline in relation to process, EIS structure and content and design of the project. Measures identified in the guideline to mitigate potential land use conflict (combining agricultural uses on site, traffic and noise management, and property vegetation screening) have all been incorporated into the proposal. Consistent with the guideline, the EIS details the public interest case for project approval.<br>**Community and stakeholder engagement**<br>The plan and consultation process undertaken for the project broadly meets the principles and practices outlined in the Large-Scale Solar Energy Guideline.<br>The Guideline refers to the 'Department's Guideline for Engaging Stakeholders (2017) ('Engagement Guide') and the Community Consultative Committee Guidelines (2016)'.<br>The draft 'Community and Stakeholder Engagement' (DPE 2017) guidelines were released by the department for public comment in mid-2017, after the Community Consultation Plan for the project had |

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| | | been prepared (refer Appendix C of the EIS). The draft engagement guidelines emphasise early consultation, during the scoping phase.<br>Consultation for the project was coordinated using a Community Consultation Plan, and followed available guidelines developed by ARENA and Twyford Consulting (2007).<br>DPE, TransGrid, Edward River Council, Murray Irrigation Limited were consulted during the preparation of the scoping report. Neighbours within two kilometres of the proposal site were contacted by telephone prior to the scoping report.<br>Work preparing the scoping report provided the information base for further direct consultations and the Community Information Sessions.<br>Concerns from neighbours and requirements of stakeholders have been specifically addressed in the design of the project and in the EIS. For example, landscape and visual impact were raised as a key concern for the project. For this reason, a number of photomontages were commissioned from key locations around the project. The montages were on display at the consultation events held during September as well as discussed with neighbours. From these montages, a screening strategy has been developed with a commitment to provide and maintain screening in key locations as detailed within the EIS (refer section 4.3). Concerns were also expressed regarding the potential for weeds and pests to spread within and beyond the proposal site. The EIS has incorporated specific measures to prevent the introduction and spread of weeds, and the ongoing control of pest plants and animals at the site.<br>**No changes to the EIS mitigation measures are considered to be required.** |
| **4.8 HEALTHY AND SAFETY** | | |
| **Community health impacts** | | |
| 237276 | One respondent raised concerns over the solar farm impacting the community's health | The potential for health and other social impacts resulting from the creation of or interaction with hazards at the site (EMF, aviation, fire and flood risks) has been discussed in section 9.6 of the EIS.<br>In relation to health risks associated with EMF production, following decades of EMF research, no major public health risks have emerged but uncertainties remain (WHO nd). While it is accepted that short-term exposure to very high levels of electromagnetic fields can be harmful to health, the International EMF Project, established by the World Health Organisation, has thus far concluded that there are no substantive health consequences from exposure to ELF electric fields at the low levels generally |

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| | | encountered by the public (WHO 2007), such as those that would be produced by electricity generation at the proposed solar farm.<br>The assessment concludes that, subject to mitigation measures provided in this report, the proposal would not be likely to create or exacerbate significant hazards at the proposal site. Perimeter security fencing, infra-red lighting and cameras would be used to deter vandalism and theft and maintain public safety at the site. Specific measures are included in the EIS to minimise pollution risks to waterways and local air quality.<br>**No changes to the EIS mitigation measures are considered to be required.** |
| **Radiation and power output impacts** | | |
| 236493 | One respondent raised concerns regarding radiation emitted from the solar farm. | Electromagnetic field (EMF) production is discussed in section 9.6.3 of the EIS. Over decades of EMF research, no major public health risks have emerged but some uncertainties remain (WHO nd). While it is accepted that short-term exposure to very high levels of electromagnetic fields can be harmful to health, the International EMF Project, established by the World Health Organisation, has thus far concluded that there are no substantive health consequences from exposure to Extremely Low Frequency (ELF) electric fields at the low levels generally encountered by the public (WHO 2007), such as those that would be produced by electricity generation at the proposed solar farm.<br>Exposure to ELF electric fields magnetic fields is mostly considered to be harmless, however, a policy of prudent avoidance has been taken to account for any uncertainty. The Australian Radiation Protection and Nuclear Safety Agency (ARPANSA 2015) advises that 'the scientific evidence does not establish that exposure to ELF electric fields EMF found near power lines is a hazard to human health'.<br>The International Commission on Non-Ionizing Radiation Protection (ICNPR) published *Guidelines for limiting exposure to time-varying electric, magnetic and* ELF electric fields *(up to 300GHz)* in 1998. The guidelines were updated in 2010. The objective of the paper was to establish guidelines for limiting EMF exposure that will provide protection against known adverse health effects. To prevent health-relevant interactions with Low Frequency fields, ICNIRP recommends limiting exposure to these fields so that the threshold at which the interactions between the body and the external electric and magnetic field causes adverse effects inside the body is never reached.<br>Based on current design, approximately 16 Power Conversion Units (PCUs), comprising inverters and transformer unit on either an open skid or in a metal container, would be installed across the site. The PCUs would have a total output of up to around 210 MW (AC). The inverters would typically have an AC |

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| | | power frequency range between 47 and 63 Hz and fall into the Extremely Low Frequency electric fields (ELF) range of 0-300 Hz. Within this range, EMFs are not considered to be hazardous to human health. In addition, the PCUs would be located within the fenced solar farm site with no public access and would be producing power only during the day time reducing the total time that EMFs are generated by the infrastructure.<br>The EMFs emitted by the solar farm would not be likely to interfere with local mobile phone, radio or television reception. These devices operate at a much higher frequency than the AC electrical equipment that would be used at the solar farms, and any EMFs produced would dissipate rapidly with distance from the source.<br>**No changes to the EIS mitigation measures are considered to be required** |
| **4.9 SOLAR FARMS AND ELECTRICITY SUPPLY** | | |
| **Department approvals of solar farms** | | |
| 235798 | One respondent considered there are too many solar projects in NSW. | Current total energy supply in NSW is 18,738MW, of this 236MW are supplied by Solar and 610MW supplied by wind. This represents 1.26% and 3.25% respectively of the total power supply. The amount of power supplied by water (hydropower) is 4,644MW (24.7% of total supply). The remainder (70.79%) of the power is being supplied by coal, diesel, natural gas, coal waste, bagasse, black liquor, and landfill gas. (NSW DPE, Resource and Energy Division website 2018). Based on these figures, the proportion of solar and wind in the power mix is currently very low. Increasing the amount of solar energy will improve renewable energy penetration that is necessary in response to the Federal Government's Renewable Energy Target.<br>The Large-scale Renewable Energy Target component of the RET requires an estimated 6,000 MW of new renewable power stations to be built by 2020 (Clean Energy Regulator 2015 in Finkel *et al*. 2016).<br>The NEM (National Electricity Market) has around 40,000 km of transmission lines and cables to move electricity around its five interconnected regions (Queensland, New South Wales including ACT, Victoria, South Australia and Tasmania). This high voltage network uses sophisticated systems to move electricity around the network to where it is needed.<br>**No changes to the EIS mitigation measures are considered to be required** |
| **Electricity prices and security** | | |

| Issue and submission number | | RES Response |
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| 235798<br>236988 | Two respondents are concerned about the adverse impact of the project on NSW electricity prices and electricity security for NSW. | Electricity prices are discussed in section 2 of the EIS. Variable renewable energy generation such as PV solar operates with no fuel costs and can, with the right policy framework and technological development to manage variability, be used to reduce overall wholesale prices of electricity (Finkel *et al*. 2017).<br>Several studies on the impacts of increased large scale renewable energy generation under the RET have indicated that this is likely to put downward pressure on electricity prices (Australia Institute 2015). To the extent that competition amongst retailers is limited, and to the extent that the RET creates greater contestability through the creation of economically sustainable new entrant retailers, there will be further downward pressure on the retail margins (Sinclair Knight Merz 2013).<br>New solar energy generation is at least as cheap as coal in Australia, and the levelised cost of electricity from solar is set to drop another 66% by 2040. Solar will beat the cost of existing, fully depreciated and unrefurbished coal plants by 2032 (BNEF 2017). Solar is also cheaper than 'clean coal'; the cost per megawatt hour of new solar is $78-$140, whereas new 'ultra supercritical' coal is $134-$203 and coal with carbon capture and storage is $352 (Climate Council 2017).<br>Regardless of whether renewable energy projects are constructed in response to the Federal Governments Renewable Energy Target, any adverse impact to electricity prices as a result of this policy will occur as liable entities (electricity users) are required to either procure sufficient Largescale Generation Certificates (LGC) to achieve the RET or pay a penalty rate for any shortfall. Construction of renewable energy generators realises LGC's at a cost lower than the legislated penalty.<br>The network operators and the Australian Energy Market Operator are responsible for ensuring the project complies with the National Electricity Rules and network stability requirements. The project has completed a full set of static and dynamic network modelling of the proposed connection point which have been submitted to TransGrid and AEMO for review and acceptance.<br>**No changes to the EIS mitigation measures are considered to be required.** |
| **Electrical production not benefitting local communities** | | |
| 237139 | Two respondents expressed concerns of the solar farm benefitting the immediately surrounding towns. | The benefits of the solar farm are discussed in section 11 and 2.1.3 of the EIS. The proposal offers a range of community benefits relating to electricity supply, economic activity, local employment opportunities and the establishment of a $20,000 pa community fund. |

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| | | The electricity generated from the proposed solar farm would be traded on the National Electricity Market (NEM), and displace electricity generated by fossil fuels because it has a lower short run marginal cost.<br>The proposal would benefit network reliability and security by providing embedded electricity generation closer to local consumption centres, reducing the cost impacts of transmission losses and contributing to a more diverse mix of energy sources. The proposed Energy Storage Facility would regulate inputs to the grid and improve the reliability and security of electricity supply at a local and state level.<br>**No changes to the EIS mitigation measures are considered to be required.** |

# 5 PROPONENT'S RESPONSE TO GOVERNMENT AGENCY SUBMISSIONS

Government agency submissions are addressed in the order received. For each submission, the key issues are summarised in the left hand column and the Proponents response is provided in the right hand column.

Table 5-1 Agency submissions and proponent's response

| Issue | RES response |
|---|---|
| **5.1 DEPARTMENT OF PLANNING AND ENVIRONMENT (DPE)** | |
| **Land use** | |
| DPE requests that RES addresses potential impacts to agricultural land use on both a local and regional scale. | Refer to response to Public Submissions, sections 4.1 and 4.2. |
| **Project site selection** | |
| DPE requests that RES provides further justification on the project site selection. | Refer to response to Public Submissions, sections 4.2 (location), 4.7 and 4.9. |

| Issue | RES response |
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| **5.2 NSW DIVISION OF RESOURCES AND GEOSCIENCE (GSNSW)** | |
| **Consultation** | |
| GSNSW requires the proponent to provide evidence of notification to Council and South Deni Concrete regarding the potential impacts on the operation and expansion of the quarries near the Project site and include a record of consultation including any issues raised and how these issues have been addressed. | Evidence of consultations undertaken for the proposal is provided in Appendix B of the EIS. As noted in the EIS, multiple attempts were made to contact South Deni Concrete as per the SEARs and the earlier request from DPI - Division of Resources and Geoscience. No response from South Deni Concrete was received.<br>Edward River Council was also contacted and responded that "In relation to the council managed quarry located south of the Tarleigh Park farm, it is considered that any impact on Doherty's Pit would be minimal and that the only impact may be the wear and tear on Parfreys Road" (refer section 6.3 and Appendix B of the EIS).<br>Copies of the relevant email chain with Council, and the consultation letter sent to South Deni Concrete are provided at Appendix F.<br>**No changes to the EIS mitigation measures are considered to be required.** |
| **Resources sterilisation** | |
| GSNSW requests consultation if biodiversity offsets are being considered for the project, to ensure there are no potential sterilisation impacts to resources. | The proposal would require biodiversity offsets. A Biodiversity Offset Strategy has been prepared for the project, refer to Appendix D of the EIS. It is recommended in the BOS that the proponent consults with GSNSW with regard to the site selected for offsets.<br>**No changes to the EIS mitigation measures are considered to be required.** |
| **5.3 NSW DEPARTMENT OF INDUSTRY, CROWN LANDS** | |
| **Crown Land** | |
| The Department states the Crown road adjoining the proposed development area will require application to close and purchase. | This is applicable to the Currawarra solar farm proposal, not Tarleigh Park. There are no Crown Roads at the Tarleigh Park proposal site.<br>**No changes to the EIS mitigation measures are considered to be required.** |
| **Impacts on soils and Important Agricultural Land** | |

| Issue | RES response |
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| The Department recommends the EIS includes a more detailed discussion of the impacts on soil class soil survey report (Appendix H) and the long-term impacts on Important Agriculture Land (IAL). | The mapped soil landscapes described for the site accord reasonably closely with the findings of the soil survey. The characteristics and limitations of the soil types identified at the site are summarised in the EIS (section 9.1) and are provided in detail in the soil survey report attached as Appendix H. The identified soil limitations are manageable and a series of specific mitigation measures are included in the EIS to handle soil conditions at the site.<br>Important Agricultural Land (IAL) is typically defined by a distinctive combination of critical resources (such as biophysical, economic, infrastructure) important for an agricultural industry. These lands are considered to be the 'best of the best' land in meeting specific location criteria for the industries (DPI 2016).<br>The document 'A Guideline for Identifying Important Agricultural Lands in NSW (DPI 2017) defines IAL as 'existing or future location of local or regionally important agricultural industries or resources as mapped that is consistent with the NSW DPI Guideline to Identifying Important Agricultural Lands in NSW'. The guideline provides a composite mapping methodology involving overlays of current land use, biophysical resources, socioeconomic information and agricultural industries. The methodology is intended to be used at the LGA, sub-region and region scales. Mapping IAL at the regional or LGA scale is beyond the scope of the project EIS. Local or site-specific mapping of IAL is problematic because IAL needs to be considered in a regional or sub-regional context. Even mapping at the LGA scale can lead to inconsistencies with adjacent LGAs (DPI 2017). Different criteria are required to define the important resource combinations and locations for different industries and locations (DPI 2017).<br>As such, the guideline does not provide any quantitative criteria for the identification of IAL at the site scale.<br>Current published IAL mapping does not cover the Deniliquin area. Work has recently commenced to revisit some pilot IAL mapping done for the Murray/Murrumbidgee region (including the proposal site), but this will not be available for some time (Wendy Menz DPI pers comm). |

| Issue | RES response |
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| | The Riverina Murray Regional Plan 2036 (DPE 2017) refers to 'an agricultural development strategy [that] will be developed for the region to identify and map the important agricultural land… and will be used to inform land use planning decisions'.<br>Biophysical and socioeconomic factors contributing to IAL relevant to the site and the existing agricultural activities on the property have been documented in the EIS. These include soil, topography, land capability, water resources and irrigation infrastructure, surrounding land uses, strategic location, local industry resources, LEP zoning and biodiversity values. NSW Government mapping of soil types, soil fertility, land capability and land use at the sub-region level is provided in Appendix E<br>The soils at the site have been documented in the soil survey report attached as Appendix H to the EIS and summarised in section 9.1 of the EIS. The site carries vertosol soils which exhibit strong cracking and shrink-swell properties, and have high waterlogging risk (refer EIS section 9.1.1). It is noted that poorly drained sites are excluded from Biophysical Strategic Agricultural Land (BSAL) (NSW Government 2013), refer also section 4.2 of the Submissions Report). The soils occurring at the proposal site are widespread and dominant in the sub-region, and moderate fertility soils occupy the vast majority of the sub-region. Vertosols are particularly dominant in the Murrumbidgee floodplain areas to the north of the sub-region; refer Appendix E.<br>The majority of the site is mapped as capability class 3, with a small area in the south-west corner mapped as class 6 (refer EIS section 8.4.2). It is noted that Capability Class 3 land includes 'fair to good' agricultural land, but not 'prime' agricultural land (Emery 1988). It is noted that Class 3 land is one of the predominant capability classes in the sub-region; refer Appendix E. The class 3 land at the site forms part of a 364,719 hectare class 3 mapping polygon in the sub-region.<br>Hence, the soils and mapped land capability suggest that the proposal site is not among the 'best of the best' for the growing of irrigated or dryland grain crops. Nonetheless there are locational and socio-economic factors which would contribute to IAL status, including LEP zoning, surrounding land uses, irrigation infrastructure and water access and local agricultural services and facilities. |

| Issue | RES response |
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| | In terms of rice-growing, the site is suitable because it has impermeable clay soils, laser levelled surfaces, irrigation water supply and proximity to rice storage and milling facilities. These conditions are not uncommon or limiting on the Murray and Murrumbidgee floodplains. In 2014-15 there were 167 rice farms in the Murray Region, and rice farms occupied 6.2% of the region (ABARES 2017a). The main rice producing LGAs in 2010-11 were Griffith, Wakool, Murrumbidgee and Jerilderie (RMCG 2016).<br>The most limiting factor governing rice production in a given year is water availability.<br>Most NSW rice growers hold a general low security water access licence and decisions to grow rice are determined by annual water allocations. The area under rice peaked in 2001 (167,500 hectares) but over the last 20 years has generally ranged between 150,000 hectares in non-drought years and 2,200 hectares in 2007-08 due to variations in water allocations (RMCG 2016). With further reductions required under the Basin Plan and the ongoing impact of climate change, the area used for rice production will continue to be limited by water availability rather than land capability (refer ABARES 2017b).<br>The availability of water is therefore the principal limiting factor in the specific 'combination of critical resources' for IAL used for rice growing. Land with access to water similar to the proposal site is widespread in the Riverina - Murray region, noting of course that the water is not tied to the land and may be traded in accordance with the applicable water sharing plans.<br>The EIS (section 8.4) provides contextual information on local and regional agricultural production and land use. At the region scale, the site makes up a very small proportion of agricultural production in terms of area and gross value; refer section 4.1 above. The reduced production resulting from the proposal would be offset by increased yields elsewhere in the LGA, because the landowner would use water and irrigators currently used on Tarleigh Park on other properties. The increased financial security provided by the solar farm would allow the landowner to purchase more temporary water to increase the summer cropping production of rice and corn. |

| Issue | RES response |
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| | The proposal would not permanently change any of the biophysical or socio-economic factors at the site that contribute to land capability or IAL status. All risks to agricultural land use values (including weeds, soil degradation, pollutants) can be adequately managed and are covered by specific mitigation measures in the EIS.<br>**No changes to the EIS mitigation measures are considered to be required**. |
| **Decommissioning and rehabilitation** | |
| The Department recommends the EIS should commit the proponent to include the following in the Environmental Management Plan for the Rehabilitation and Decommissioning of the development<br>• Indicators to guide the return of the land back to agricultural production;<br>• Monitoring and mitigation measures to be adopted for rehabilitation actions; and<br>• A commitment to burying cables and pipes to a depth at least 1000mm on any land with a cropping history or land with a capability for cropping to allow greater opportunity for agricultural activities to continue above the cables. | The EIS has the following mitigation measures committing the proponent to rehabilitation and decommissioning:<br>• Underground cabling and other works to remain in situ following decommissioning of the solar farm would be installed deeper than 500mm to allow cultivated cropping to resume following decommissioning.<br>• A Decommissioning Environmental Management Plan (DEMP) would be prepared and submitted to DPE for approval prior to decommissioning. The DEMP would include a Site Rehabilitation Plan covering:<br>o Criteria and indicators for the restoration of land capability and agricultural potential based on pre-works soil survey results<br>o Details of rehabilitation actions such as removal of infrastructure, remediation of soils, reinstatement of dams and irrigation/drainage channels as required and establishment of suitable groundcover vegetation on bare areas<br>o A monitoring and assessment process to demonstrate that the target state has been achieved an expected timeline for the rehabilitation program.<br>Detailed quantitative criteria and indicators and an accepted monitoring methodology would be included in the DEMP Site Rehabilitation Plan, which would require approval from DPE.<br>All underground cabling would be installed at a depth of at least 500mm with the electrical reticulation buried to either 600mm (low voltage) or 800mm (high voltage) depth, in accordance with the relevant Australian Standard. |

| Issue | RES response |
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| | In the EIS, below ground infrastructure that impedes cropping activities (less than 500mm depth) would be removed. Removal of infrastructure to this depth would allow for cropping operations after decommissioning. Committing to installing cables and pipes to at least 1000mm is not considered to be warranted on the basis of protecting future land capability.<br>**No changes to the EIS mitigation measures are considered to be required**. |
| **Biosecurity threats** | |
| The Department recommends the EIS includes an assessment of biosecurity threats from construction and operation of the proposal on potentially affected nearby properties. | The proposal has the potential to introduce or spread biosecurity threats including weeds and pathogens in the area through the use of equipment, vehicles and materials during construction and operation. The potential impact is a greater risk during construction and decommissioning due to the amount of equipment, vehicles and staff on-site. The risk during operation is considered negligible due to the minimal amount vehicles and staff present on-site.<br>The EIS states that high biosecurity standards would be applied during the construction period, including pre-works weed treatment and maintaining high levels of weed and disease hygiene for construction vehicles, machinery and materials. Similarly weeds and pest animals would be monitored and controlled as part of the continuing management of the solar farm site. The EIS commits the proponent to preparing and implementing a vertebrate pest management plan during construction and operation.<br>The effective control of biosecurity threats within the proposal site would serve to minimise threats to neighbouring properties. In particular, the introduction and spread of mobile species such as wind- and fauna-dispersed weeds and pest fauna species would be continuously controlled during the construction and operation phases, and would not be allowed to affect surrounding areas.<br>**The Flora and Fauna Management Plan mitigation measure (no. 4) has been modified to cover weed hygiene and control.** |
| **Dams** | |

| Issue | RES response |
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| The Department recommends the EIS provides detail on impacts and mitigation measures for emptying the existing on-site water storage and the decommissioning of a number of smaller onsite dams. Additional detail should also be provided on the proposed management of existing on-site dams during construction and operation of the project. | The existing Murray Irrigation Limited channels, large storage dam and farm buildings at the proposal site would be retained during the solar farm operation phase.<br>If not required for continued use by the landowner, the large storage dam would be emptied to avoid risks of breaching and overflowing during the operation phase. In this case, water levels in the dam would be reduced progressively between consent being granted and the start of construction (likely to be a period of at least 6-9 months). The water would be used for on-site farm use, construction, to irrigate screen plantings and groundcover at the site and dust suppression as required. After the dam has been emptied, the dam banks and bed would be sown with a perennial groundcover to stabilise soils.<br>Private drainage channels and smaller farm dams would be removed and the site revegetated with perennial groundcover in line with the project Groundcover Management Plan. These structures would be restored as required at the end of the life of the solar farm. Each channel and dam site would be inspected by an ecologist prior to final removal of water for the presence of aquatic fauna. Any mammals, birds and reptiles would be removed and relocated as required prior to the works. The works would be subject to the project Erosion and Sediment Control Plan and Site Drainage Plan.<br>**An additional fauna protection measure relating to the inspection of redundant dams and drains and removal of aquatic fauna has been adopted.** |
| **CEMP condition** | |
| The Department recommends the following condition of consent:<br>• The proponent prepares a CEMP in consultation with Crown Lands and Water prior to commencement of activities | **Soils and landforms impact mitigation measure no. 43 has been modified to include consultation with Department of Industry (Crown Lands and Water) in the development of the CEMP.** |
| **5.4 RURAL FIRE SERVICE** | |
| **Fire risk** | |

| Issue | RES response |
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| The NSW RFS has no objections to the EIS content relating to structure/grass fire risks and proposed management actions.<br>NSW RFS recommends the following conditions be included in any approval granted:<br>1. A Bush Fire Management Plan (BFMP) will be prepared in consultation with NSW RFS District Fire Control Centre. The BFMP shall include:<br>• 24/7 contact details including alternative telephone contact;<br>• Site infrastructure plan;<br>• Fire fighting water supply plan;<br>• Site access and internal road plan;<br>• Construction of asset protection zones and their continued maintenance;<br>• Location of hazards (Physical, Chemical and Electrical) that will impact on fire fighting operations and procedures to manage identified hazards during fire fighting operations;<br>• Such additional matters as required by the NSW RFS District Office (Plan review and update).<br>2. The entire solar array development site to be managed as an Asset Protection Zone as outlined within section 4.1.3 and Appendix 5 of 'Planning for Bush Fire Protection 2006' and the NSW Rural Fire Service's document 'Standards for asset protection zones'.<br>3. To allow for emergency service personnel to undertake property protection activities, a 10 metre defendable space that permits unobstructed vehicle access is to be provided around the perimeter of the solar array development site.<br>4. A minimum 20,000 litre dedicated water supply shall be located adjacent to the main internal road. The water supply shall have a hard stand surface within 4 metres of the supply. | **The mitigation measure related to the Fire Management Plan (no. 71) has been updated to include the detailed requirements in the RFS submission.**<br>The existing EIS mitigation measures meet all of the other requirements provided by the RFS.<br>The EIS states that 'an APZ of minimum width of 10 metres would be provided around the solar farm buildings, substation and Energy Storage Facility, and around the outside perimeter of the solar array. The 10 metre APZ setback requirement would also be applied to any woody vegetation plantings undertaken around the perimeter of the solar farm. All of the APZ would be managed as an Inner Protection Area.'<br>The provisions of Practice Note 1/11 -Telecommunications Towers in Bush Fire Prone Areas is routinely applied to solar farms, which have similar electrical infrastructure to telecommunications towers. The PBP 2017 provides that determination of the APZ for telecommunication towers should be done in consultation with RFS. Based on consultation with RFS on similar projects, a 10m APZ is usually applied.<br>The EIS contains a mitigation measure indicating that the minimum 10 metre APZ around the perimeter of the site would incorporate a 4 metre wide gravel access track. The APZ and perimeter track measures provide a minimum 10 metre wide defendable space for emergency service personnel to undertake property protection activities. |

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| • If the water supply is to be within a storage tank, the tank(s) shall be:<br>• Constructed of steel or concrete materials;<br>• Fitted with a 65 mm Storz fitting or similar (as agreed by the District Fire Control Centre)<br>• All external fittings shall be of made of metal. | |
| **5.5 ROADS AND MARITIME SERVICES (RMS)** | |
| **Traffic Management Plan** | |
| The RMS has no objections to the Development Application subject to the consent authority ensuring that the development is undertaken in accordance with the following conditions of consent (if approved):<br>1. A Traffic Management Plan shall be prepared in consultation with the relevant road authorities (Council and Roads and Maritime Services) to outline measures to manage traffic related issues associated with the development, particularly during the construction and decommission processes. The appointed transport contractor shall be involved in the preparation of this plan. The plan shall address all light and heavy traffic generation to the development site and detail the potential impacts associated with the development, the mitigation measures to be implemented, and the procedures to monitor and ensure compliance. This plan shall address, but not necessarily be limited to the following;<br>i) require that all vehicular access to the site be via the approved access route.<br>ii) details of traffic routes to be used by heavy and light vehicles, and any associated impacts and any road-specific mitigation measures.<br>iii) details of measures to be employed to ensure safety of road users and minimise potential conflict with project generated traffic, | **The mitigation measures related to the Traffic Management Plan, Dilapidation Report and dust control (no.s 63, 67 and 92) have been updated to include the detailed requirements in the RMS submission.**<br>**Additional measures have been adopted detailing the RMS road upgrade, road reserve restoration and Works Authorisation Deed requirements and glint or glare response.** |

| Issue | RES response |
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| iv) proposed hours for construction activities, as night time construction presents additional traffic related issues to be considered.<br>v) the management and coordination of the movement of vehicles for construction and worker related access to the site and to limit disruption to other motorists, emergency vehicles, school bus timetables and school zone operating times,<br>vi) loads, weights and lengths of haulage and construction related vehicles and the number of movements of such vehicles,<br>vii) procedures for informing the public where any road access will be restricted as a result of the project,<br>viii) any proposed precautionary measures such as signage to warn road users such as motorists about the construction activities for the project,<br>ix) a Driver Code of Conduct to address such items as; appropriate driver behaviour including adherence to all traffic regulations and speed limits, safe overtaking and maintaining appropriate distances between vehicles, etc and appropriate penalties for infringements of the Code,<br>x) details of procedures for receiving and addressing complaints from the community concerning traffic issues associated with truck movements to and from the site.<br>2. The Proponent must engage an appropriately qualified person to prepare a Road Dilapidation Report for all road routes to be used during the construction (and decommissioning) activities, in consultation with the relevant road authority (Roads and Maritime Services and Council). This report is to address all road related infrastructure. Reports must be prepared prior commencement of, and after completion of, construction (and decommissioning). Any damage resulting from the construction (or | |

| Issue | RES response |
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| decommissioning) traffic, except that resulting from normal wear and tear, must be repaired at the Proponent's cost. The applicant is accountable for this process, rather than the proposed haulage contractor. Such work shall be undertaken at a time as agreed upon between the Proponent and relevant road authorities.<br>3. Prior to the commencement of construction on-site, the Proponent must undertake all works to upgrade any road, its associated road reserve and any public infrastructure in that road reserve, to a standard suitable for use by heavy vehicles to meet any reasonable requirements that may be specified by the relevant roads authority. The design and specifications, and construction, of these works must be completed and certified by an appropriately qualified person to be to a standard to accommodate the traffic generating requirements of the project. On Classified Roads the geometric road design and pavement design must be to the satisfaction of the Roads and Maritime Services.<br>4. As a minimum the intersection of the Riverina Highway and Parfreys Road is to be constructed and the roadside maintained to the satisfaction of Roads and Maritime Services to comply with the following:<br>a) Be constructed and the roadside maintained so as to provide the Sight distance requirements for a reaction time of 2.5 seconds in either direction along the Riverina Highway in accordance with the Austroads Publications as amended by the supplements adopted by Roads and Maritime Services for the posted speed limit. Compliance with this requirement is to be certified by an appropriately qualified person prior to construction of the vehicular access.<br>b) be constructed with a Basic Right Turn (BAR) and Basic Left Turn (BAL) intersection treatment on the Riverina Highway in accordance with the Austroads Guide to Road Design as amended by the | |

| Issue | RES response |
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| supplements adopted by Roads and Maritime Services for the posted speed limit. The intersection is to be constructed to the standards required for an approved road train route.<br>c) The construction of Parfreys Road to provide for 2 travel lanes and be sealed to the Mulwala Canal Bridge from its intersection with the Riverina Highway. The intersection shall be designed and constructed so that vehicles turning between the Riverina Highway and Parfreys Road are not required to cross to the opposing travel lane in order to perform a turn manoeuvre. The intersection shall be line marked in accordance with Australian standards.<br>d) be designed and constructed so as not to interfere with the capacity of the current roadside drainage network and to prevent water from proceeding onto, or ponding on, the carriageway of the Riverina Highway. If a culvert is to be installed and is to be located within the clear zone of the carriageway for the posted speed limit it shall be constructed with a traversable type headwall<br>5. A management plan to provide measures to suppress dust generation from the development site and the transportation route shall be prepared and implemented to the satisfaction of Council and Roads and Maritime Services.<br>6. Any damage or disturbance to the road reserve of the Riverina Highway or Conargo Road is to be restored to match surrounding landform in accordance with Council requirements.<br>7. The Riverina Highway is part of the State Road network. For works on the State Road network the developer is required to enter into a Works Authorisation Deed (WAD) with Roads and Maritime Services before finalising the design or undertaking any construction work within or connecting to the road reserve. The Works Authorisation Deed documentation is to be submitted for each specific change to the state | |

| Issue | RES response |
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| road network for assessment and approval by Roads and Maritime Services prior to commencement of any works within the road reserve. The applicant is to contact the Land Use Manager for the South West Region on Ph. 02 69236611 for further detail.<br>8. Glint and glare from the solar panels shall not cause a nuisance, disturbance or hazard to the travelling public on the public road network. In the event of glint or glare from the solar plant being evident from a public road, the proponent shall immediately implement glare mitigation measures such as construction of a barrier (e.g. fence) or other approved device to remove any nuisance, distraction and/or hazard caused as a result of glare from the solar panels.<br>9. Any works within the road reserve of a classified road requires approval under Section 138 of the Roads Act, 1993 from the road authority (Council) and concurrence from Roads and Maritime Services prior to commencement of any such works. The developer is responsible for all public utility adjustment/relocation works, necessitated by the development and as required by the various public utility authorities and/or their agents.<br>10. Works associated with the development shall be at no cost to Roads and Maritime Services. | |

## 5.6 FIRE AND RESCUE NSW

| **Fire and safety risk associated with photovoltaic solar** | |
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| Fire and Rescue NSW commented that small and large scale photovoltaic installations present unique electrical hazard risks to their personnel when fulfilling their emergency first responder role. Due to the electrical hazards associated with large scale photovoltaic there is potential risk to the health and safety of firefighters and FRNSW and NSW Rural Fire Service must be able to | **The mitigation measure related to the Emergency Response Plan (no. 68) has been updated to include the detailed requirements in the Fire and Rescue NSW submission. An additional measure regarding LEMC contact has been adopted.** |

| Issue | RES response |
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| implement effective and appropriate risk control measures when managing an emergency incident at the proposed site.<br>Fire and Rescue NSW recommendations included:<br>1. That a comprehensive ERP is developed for the site.<br>2. That the ERP specifically addresses foreseeable on-site and off-site fire events and other emergency incidents, (e.g. fires involving solar panel arrays, bushfires in the immediate vicinity or potential hazmat incidents).<br>3. That the ERP detail the appropriate risk control measures that would need to be implemented to safely mitigate potential risks to the health and safety of firefighters and other first responders (including electrical hazards). Such measures would include the level of personal protective clothing required to be worn, the minimum level of respiratory protection required, decontamination procedures, minimum evacuation zone distances and a safe method of shutting down and isolating the photovoltaic system (either in its entirety or partially, as determined by riskassessment).<br>4. Other risk control measures that may need to be implemented in a fire emergency due to any unique hazards specific to the site should also be included in the ERP.<br>5. That two copies of the ERP (detailed in recommendation 1 above) be stored in a prominent 'Emergency Information Cabinet' which located in a position directly adjacent to the site's main entry point/s.<br>6. Once constructed and prior to operation, that the operator of the facility contacts the relevant local emergency management committee (LEMC). The LEMC is a committee established under Section 28 of the State Emergency and Rescue Management Act 1989. LEMCs are required to be established so that emergency services organisations and other government agencies can proactively develop comprehensive inter agency local emergency procedures for significant hazardous sites within their local government | |

| Issue | RES response |
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| area. The contact details of members of the LEMC can be obtained from the relevant local council. | |
| **5.7 NSW OFFICE OF ENVIRONMENT AND HERITAGE** | |
| **CHMP** | |
| Cultural Heritage Management Plan should be developed in consultation with Registered Aboriginal Parties and include protocols for unexpected finds, including human remains, prior to construction activity occurring.<br>It should include an unexpected finds protocol and a clear mitigation strategy (including fencing) to ensure that the Aboriginal objects that are to be avoided during construction are not harmed. | The final Aboriginal Cultural Heritage Assessment Report (ACHAR) is attached, Appendix C.<br>**The relevant mitigation measures (no.s 17-22) provide for this requirement but have also been updated to specify the use of fencing in safeguards to protect Aboriginal objects.** |
| **Superb Parrot and Major Mitchell's Cockatoo** | |
| The potential for Superb Parrot and Major Mitchell's Cockatoo to use hollow-bearing trees (HBTs) for nesting within the development site has not been adequately assessed. Survey in May and August would not have detected use by these species which breed in spring/summer.<br>A spring survey of HBTs within the development footprint is required to confirm whether they are being used for breeding by Superb Parrot or Major Mitchell's Cockatoo. The Biodiversity Assessment Report (BAR) needs to be revised once these results are known. | Targeted surveys for the Superb Parrot and Major Mitchell's Cockatoo were undertaken in December 2017. These surveys included observation of bird species utilising vegetation and paddock trees whilst threatened flora surveys were being undertaken. Walked transects searching wet and inundated areas for Floating Wallaby Grass *Amphibromus fluitans* were undertaken across the development envelope, including adjacent to Hollow-bearing Trees located within the development envelope. Additionally, a 20 minute area search was undertaken at dawn targeting threatened parrots within the vegetation along the eastern edge of the development envelope.<br>No Superb Parrots or Major Mitchell's Cockatoos were identified during these surveys, or during any previous surveys undertaken on the site in May or August. As such, it is considered highly unlikely that the species would be breeding within the site and not be detected, and thus the BAR and BioBanking Credit Calculations are not considered to require updating to generate species credits for these species. |
| **HBT removal** | |
| Hollow-bearing trees should not be removed during spring to early summer to avoid the main breeding period for hollow-dependent fauna | **The mitigation measure relating to the vegetation clearing protocol (no. 5) has been updated.** |

| Issue | RES response |
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| **Silky Swainson-pea, Slender Darling Pea and Winged Peppercress** | |
| Spring survey is required for three plant species: Silky Swainson-pea *(Swainsona sericea),* Slender Darling Pea *(Swainsona murrayana)* and Winged Peppercress *(Lepidium monoplocoides).* The BAR needs to be revised once these results are known. | Areas of native vegetation were surveyed in December 2017 for *Austrostipa wakoolica*, *Swainsona sericea*, *Swainsona murrayana* and *Lepidium monoplocoides* using parallel field transects within areas of suitable habitat as identified within the BAR (NGH 2017).These included areas of PCTs 15, 16 and 76 containing native understorey.<br>Three species of *Austrostipa* were identified during these surveys; *Austrostipa scabra*, *Austrostipa aristiglumis* and *Austorostipa blackii*. No *Austostipa wakoolica* was observed.<br>No *Lepidium monoplocoides* were observed during surveys. One *Lepidium* species, (*Lepidium pseudohyssopifolium*) was identified during previous surveys of the development envelope.<br>No *Swainsona murrayana* or *Swainsona sericea* were identified during surveys. One pea forb was identified during previous surveys, which was identified during this survey as the exotic *Astragalus hamosus*.<br>Surveys were also undertaken for *Amphibromus fluitans.* Irrigation channels and dams were checked for the presence of the species; however, the majority of irrigation channels were dry and cleared, and the species was not detected.<br>**The BAR is not considered to require updating for these species.** |
| **Final Credit Report** | |
| The Final Credit Report (Appendix E of the BAR) is incorrect; the report for Currawarra Solar Farm has been included and not the report for Tarleigh Park Solar Farm. The correct version of the Final Credit Report must be included with the revised BAR. | **An updated Biobanking Credit Report has been provided at Appendix D of this Submissions Report.** |
| **Paddock trees** | |
| Some entries in the paddock tree calculator are incorrect or inconsistent between the paddock tree calculator and the calculator calculations supplied: | The overall credit requirement for the proposal will not be modified as a result of any changes to the paddock tree calculations, as the Effective Clearing Area zones have a site score of less than 17, thus do not require offsets under the FBA. Furthermore, the |

| Issue | RES response |
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| • 'Number of hollow bearing trees in the sample area' for PCT 15: is this 0 or 1?<br>• 'Number of paddock trees within a sample area' for PCT 76: is this 27 or 6?<br>• 'Number of hollow bearing trees in the sample area' for PCT 76: is this 16 or 5?<br>• Sample area in which the number of paddock trees were counted' for PCT 76: 352 ha is used, but the entire proposal site is only 250 ha (BAR, page 9).<br>The revised BAR needs to clearly demonstrate how the figures entered in the paddock tree calculator have been derived and state if there are any changes to the calculations of 'effective clearing area' which alter the overall credit requirement for this proposal. | FBA does not define anywhere within the manual that the Paddock Tree Calculator must be used to assess impacts. Additionally, Attachments A and B of the OEH letter of advice included within the SEARs do not state that the Paddock Tree Calculator must be utilised, and the Paddock Tree Calculator is not included in Attachment C of the letter as one of the Guidance Materials. The recommendation to use the Paddock Tree Calculator was provided by email from OEH following receipt of the SEARs.<br>It appears that some confusion has been created by the files sent to OEH detailing the Paddock Tree Calculations. A draft version of the calculations for PCT76 appears to have been sent to OEH for review, which included an overall impact area of 352 ha, last modified on 7 July 2017. The accurate file version of these calculations was modified on 13 July 2017, which contained a correct impact area and number of trees to be removed.<br>Paddock trees were defined as isolated trees occurring greater than 100 metres from other trees. Where trees occurred within 100 m of other trees or vegetation patches, these were treated as part of a vegetation patch, with the outer boundary mapped and the trees included in a PCT zone, as these areas typically had a canopy coverage of greater than 25% of the lower benchmark for the PCT overstorey this were not considered to be in low condition. As two dominant species of paddock tree were identified within the development envelope belonging to different PCTs, the paddock trees were divided into zones associated with each PCT, with the number of trees divided proportionately between the total area of the proposal (163.9 ha), based on which PCT they were associated with. PCT 15 comprised 10 trees (or 71% of the paddock trees), so was apportioned a 117 ha zone (or 71% of the 163.9 ha site). Similarly, PCT 76 comprised four living trees and two stags, which were taken to be four trees, so was apportioned a 46.8 ha zone (or 29% of the 163.9 ha site).<br>It is understood that the methodology applied was not in accordance with the description provided in Appendix 3 of the BioBanking Operations Manual. As such, areas have been recalculated based on the drawing of polygons around individual trees to calculate a sample area, rather than taking the entire development footprint as the sample area. |

| Issue | RES response |
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| | This recalculation has led to the paddock tree zones **not** being classified as low condition vegetation, as the canopy density exceeds the <25% of benchmark value which classifies the vegetation as low condition, even though the trees are isolated (>100 m from any other trees or vegetation) and over an entirely exotic understorey. This is seen as a flaw within the methodology, as any polygon derived solely from the outline of a canopy will invariably have a high foliage cover, as only foliage is being counted.<br>At present, neither the paddock tree zones are generating offset credits as they are low condition. The only paddock tree PCT which would be required to generate offset credits (were it not in low condition) is PCT 76, mapped and assessed as Zone 8. This PCT is dominated by Grey Box *Eucalyptus microcarpa* and is thus considered to constitute a low-condition form of the Inland Grey Box Woodland Endangered Ecological Community, which is identified within the SEARs as an EEC requiring further consideration. The other paddock tree PCT is PCT 15, which does not generate offset credits as the community is not considered to constitute threatened species habitat and is not an EEC.<br>The area calculated for PCT 76 based on measurement of canopies paddock trees to be removed is 0.53 ha. The effective clearing area calculated based on the previous methodology was 0.6 ha. When 0.53 ha is entered into the paddock tree calculator as the sample area, with a value of four trees within the sample area, the calculator shows the vegetation as being in moderate-good condition (i.e. >25% of the lower benchmark value). However, when 0.6 ha is entered into the calculator as the sample area, the calculator shows the vegetation in low condition, with an effective clearing area of 0.6 ha.<br>Advice was sought from the project's assessing officer within OEH as to the correct application of the calculator and the sample area use. OEH advised that where paddock trees are isolated (>100 m) from other trees, a buffer should be applied around the trees based on the canopy percent foliage cover (PFC), with the tree constituting the same proportion of the buffer as the cover (i.e. a tree with 40% PFC would take up 40% of the circle), with the intention that this buffer area of exotic groundcover would show |

| Issue | RES response |
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| | the vegetation as being low condition. However, when applied, this method still shows the vegetation as Moderate/Good condition as the PFC is still greater than 25% of the lower benchmark value, and is therefore not considered to be an effective method for assessing the condition of the vegetation.<br>Further advice was requested from the OEH BioBanking team to clarify the correct application of this calculator; however, no response was given in a more than five week period.<br>As such, NGH Environmental have recalculated the areas of impact to paddock trees using a buffer of 0.4 ha around each removed paddock tree. This has led to the following effective clearing areas being generated, and the vegetation zones being considered low condition. |

| Zone | Ha impacted | Location | PCT | PCT Name | Condition | EEC |
|---|---|---|---|---|---|---|
| Zone 7 | 1.3 | SF | PCT 15 | Black Box open woodland wetland – Paddock Trees (MU515) | Low | No |
| Zone 8 | 0.9 | SF | PCT 76 | Western Grey Box tall grassy woodland on alluvial loam and clay soils in NSW South Western Slopes and Riverina Bioregion - Paddock Trees (MU555) | Low | Yes |

As the paddock tree calculator is not required by the FBA, it is considered that this is a satisfactory outcome that both applies the method in a more correct manner than previously, while not generating an offset requirement for low condition vegetation (which isolated paddock trees over crop are considered to constitute). NGH Environmental has taken a conservative approach to assessing impacts through the

| Issue | RES response |
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| | mapping of larger patches of paddock trees as Moderate/Good condition, which generate an offset requirement.<br>**The BAR is not considered to require updating in respect of this issue.** |
| **Vegetation to be cleared** | |
| In the EIS Main document, Table 8-1 (page 66) shows total of 3.37 ha to be cleared, however the figures in the table add up to 3.18 ha. The total area of 3.37 ha is consistent with what is stated in the BAR. The correct figures need to be shown in Table 8-1.<br>A small amount of native vegetation (0.015 ha) is proposed to be cleared at the intersection of the Riverina Highway and Palfreys Road (BAR Figure 3-9). This clearance needs to be shown on Figure 3-10 of the BAR as this is part of the development footprint. The proponent needs to confirm that this clearing (zone 9, PCT16/MU514) is included in Table 3-4 (BAR, page 35) and Table 11-1 (BAR, page83}.<br>Further justification is required for the distinction between the two zones within PCT 15 classified as being in moderate-good condition (BAR, page 22). These are differentiated as 'moderate-good_poor' and 'moderate-good_other', but they get the same site value score in the credit calculator (44.67). It is noted that in Table 3-4 (BAR, page 35) that both of these areas are presented as 'moderate-good_poor'. This discrepancy needs to be clarified and a consistent classification used throughout the BAR.<br>In section 4.7.1 of the BAR (pages 46-49) it is stated six times that the area of impact along Parfreys Road is 0.134 ha of low quality habitat, made up of PCTs 15, 16 and 76.It needs to be clearly shown how this figure of 0.134 ha was derived.<br>There are inconsistencies in the clearance figures provided:<br>• Table 3-1 (BAR, page 22) states that 0.429 ha of PCT15 (MU515) is to be cleared, but the figures for this PCT in Table | EIS Table 8-1 to be updated to include total area of 2.68 ha.<br>Figure 3-9 of the BAR shows the Plant Community Type, Vegetation Zone, proposed footprint and hollow-bearing trees. As such, the information contained within this map is considered to include any that would be required on Figure 3-10 (i.e. Development Envelope, existing infrastructure and PCT Zone and condition). The clearing area detailed within Table 3-4 equals 3.37 ha (3.368 ha without rounding), and includes the 0.015 ha identified within Zone 9. Similarly, the Zone is included on the last line of Table 11-1, and the area is added to the total impact area.<br>Zones 2 and 6 are the same PCT and in similar condition, with an exotic understorey. Zone 6 was originally treated as paddock trees, however was later mapped as a patch of a PCT. These zones have been combined to generate a single PCT 15 zone which is poor in condition, but still conforms to the moderate-good classification as a result of the canopy coverage.<br>**Zone 6 has been removed, and an updated Zone 2 has been included in the revised Biobanking Credit Report, attached to the Submissions Report (Appendix D).**<br>**An updated version of Table 3-4 (Vegetation Zones for the Development Envelope) from the BAR is provided below.** |

| Issue | RES response |
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| 3-4 add up to 0.428 ha (excluding 2.3 ha effective clearing area for paddock trees).<br>• It is stated in the BAR (pages 27 and 77) that 0.026 ha of PCT 76 is proposed to be cleared along Parfreys Road, but on pages 35 and 83 the figure of 0.025 ha is used. | |

| Zone ID | Veg type code | Vegetation zones | Condition class | Area (ha) within Development Envelope | Survey Effort (number of plots) | Proposal Area value score (current) |
|---|---|---|---|---|---|---|
| 4 | MU515 | PCT 15 Black Box open woodland wetland | Moderate – good | 0.10 | 2 | 44.67 |
| 2 | MU515 | PCT 15 Black Box open woodland wetland (Poor) | Moderate – good - poor | 0.33 | 1 | 62.89 |
| 5 | MU555 | PCT 76 Western Grey Box tall grassy woodland on alluvial loam and clay soils in NSW South Western Slopes and Riverina Bioregion | Moderate – good | 0.03 | 2 | 61.46 |
| 7 | MU515 | PCT 15 Black Box open woodland wetland – Paddock Trees | Low | 1.300 (effective clearing area) | 1 | 6.67 |
| 8 | MU555 | PCT 76 Western Grey Box tall grassy woodland on alluvial loam and clay soils in NSW South Western Slopes and Riverina | Low | 0.900 (effective clearing area) | 1 | 12.50 |

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| | | Bioregion - Paddock Trees | | | | |
| 9 | MU514 | PCT 16 Black Box Grassy Open Woodland of rarely flooded depressions in South Western NSW | Moderate – good | 0.02 | 1 | 24.00 |
| **Total** | | | | **2.68** | **9** | |

The figure of 0.134 ha of low quality habitat was derived from the impact areas occurring within PCTs 15,16 and 76, constituting zones 4,5 and 9. The sum of these areas based on previous footprint is 0.135 ha. The updated area of these zones is 0.15 ha.

**The discrepancies in have been corrected within the attached updated Biobanking Credit Calculation report, attached to the Submissions Report (Appendix D)**. These include the area of impact to PCT 15 within Zones 2 and 4 being 0.43 ha total, and the area of impact to PCT 76 within Zone 5 being 0.03 ha.

**Inconsistencies**

In the BAR (Table 4-5, page 45) the maximum and minimum temperatures have been transposed for 23 - 25/8/2017.

The BAR (page 86) states that 'approximately 6.77 ha of vegetation communities [were mapped] outside the development envelope'. However, Table 13-1 (page 87) lists the 'areas of vegetation communities mapped outside the development envelope during the field survey', and shows a total of 13 ha.

**An updated version of Table 4-5 – weather conditions is provided below.** It includes weather during additional survey periods.

| Date | Temperature min (°C) | Temperature max (°C) | Rain (mm) | Wind speed @ 9am (km/h) |
|---|---|---|---|---|
| 22/05/2017 | 19.8 | 28.2 | 10 | 2 |
| 23/05/2017 | 17.7 | 29.7 | 10 | 22 |
| 24/05/2017 | 14.5 | 28.8 | 0 | 20 |

| Issue | RES response |
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| These inconsistencies must be clarified and presented correctly in the BAR and EIS Main Report. | 25/05/2017 \| 18.5 \| 30.2 \| 0 \| 13<br>26/05/2017 \| 17.2 \| 33.8 \| 0 \| 13<br>23/08/2017 \| 3.6 \| 16.7 \| 0 \| 9<br>24/08/2017 \| 0.4 \| 14.6 \| 0.8 \| 20<br>25/08/2017 \| -0.5 \| 14.6 \| 0 \| 19<br>Areas provided within Table 13-1 are correct, and provide accurate areas for the areas of Plant Community Types within the study area (with the area of impact subtracted from the total mapped area), as a means of demonstrating the availability of suitable areas of vegetation within which to establish an offset. The text within section 13.2.1 should correctly read: that 'approximately 13 ha of vegetation communities [were mapped] outside the development envelope'. |
| **Parfrey Road upgrade** | |
| It is indicated (page 137, EIS Main Report) that the approved B-double section of Parfreys Road could be extended to the proposed site entrance. If vegetation maintenance during construction or operation includes clearing or lopping that is additional or different to that included in the BAR (dated 10 November 2017), then it must be assessed for biodiversity impacts and documented in accordance with the FBA, unless otherwise agreed by OEH. The assessment must be undertaken by a person accredited in accordance with s142B(1)(c) of the *Threatened Species Conservation Act 1995.* | Larger deliveries may require some branch trimming along Parfreys Road, although this is not able to be confirmed at this time. Minor branch trimming is temporary in nature and not considered to constitute an impact to the vegetation; this activity would not require an update to the impact areas or BCC credit requirement.<br>**The mitigation measures have been augmented to confirm that if vegetation maintenance during construction or operation includes clearing or lopping that is additional or different to that included in the BAR, the activities would be assessed for biodiversity impacts by an accredited person and documented in accordance with the FBA, unless otherwise agreed by OEH.** |
| **CEMP measures** | |
| Section 10.2 of the EIS Main Report states that a Construction Environmental Management Plan (CEMP) will be prepared, along with a Flora and Fauna Management Plan (Table 8-2). Table 10-1 provides a summary of mitigation measures. To ensure that these actions are carried out at the appropriate time, OEH request that the following details are | **Biodiversity mitigation measure relating to the FFMP (no. 4) updated.** |

| Issue | RES response |
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| supplied for each action:<br>• Who will be responsible for individual actions (including the position title of the officer responsible)<br>• Outcome or measure of success<br>• When the action will be completed.<br>These details should be completed before the start of construction to clearly identify the proponent's commitments for management and mitigation. | |
| **Vegetation buffer** | |
| OEH recommends that the proposed vegetation screening includes species that corresponds to the vegetation communities identified in the EIS (Western Grey Box - White Cypress Pine tall woodland and Black Box grassy open woodland wetland). | This is included in mitigation measures for landscaping under the visual impact section of the EIS (section 8.3).<br>**No changes to the EIS mitigation measures are required.** |
| **5.8 EDWARD RIVER COUNCIL** | |
| **B-double and road train site access** | |
| Edward River Council states the b-double and road train section of Parfreys Road, would require to be extended by approximately 1.3km to provide b-double and road train access to the proposal site. As the section approved for B-double and road trains along Parfreys Road is only 1km from the intersection with the Riverina Highway. | RES will consult with Council and obtain approval to extend the B-double zone. As indicated in the EIS, during consultations Council acknowledged that there is no reason why the approved B-Double section could not be extended to the proposed site entrance.<br>**No changes to the EIS mitigation measures are required.** |
| **Road maintenance** | |
| Due to the additional traffic movements on the regional road and local road network including Parfreys Road, especially during the construction phase of the project, the proponent shall need to enter into a maintenance agreement with Council for the additional maintenance of the road network. This agreement would need to be in place prior to commencement of any work on the site. | **Mitigation measure no. 67 has been updated to include reference to a maintenance agreement.** |

| Issue | RES response |
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| **Upgrading of intersection** | |
| Edward River Council recommends the construction management plan ensures that impacts on the community and public during construction are minimised and that work to the public road network is completed prior to commencement of any work on the site. | **A new traffic mitigation measure has been adopted.** |
| **Work within the public road reserve** | |
| Edward River Council outline that any work within the public road reserve shall require approval from Council prior to commencement via a road open permit. | The requirement for approval under s138 of the *Roads Act 1993* is acknowledged in the EIS. RES will consult with Council and obtain the required approval.<br>**No changes to the EIS mitigation measures are required.** |
| **Disposal of waste** | |
| Edward River Council states the Deniliquin landfill is licensed to accept the type of waste that would be generated by the proposal including building and demolition waste.<br>All waste generated from the site requiring disposal at a licensed landfill shall be disposed of at the Deniliquin landfill. The rural landfills at Blighty, Conargo and other villages in the local government area shall not be used for disposal of waste from the project. | **Waste mitigation measure no. 95 has been updated.** |
| **Visual impact and landscaping** | |
| Edward River Council agrees that a landscape management plan to address the 'as built' visual impacts of the proposed solar farm is required. Council recommends the following should be included in the plan:<br>• On-site vegetation screening with the intent of completely screening rather than 'breaking up' views of onsite infrastructure in accordance with Appendix F - *Proposed onsite screening.* This may require some infill planting within existing vegetation to ensure the screening is dense enough to prevent visual impact. | The EIS (Appendix F) notes that the intention of the screening planting is to break up the view and not eliminate it entirely. Partial views are considered likely, particularly while plants are young.<br>It is noted that much of the eastern and northern boundaries already have native vegetation that would provide screening for the development, and that the western boundary is separated from Warragoon Road by intervening paddocks. In the context of the limited remaining exposures of the site, the objective of 'breaking up' views is considered appropriate. |

| Issue | RES response |
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| • General methods to reduce visual impact to include things such as colour, form and positioning of infrastructure, to reduce the overall visual contrast of the project.<br>• Shelter screen trees and shrubs are to be native plant species consistent with existing vegetation types on the proposal site and should be selected in consultation with a botanist, affected neighbours, and Council.<br>• Shelter screen trees/shrubs should be of adequate size and maturity to be reasonably effective as soon as construction of the solar panels is complete.<br>• Details should be provided to Council as to how the screen trees/shrubs will be irrigated over the life of the proposed project.<br>• Landscaping is required to be completed prior to the use of the site as a solar farm. | Native species adapted to local conditions would be used in the screen plantings. A suitable watering regime would be implemented during the establishment period. Water would be sourced from the landowner's water entitlement. Once established, the plantings are not expected to require ongoing, regular watering for the operational life of the project.<br>**The visual impact mitigation measure (no.25) has been updated in relation to species selection, irrigation and timing.** |
| **Security lighting impacts** | |
| Edward River Council recommends that security lighting to be installed should be positioned to direct light away from any neighbouring residential dwellings. | **The relevant visual impact mitigation measure (no. 29) has been updated.** |
| **Bushfire risk** | |
| Edward River Council acknowledges the proposal includes the establishment of asset protection zones and construction of water storage tank with a minimum 20,000 litres for fire-fighting purposes.<br>Edward River Council recommends the following in regards to bushfire risk:<br>• Efficient access (suitable for firefighting vehicles) is required to be established and maintained over the solar farm site in accordance with the requirements of the P*lanning for Bush Fire Protection 2006.*<br>A fire management plan and an emergency response plan are required to be prepared prior to use of the site as a solar farm. These plans should be prepared in consultation with the local NSW Rural Fire Service. | This is consistent with existing fire risk mitigation measures (refer EIS section 9.6).<br>**No changes to the EIS mitigation measures are required.** |

| Issue | RES response |
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| **Accommodation for workers during construction** | |
| Edward River Council recommends details be provided in relation to how the proponent will handle accommodation during peak tourism times in Deniliquin. The peak tourism times in Deniliquin are between mid-December and January, Easter and the long weekend in September/October (Deniliquin Ute Muster weekend). | The economic study undertaken by Essential Economics (2017) for the project found that:<br>The proposal is expected to require accommodation for 45 'external' workers at the construction peak. This represents 3% of total commercial accommodation rooms in the study area and would provide a boost to local operators, noting that room occupancy rates of less than 50% were recorded in the study area during the peak tourism period (March Quarter 2016).<br>In view of these findings, accommodation is not expected to be an issue during peak tourism periods. The proponent would consult with Council and accommodation providers as required in order to ensure the accommodation requirements do not adversely affect local tourism.<br>**No changes to the EIS mitigation measures are required.** |
| **Proposed community fund** | |
| Edward River Council requests further information in relation to how the community fund would be administered and by whom and specific criteria for the proposed funding. Any project on Council owned or managed land will require the approval of Council as the landowner or manager and should not translate to a significant long-term maintenance cost for Council. | **Mitigation measure (no. 62) has been updated to say that the criteria and administrative arrangements would be developed in consultation with Council. Council would also be consulted regarding the selection of projects that would affect Council land or assets.** |
| **Dust mitigation** | |
| Edward River Council recommends details in relation to dust mitigation should be included in the construction management plan. | Sections 8.1 Biodiversity and 9.8 Air quality contain mitigation measures to ensure the control of dust generated by vehicles accessing the site and earthworks at the site. As indicated in section 8.1, dust control would be included in the Construction Environmental Management Plan.<br>**No further changes to the EIS mitigation measures are required. Refer amended mitigation measures related to dust control (no. 92).** |

| Issue | RES response |
|---|---|
| **Construction hours** | |
| Edward River Council state the proposed construction hours are inconsistent with the NSW EPA *Interim Construction Noise Guidelines* for weekend arrangements. Construction hours for Saturdays are required to be 8.00am to 1.00pm, and no work is to be carried out on Sundays or Public Holidays. | While the proposal description has Saturday work starting at 7am the mitigation measures refer to the draft construction noise management plan (Appendix G of the EIS). The plan provides the following hours of construction activity, in response to the noise assessment and consistent with the NSW EPA *Interim Construction Noise Guidelines*:<br>Monday to Friday: 7am to 6pm<br>Saturday: 8 am to 1pm<br>Sunday and Public Holidays: No work.<br>Work hours have been clarified in section 2.2 of the Submissions Report.<br>**No changes to the EIS mitigation measures are required.** |
| **Primary production land** | |
| Edward River Council supports any measures that will contribute to maintaining the viability of the primary production land. | The EIS contains a number of mitigation measures to protect land capability and productive potential, including soil protection during construction and operation and the implementation of a Site Rehabilitation Plan following decommissioning.<br>**No changes to the EIS mitigation measures are required.** |
| **Project decommissioning** | |
| Edward River Council states decommissioning is required to be appropriately conditioned to ensure Council that it will happen in a timely manner. | Noted and supported.<br>**No changes to the EIS mitigation measures are required.** |

| Issue | RES response |
|---|---|
| **5.9 MURRAY LOCAL LAND SERVICES** | |
| **Native vegetation clearing** | |
| Murray Local Land Services states the EIS completely addresses matters with respect to vegetation clearing, offsetting and biodiversity requirements and authorises activities via the Planning legislation pathway.<br>PVP 12585 issued by Murray CMA remains valid, and authorises the clearing of identified paddock trees. Under the PVP an offset is established for a Grey Box Woodland offset site on the northern boundary of the property. The offset site is to be protected and managed for conservation, in perpetuity, and is located outside the proposed development envelope.<br>Murray Local Land Services have no further comments regarding the Project. | **No changes to the EIS mitigation measures are required.** |

# 6 ENVIRONMENTAL MANAGEMENT CHANGES

In summary, the following additional mitigation strategies are proposed, as detailed in Sections 4 and 5. Mitigation measure numbers relate to the numbering in the EIS placed on public exhibition.

Table 6-1 New and modified mitigation measures (changes indicated with strike-through and bolded new text)

| No. | Safeguards and mitigation measures | Phase |
|---|---|---|
| **Biodiversity** | | |
| 4 | A Flora and Fauna Management Plan (FFMP) is to be prepared prior to the commencement of works. This plan is to be prepared by a suitably qualified ecologist, and include details of the pre-clearing, clearing and post-clearing protocols, **weed hygiene and management protocols** and an unexpected finds protocol **(for significant species, communities or habitats)**. **The FFMP will incorporate the biodiversity measures in the EIS, indicating:**<br>• **who will be responsible for individual actions (including position title of the officer responsible)**<br>• **outcome or measure of success**<br>• **when the action will be completed.** | Pre-construction<br>Construction |
| 5 | The clearing protocol will include:<br>• assessment of breeding and hibernation periods so as to avoid **vegetation** clearing during these periods, ideally avoiding the period of June to January<br>• **hollow-bearing trees would not be removed between September and December inclusive to avoid the main breeding period for hollow-dependent fauna**<br>• details of the two-stage clearing process for hollow-bearing trees and habitat features (such as fallen logs), involving a pre-clearing survey to identify and mark habitat features within one week of commencement of clearing<br>• following the pre-clearing survey, a pre-clearing report would be prepared including a map of all habitat features identified, and identifying a suitable fauna relocation point in land of secure tenure, containing known habitat features such as hollow-bearing trees or logs<br>• following the pre-clearing report, clearing of non-habitat vegetation to isolate habitat features would commence. Habitat features are to be cleared around and left isolated for one night, and cleared the following day under the supervision of a suitably qualified and experienced ecologist<br>• the ecologist is to record and relocate any animals caught that are not injured, and either euthenise or relocate to a vet any animals that are injured. Records of all species, relocation points and health are to be kept<br>• habitat features are to be left overnight once cleared, and checked the following morning to ensure that no fauna have re-inhabited the features, before they are mulched or stockpiled. | Pre-construction<br>Construction |
| New | **If vegetation maintenance during construction or operation includes clearing or lopping that is additional or different to that included in the BAR, the activities would be assessed for biodiversity impacts by an accredited person and documented in accordance with the FBA, unless otherwise agreed by OEH. Any additional clearing or lopping would be subject to pre-clearing surveys and supervision as per measure no. 5.** | Pre-construction<br>Construction |

| No. | Safeguards and mitigation measures | Phase |
|---|---|---|
| New | **Private drainage channels and farm dams to be removed or drained would first be inspected by an ecologist for the presence of aquatic fauna. Any mammals, birds and reptiles at the sites would be removed and relocated as required prior to the works.** | Pre-construction<br>Construction |
| **Aboriginal heritage** | | |
| 19 | The Cultural Heritage Management Plan must list safeguards that will be implemented for all works within 10m of the sites Tarleigh Park Scarred Tree 1 and Tarleigh Park Scarred Tree 2 to ensure that the sites will not be impacted by the proposed fencing works. **These safeguards would include fencing to protect the sites during construction.** | Construction |
| 20 | ~~At all other times, outside fencing works that are addressed by recommendation 2,~~ A minimum 10m buffer would be in place around the fallen tree Tarleigh Park Scarred Tree 1 and around Tarleigh Park Scarred Tree 2 to protect the root and canopy zone. **These sites would be protected by fencing during the construction and operation phases.** | Construction<br>Operation |
| **Visual amenity and landscape character** | | |
| 25 | The following screening requirements would be met:<br>• planting would be more than one row deep and preferably be located on the outside of the security fence, so that it breaks up views of the fencing as well as onsite infrastructure. The final location of planting and density would be undertaken following verification of actual impacts<br>• the plant species to be used in the screen are to be native and consistent with existing vegetation types on the proposal site, **and should be selected in consultation with a botanist, affected neighbours, and Council**. They should be fast growing, with spreading habit ~~Species selection should be undertaken in consultation with a botanist.~~<br>• vegetation should include a high shrub layer which would provide a more effective visual screen compared to trees as the panels would be maximum 3 metres high. Where feasible, plants selected should be of adequate size when initially planted to allow immediate effect as a visual screen<br>• the timing is recommended to be close to completion of construction so that actual and not predicted impacts of infrastructure are mitigated. **Landscaping would be completed prior to the commissioning of the solar farm.**<br>The screen would be maintained for the operational life of the solar farm. Dead plants would be replaced. Pruning and weeding would be undertaken as required to maintain the screens visual amenity and effectiveness in breaking up views. **The screen plantings would be established and maintained for the life of the solar farm by the proponent according to the Landscape Management Plan. As requested by Council, the proponent would provide Council with details on watering arrangements for establishing and maintaining the screen plantings.** | Pre-construction<br>Construction<br>Operation |
| 29 | **Security lighting would be positioned to direct light away from any neighbouring residential dwellings.** Night lighting would be minimised to the maximum extent possible (i.e. manually operated safety lighting at main component locations). | Construction<br>Operation |
| **Soils and landforms** | | |

| No. | Safeguards and mitigation measures | Phase |
|---|---|---|
| 43 | A Construction Environmental Management Plan (CEMP) would be **developed in consultation with the Department of Industry (Crown Lands and Water) and** implemented to manage runoff, soil erosion and sedimentation and pollution risks at the site. The CEMP would be prepared in accordance with the 'Blue Book' Volume 1 Managing Urban Stormwater: Soils and Construction (Landcom 2004), Volume 2A Installation of Services (DECC 2008a) and Volume 2C Unsealed Roads (DECC 2008b). | Pre-construction<br>Construction |
| **Social and economic** | | |
| 62 | The proponent would establish a continuing $20,000 pa Community Fund which could be used for local environmental and community projects and scholarship funding for local school students to assist technology training and education. The fund would likely be managed by a local community group or Edward River Council. **The project selection criteria and administrative arrangements would be developed in consultation with Council. Council would also be consulted regarding the selection of projects that would affect Council land or assets.** | Operation |
| **Traffic, transport and road safety** | | |
| 63 | A Traffic Management Plan would be developed as part of the CEMP and DEMP, in consultation with Edward River Council and Roads and Maritime Services. **The appointed transport contractor would be involved in the preparation of the plan. The plan would detail the potential light and heavy traffic impacts associated with the development, the mitigation measures to be implemented, and the procedures to monitor and ensure compliance.** The plan would include:<br>• confirmation of designated routes for construction and haulage traffic**, requiring all vehicular access to the site to be via the approved access route**<br>• **details of traffic routes to be used by heavy and light vehicles, and any associated impacts and any road-specific mitigation measures**<br>• **details of measures to be employed to ensure safety of road users and minimise potential conflict with project generated traffic, including** carpooling/shuttle bus arrangements to minimise staff vehicle movements<br>• **proposed hours for construction activities, as night time construction presents additional traffic related issues to be considered**<br>• **the management and coordination of the** scheduling of deliveries **and movement of vehicles for construction and worker related access to the site and to limit disruption to other motorists, emergency vehicles, school bus timetables and school zone operating times**<br>• **loads, weights and lengths of haulage and construction related vehicles and the number of movements of such vehicles**<br>• **procedures for informing the public where any road access will be restricted as a result of the project**<br>• **any proposed precautionary measures such as signage to warn road users such as motorists about the construction activities for the project** and arrangements and locations for traffic controls (speed limits, signage, stop/go)<br>• **a Driver Code of Conduct to address such items as; appropriate driver behaviour including adherence to all traffic regulations and speed limits, safe overtaking and maintaining appropriate distances between vehicles, etc and appropriate penalties for infringements of the Code** | Preconstruction<br>Construction<br>Decommissioning |

| No. | Safeguards and mitigation measures | Phase |
|---|---|---|
| | • **details of procedures for receiving and addressing complaints from the community concerning traffic issues associated with truck movements to and from the site**<br>• evaluation of any road or intersection upgrade requirements and associated traffic controls, in consultation with Edward River Council and Roads and Maritime Services (and consistent with Austroads Guides and Roads and Maritime Services supplements)<br>• ~~consultation and notification arrangements regarding traffic impacts for nearby residents and local road users, particularly when traffic delays are expected~~<br>• procedure to monitor traffic impacts and adapt controls (where required) to reduce impacts<br>• ~~provision of a contact phone number for stakeholders and the public to obtain information and to enable rapid response to any issues or concerns~~<br>• assessment of road condition prior to construction on all local roads that would be utilised, and a road condition monitoring program. | |
| 67 | **Prior to commencement of, and after completion of, construction (and decommissioning) the proponent would engage an appropriately qualified person to prepare a Road Dilapidation Report, addressing all road related infrastructure for all road routes to be used during the construction (and decommissioning) activities, in consultation with the relevant road authority (Roads and Maritime Services and Council).**<br>**Any damage resulting from construction or decommissioning traffic, excepting normal wear and tear, would be repaired at the proponent's cost. The proponent accepts accountability for this process, rather than the proposed haulage contractor. The timing of any repair works would be as agreed by the relevant road authorities.**<br>**The proponent would enter into an agreement with Council, prior to commencement of works, for the additional maintenance of the road network caused by the project.**<br>~~Prior to construction, a pre-condition survey of the relevant sections of the existing road network would be undertaken, in consultation with Edward River Council. During construction the road network would be monitored and maintained to ensure continued safe use by all road users, any faults attributed to construction of the solar farm would be rectified. At the end of construction, a post-condition survey would be undertaken to ensure the road network is left in the same state as at the start of construction. This approach would also be applied during the decommissioning phase.~~ | Preconstruction<br>Construction<br>Decommissioning |
| new | **Prior to the commencement of construction, the proponent would undertake all necessary road upgrade works, including the road reserve and any public infrastructure in the road reserve, to a standard suitable for use by heavy vehicles to meet any reasonable requirements that may be specified by the relevant roads authority.**<br>**The design and specifications, and construction, of these works would be completed and certified by an appropriately qualified person to meet the traffic requirements of the project and to the satisfaction of the road authorities.**<br>**The road upgrade works would include:**<br>• **the intersection of the Riverina Highway and Parfreys Road would be constructed and the roadside maintained to provide the sight distance requirements for a reaction time of 2.5 seconds in either direction along the Riverina Highway in** | Preconstruction<br>Construction |

| No. | Safeguards and mitigation measures | Phase |
|---|---|---|
| | **accordance with the Austroads Publications as amended by the supplements adopted by Roads and Maritime Services for the posted speed limit. Compliance with this requirement would be certified by an appropriately qualified person prior to construction of the vehicular access**<br>• **a Basic Right Turn (BAR) and Basic Left Turn (BAL) intersection treatment would be constructed on the Riverina Highway at the intersection with Parfreys Road in accordance with the Austroads Guide to Road Design as amended by the supplements adopted by Roads and Maritime Services for the posted speed limit. The intersection would be constructed to the standards required for an approved road train route**<br>• **the intersection would be designed and constructed so that vehicles turning between the Riverina Highway and Parfreys Road are not required to cross to the opposing travel lane in order to perform a turn manoeuvre. The intersection would be line marked in accordance with Australian standards**<br>• **the intersection would be designed and constructed so as not to interfere with the capacity of the current roadside drainage network and to prevent water from proceeding onto, or ponding on, the carriageway of the Riverina Highway. If a culvert is to be installed and is to be located within the clear zone of the carriageway for the posted speed limit it would be constructed with a traversable type headwall**<br>• **Parfreys Road would be upgraded to provide for 2 travel lanes and be sealed to the Mulwala Canal Bridge from its intersection with the Riverina Highway.** | |
| new | **Any works to the public road network would be completed prior to commencement of construction.** | Construction |
| new | **Approval from roads authorities would be sought under s138 of the *Roads Act 1993* prior to any works within the Riverina Highway or Conargo Road road reserves. Any damage or disturbance to the road reserve would be restored to match surrounding landform in accordance with Council requirements. The proponent would be responsible for undertaking and funding all repair or public utility adjustment/relocation works within the road reserve required by the project.** | Construction<br>Operation<br>Decommissioning |
| new | **The proponent would enter into a Works Authorisation Deed (WAD) with Roads and Maritime Services before finalising the design or undertaking any construction work within or connecting to the Riverina Highway road reserve. The Works Authorisation Deed documentation would be submitted for each specific change to the state road network for assessment and approval by Roads and Maritime Services prior to commencement of any works within the road reserve.** | Pre-construction<br>Construction |
| **Hazards** | | |
| 68 | An Emergency Response Plan **(ERP)**, incorporating an Evacuation Plan, Fire Response Plan, Flood Response Plan and Spill and Contamination Response Plan, would be developed prior to commissioning the solar farm. ~~A copy of the plan would be kept on site in a prominent position adjacent to the site entry point at all times.~~<br>**The ERP would:**<br>• **specifically address foreseeable on-site and off-site fire events and other emergency incidents (including fires involving solar panel arrays, bushfires in the immediate vicinity or potential hazmat incidents)** | Preconstruction<br>Construction<br>Operation<br>Decommissioning |

| No. | Safeguards and mitigation measures | Phase |
|---|---|---|
| | • **detail appropriate risk control measures to be implemented to safely mitigate potential risks to the health and safety of firefighters and other first responders (including electrical hazards), including the level of personal protective clothing required to be worn, the minimum level of respiratory protection required, decontamination procedures, minimum evacuation zone distances and a safe method of shutting down and isolating the photovoltaic system (either in its entirety or partially, as determined by risk assessment)**<br>• **detail other risk control measures that may need to be implemented in a fire emergency due to any unique hazards specific to the site**<br>**Two copies of the ERP would be stored in a prominent 'Emergency Information Cabinet' located in a position directly adjacent to the site's main entry point/s.** | |
| 71 | The Fire Management Plan would be developed in consultation with the local RFS District Fire Control Centre, and include:<br>• **a site infrastructure plan**<br>• **a fire fighting water supply plan**<br>• **a site access and internal road plan**<br>• **location of hazards (physical, chemical and electrical) that will impact on fire fighting operations and procedures to manage identified hazards during fire fighting operations**<br>• specific management of activities with a risk of fire ignition (hot works, vehicle use, smoking, use of flammable materials, blasting)<br>• incorporation of fire safety and response in staff and contractor induction, training, OHS procedures and Work Method Statements<br>• dedicated staff training on the use and maintenance of fire-fighting equipment and resources<br>• designation of a staff safety officer tasked with ensuring implementation of the plan and regular liaison with firefighting agencies **(including 24/7 contact details and alternative telephone contact)**<br>• document all firefighting resources maintained at the site with an inspection and maintenance schedule<br>• monitoring and management of vegetation fuel loads<br>• identification of Asset Protection Zones (APZs) **and maintenance arrangements**<br>• a communications strategy incorporating use of mobile phones, radio use (type, channels and call-signs), Fire Danger Warning signs located at the entrance to the site compounds, emergency services agency contacts<br>• activation triggers for the Emergency Response Plan and Fire Response Plan. | Preconstruction<br>Construction<br>Operation<br>Decommissioning |
| new | **Once constructed and prior to operation, that the operator of the solar farm would contact the relevant Local Emergency Management Committee (LEMC).** | Construction |
| new | **In the event of glint or glare from the solar panels being found to produce significant nuisance, distraction or safety hazard when viewed from a public road, the proponent would immediately implement appropriate mitigation measures.** | Operation |
| **Air quality and climate** | | |
| 92 | Dust generation by vehicles accessing the site and earthworks at the site would be suppressed using water applications or other means as required. **Dust management** | Construction |

| No. | Safeguards and mitigation measures | Phase |
|---|---|---|
| | **measures to suppress dust generation from the development site and the transportation route would be included in the CEMP and implemented to the satisfaction of Council and Roads and Maritime Services.** | Operation<br>Decommissioning |
| **Waste** | | |
| 95 | A Waste Management Plan (WMP) would be developed to minimise waste, including:<br>• identification of opportunities to avoid, reuse and recycle, in accordance with the waste hierarchy<br>• quantification and classification of all waste streams<br>• provision for recycling management on-site<br>• provision of toilet facilities for on-site workers and identify that sullage would be disposed of (i.e., pump out to local sewage treatment plant)<br>• tracking of all waste leaving the site<br>• disposal of waste at ~~facilities permitted to accept the waste~~ **Deniliquin landfill, which is licensed to accept the waste (the rural landfills at Blighty, Conargo and other villages in the LGA would not be used)**<br>• requirements for hauling waste (such as covered loads). | Pre-construction<br>Construction<br>Operation<br>Decommissioning |

# 7 CONCLUSION

This Submissions Report has been prepared by NGH Environmental on behalf of RES.

The EIS was on public exhibition from 21 November to 21 December 2017. 30 issues were raised in 23 public submissions, and 39 issues were raised in 9 government agency submissions (including the DPE Response to Submissions letter).

In response to the submissions, the proponent has adopted 8 new mitigation measures, and modified 14 measures identified in the EIS (refer Table 6-1). Many of the issues raised in submissions are considered to be adequately addressed in the EIS and existing mitigation measures.

Key changes to the mitigation commitments include:

- additional biodiversity protection measures
- more detail in the screen planting arrangements
- more detail in the development and content of the project Traffic Management Plan
- more specific measures related to the upgrade, works approvals and maintenance of the public road network
- more detail regarding the content and use of the Emergency Response Plan.

The responses also provide a stronger justification for the proposal in terms of impacts on land use, land capability and agricultural production.

A revised consolidated mitigation measures table is provided in Appendix B.

In consideration of the responses to submissions set out in this Submissions Report and the proposed mitigation measures committed to in the revised mitigation measures at Appendix B, it is considered that

all relevant issues and concerns in relation to the proposal have been adequately addressed. The proposal should now proceed for approval by the Minister, particularly in light of the demonstrable social and economic benefits and the urgent need to reduce carbon emissions in the electricity sector.

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# APPENDIX A PROPOSAL LAYOUT AND SITE CONSTRAINTS


Emergency access
Site access
WARRAGOON NTH NO 3 CHANNEL
PARRETTS ROAD
WARRAGOON NTH CHANNEL
TUPPAL NO 6 CHANNEL
Scarred tree (ACHA)
Hollow bearing tree
Hollow bearing tree to be removed
Paddock tree
Paddock tree to be removed
Tarleigh Park solar farm site
Vegetation: Condition
PCT15: Moderate to good
PCT76 (EEC): Low
PCT76 (EEC): Moderate to good
Property Vegetation Plan area
Existing transmission lines
Local road
Drainage channel
Other waterbody
Murray Irrigation feature buffer (10m)
Proposed security fence
Proposed new access track
Power Conversion Unit with hardstand
Proposed energy storage facility
Temporary construction compound and laydown
Proposed tracker layout block
Proposed transformer and utility facility
Transgrid subdivided area (substation)
Proposed landscaping
0 50 100 200 m
A3 @ 1:9000
Ref: SW124_TP Constraints
Author: SP Date: 5/04/2018
www.nghenvironmental.com.au
Notes:
- Base map © Esri and its data suppliers.
- Base layers from LPI and Geoscience Aust, 2017

# APPENDIX B REVISED MITIGATION MEASURES

| No. | Mitigation measure | Phase |
|---|---|---|
| **Biodiversity** | | |
| 1 | Appropriately timed surveys (Nov-Jan) would be implemented to determine if threatened flora species occur within the development envelope. If identified, avoidance protocols would be developed in consultation with OEH to ensure impacts are avoided. If avoidance is not possible, offsets would be calculated in an updated BOS within the Submissions Report, prior to project approval. | Pre-construction<br>Construction |
| 2 | Appropriately timed surveys (Nov-Jan) would be conducted to determine if the Superb Parrot is breeding within the development envelope. If breeding is identified, offsets would be calculated in an updated BOS within the Submissions Report, prior to project approval. | Pre-construction<br>Construction |
| 3 | Pre-clearing surveys to be completed prior to the commencement of any vegetation or trees by project ecologist to confirm presence of stick nests and nesting Superb Parrots. If Superb Parrots are found to be utilising hollows, those hollow-bearing trees are not to be cleared until the species has ceased using the hollows. | Pre-construction<br>Construction |
| 4 | A Flora and Fauna Management Plan (FFMP) is to be prepared prior to the commencement of works. This plan is to be prepared by a suitably qualified ecologist, and include details of the pre-clearing, clearing and post-clearing protocols, weed hygiene and management protocols and an unexpected finds protocol (for significant species, communities or habitats). The FFMP will incorporate the biodiversity measures in the EIS, indicating:<br>• who will be responsible for individual actions (including position title of the officer responsible)<br>• outcome or measure of success<br>• when the action will be completed. | Pre-construction<br>Construction |
| 5 | The clearing protocol will include:<br>• assessment of breeding and hibernation periods so as to avoid vegetation clearing during these periods, ideally avoiding the period of June to January<br>• hollow-bearing trees would not be removed between September and December inclusive to avoid the main breeding period for hollow-dependent fauna<br>• details of the two-stage clearing process for hollow-bearing trees and habitat features (such as fallen logs), involving a pre-clearing survey to identify and mark habitat features within one week of commencement of clearing<br>• following the pre-clearing survey, a pre-clearing report would be prepared including a map of all habitat features identified, and identifying a suitable fauna relocation point in land of secure tenure, containing known habitat features such as hollow-bearing trees or logs | Pre-construction<br>Construction |

| No. | Mitigation measure | Phase |
|---|---|---|
| | • following the pre-clearing report, clearing of non-habitat vegetation to isolate habitat features would commence. Habitat features are to be cleared around and left isolated for one night, and cleared the following day under the supervision of a suitably qualified and experienced ecologist<br>• the ecologist is to record and relocate any animals caught that are not injured, and either euthanise or relocate to a vet any animals that are injured. Records of all species, relocation points and health are to be kept<br>• habitat features are to be left overnight once cleared, and checked the following morning to ensure that no fauna have re-inhabited the features, before they are mulched or stockpiled. | |
| 6 | If vegetation maintenance during construction or operation includes clearing or lopping that is additional or different to that included in the BAR, the activities would be assessed for biodiversity impacts by an accredited person and documented in accordance with the FBA, unless otherwise agreed by OEH. Any additional clearing or lopping would be subject to pre-clearing surveys and supervision as per measure no. 5. | Pre-construction<br>Construction |
| 7 | Private drainage channels and farm dams to be removed or drained would first be inspected by an ecologist for the presence of aquatic fauna. Any mammals, birds and reptiles at the sites would be removed and relocated as required prior to the works. | Pre-construction<br>Construction |
| 8 | An unexpected threatened species finds procedure would be developed prior to commencement of clearing, with detail included in site inductions and tool box talks as to potential species encountered, and actions to be taken when encountered. | Pre-construction<br>Construction |
| 9 | Prior to the commencement of work, a physical vegetation clearing boundary at the approved clearing limit would be clearly demarcated and implemented. The delineation of such a boundary may include the use of temporary fencing, flagging tape, parawebbing or similar. | Pre-construction<br>Construction |
| 10 | Stockpiling materials and equipment and parking vehicles will be avoided within the dripline (extent of foliage cover) of any native tree. | Pre-construction<br>Construction |
| 11 | The Construction Environmental Management Plan would include measures to avoid noise impacts on adjacent vegetation such as work timing during daylight hours and use of ambient noise sensing ‘quackers’ in lieu of reversing beepers. | Construction |
| 12 | The Construction Environmental Management Plan would include measures to prevent dust spreading to nearby habitats. | Construction |
| 13 | Works during night time would be avoided where practicable. If night work is unavoidable, any floodlights would be directed away from vegetation. Any permanent lighting would be directed away from vegetation | Construction |
| 14 | A vertebrate pest management plan would be prepared and implemented. | Construction<br>Operation<br>Decommissioning |

| No. | Mitigation measure | Phase |
|---|---|---|
| 15 | Fences would enclose operational areas only. The use of barbed wire would be avoided where possible. | Preconstruction<br>Construction<br>Operation |
| 16 | Water detention basins would be retained where possible to provide water resources for fauna. | Construction |
| 17 | Suitable groundcover feed species for the Superb Parrot would be included in the seed mix used to revegetate the proposal site. | Construction<br>Operation |
| 18 | Site speed limits would be enforced, with low speed areas in proximity to threatened fauna habitat. Awareness of the importance of site speed limits would be included in training during site inductions. | Construction<br>Operation<br>Decommissioning |
| **Aboriginal heritage** | | |
| 19 | RES Australia Pty Ltd should prepare a Cultural Heritage Management Plan (CHMP) to address the potential for finding Aboriginal artefacts during the construction of the Solar Farm and management of known sites. The Plan should include an unexpected finds procedure to deal with construction activity. Preparation of the CHMP should be undertaken in consultation with the registered Aboriginal parties. | Pre-construction |
| 20 | A plan of management should be implemented prior to the commencement of any works. This plan of management should be developed in consultation with the registered Aboriginal parties. | Pre-construction |
| 21 | The plan of management must list safe guards that will be implemented for all works within 10m of the sites Tarleigh Park Scarred Tree 1 and Tarleigh Park Scarred Tree 2 to ensure that the sites will not be impacted by the proposed fencing works. These safeguards would include fencing to protect the sites during construction. | Construction |
| 22 | A minimum 10m buffer would be in place around the fallen tree Tarleigh Park Scarred Tree 1 and around Tarleigh Park Scarred Tree 2 to protect the root and canopy zone. These sites would be protected by fencing during the construction and operation phases. | Construction |
| 23 | 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 must be undertaken to determine if the remains were Aboriginal or non-Aboriginal. | Construction |
| 24 | Further archaeological assessment must be undertaken if the proposal activity extends beyond the area of the current investigation. This would include consultation with the registered Aboriginal parties and may include further field survey. | Construction |
| **Visual amenity and landscape character** | | |
| 25 | A Landscape Management Plan is recommended to address the 'as built' visual impacts of the proposed solar farm. The plan would include: | Construction |

| No. | Mitigation measure | Phase |
|---|---|---|
| | • on-site vegetation screening for viewers for which a medium impact is confirmed following construction of the solar farm (refer to verification process below). This would be aimed at 'breaking up' not blocking views of onsite infrastructure.<br>• general methods to reduce visual impact. This would centre on the colour, form and positioning of infrastructure, to reduce the overall visual contrast of the project.<br>• a process for verification of predicted and actual impacts. This would improve the reliability of the measures and provide a trigger to undertake additional mitigation if required.<br>The plan would be implemented nearing completion of construction and in consultation with affected landholders (where relevant). | |
| 26 | A suggested onsite planting layout is provided in Appendix F. This would be confirmed nearing completion of construction and in consultation with property owners to the east and south. | Construction |
| 27 | The following screening requirements would be met:<br>• planting would be more than one row deep and preferably be located on the outside of the security fence, so that it breaks up views of the fencing as well as onsite infrastructure. The final location of planting and density would be undertaken following verification of actual impacts.<br>• the plant species to be used in the screen are to be native and consistent with existing vegetation types on the proposal site, and should be selected in consultation with a botanist, affected neighbours, and Council. They should be fast growing, with spreading habit.<br>• vegetation should include a high shrub layer which would provide a more effective visual screen compared to trees as the panels would be maximum 3 metres high. Where feasible, plants selected should be of adequate size when initially planted to allow immediate effect as a visual screen.<br>• the timing is recommended to be close to completion of construction so that actual and not predicted impacts of infrastructure are mitigated. Landscaping would be completed prior to the commissioning of the solar farm.<br>The screen would be maintained for the operational life of the solar farm. Dead plants would be replaced. Pruning and weeding would be undertaken as required to maintain the screens visual amenity and effectiveness in breaking up views. The screen plantings would be established and maintained for the life of the solar farm by the proponent according to the Landscape Management Plan. As requested by Council, the proponent would provide Council with details on watering arrangements for establishing and maintaining the screen plantings. | Construction<br>Operation |
| 28 | The following measures are recommended to reduce the general visual impact of the development: | Operation |

| No. | Mitigation measure | Phase |
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| | • solar farm infrastructure should be reduced in height as far as practicable.<br>• the materials and colour of onsite infrastructure will, where practical, be non-reflective and in keeping with the materials and colouring of existing infrastructure or of a colour that will blend with the landscape. Where practical:<br>o buildings and other infrastructure will be non-reflective and in eucalypt green, beige or muted brown.<br>o mounting systems for the solar arrays will be non-reflective.<br>o security fencing posts and wire would be non-reflective; green or black rather than grey would reduce the industrial character of the fence. | |
| 29 | Parking areas, material stockpiles and other construction activities would be located as far as practical from nearby residences and roads or screened (by existing vegetation) for the period of construction. | Construction |
| 30 | Areas of soil disturbed by the project would be rehabilitated progressively or immediately post-construction, reducing views of bare soil. | Construction |
| 31 | Security lighting would be positioned to direct light away from any neighbouring residential dwellings. Night lighting would be minimised to the maximum extent possible (i.e. manually operated safety lighting at main component locations) | Construction |
| 32 | A verification process would be implemented close to the completion of the construction phase. A Visual Verification Report and Landscape Plan would:<br>• confirm the assumptions of this assessment by ground based assessment and ensure medium impacts are mitigated.<br>• finalise the location and species for proposed screening, in consultation with nearest affected landholders.<br>• detail planting methods and maintenance requirements of the screen planting. | Construction |
| **Noise and vibration** | | |
| 33 | A draft construction noise management plan has been prepared for the proposed works and is provided in Appendix G. This management plan would be completed and updated as required prior to construction once the construction plant list is known and methodology has been refined. | Construction |
| 34 | Noise control measures, such as those suggested in Australian Standard 2436-2010 “Guide to Noise Control on Construction, Demolition and Maintenance Sites”, and Renzo Tonin (2017) should be implemented to reduce predicted construction noise levels. Reference to Australian Standard 2436-2010, Appendix C, Table C1 suggests possible remedies and alternatives to reduce noise emission levels from typical construction equipment. Table C2 in Appendix C presents typical examples of noise reductions achievable after treatment of various noise sources. Table C3 in Appendix C presents the relative effectiveness of various forms of noise control treatment. | Construction |

| No. | Mitigation measure | Phase |
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| 35 | In addition to physical noise controls, the following general noise management measures should be followed:<br>• Plant and equipment should be properly maintained.<br>• Provide special attention to the use and maintenance of 'noise control' or 'silencing' kits fitted to machines to ensure they perform as intended.<br>• Strategically position plant on site to reduce the emission of noise to the surrounding neighborhood and to site personnel.<br>• Avoid any unnecessary noise when carrying out manual operations and when operating plant.<br>• Any equipment not in use for extended periods during construction work should be switched off.<br>• In addition to the noise mitigation measures outlined above, a management procedure would need to be put in place to deal with noise complaints that may arise from construction activities. Each complaint would need to be investigated and appropriate noise amelioration measures put in place to mitigate future occurrences, where the noise in question is in excess of allowable limits.<br>• Good relations with people living and working in the vicinity of a construction site should be established at the beginning of a project and be maintained throughout the project, as this is of paramount importance. Keeping people informed of progress and taking complaints seriously and dealing with them expeditiously is critical. The person selected to liaise with the community should be adequately trained and experienced in such matters. | Construction |
| 36 | Where noise level exceedances cannot be avoided, then time restrictions and/or providing periods of repose for residents, must be considered where feasible and reasonable. That is, daily periods of respite from noisy activities may also be scheduled for building occupants during construction hours. | Construction |
| 37 | Some items of plant may exceed noise limits even after noise treatment is applied. To reduce the overall noise impact, the use of noisy plant may be restricted to within certain time periods, where feasible and reasonable and to be negotiated with Council and the residents. Allowing the construction activities to proceed, despite the noise exceedance may be the preferred method in order to complete the works expeditiously. | Construction |
| **Land use and resources** | | |
| 38 | TransGrid, Essential Energy and Murray Irrigation Limited would be consulted prior to commencement of works to ensure that the works do not adversely affect electricity transmission and irrigation infrastructure or impede access for inspection and maintenance. | Pre-construction |
| 39 | Construction and operations personnel would drive carefully and below the designated speed limit according to the Traffic Management Plan, to minimise dust generation and disturbance to livestock. | Construction<br>Operation<br>Decommissioning |
| 40 | Landholders and residents adjacent to the property and along the access route from the Riverina Highway would be consulted and notified regarding the timing of works to minimise the noise, dust, traffic and other disturbance impacts. | Construction<br>Decommissioning |

| No. | Mitigation measure | Phase |
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| 41 | Underground cabling and other works to remain in situ following decommissioning of the solar farm would be installed deeper than 500mm to allow cultivated cropping to resume following decommissioning. | Construction |
| 42 | If possible and practical, sheep grazing would be used as a preferred option to control weeds and grass growth, and to maintain agricultural production at the site. | Operation |
| 43 | A Decommissioning Environmental Management Plan (DEMP) would be prepared and submitted to DPE for approval prior to decommissioning. The DEMP would include a Site Rehabilitation Plan covering:<br>• criteria and indicators for the restoration of land capability and agricultural potential based on pre-works soil survey results<br>• details of rehabilitation actions such as removal of infrastructure, remediation of soils, reinstatement of dams and irrigation/drainage channels as required and establishment of suitable groundcover vegetation on bare areas<br>• a monitoring and assessment process to demonstrate that the target state has been achieved<br>• an expected timeline for the rehabilitation program. | Decommissioning |
| **Soils and landforms** | | |
| 44 | The solar array would be designed and installed to allow sufficient space between panels to establish and maintain perennial groundcover (subject to climatic conditions). | Preconstruction<br>Construction |
| 45 | A Construction Environmental Management Plan (CEMP) would be developed in consultation with the Department of Industry (Crown Lands and Water) and implemented to manage runoff, soil erosion and sedimentation and pollution risks at the site. The CEMP would be prepared in accordance with the 'Blue Book' Volume 1 Managing Urban Stormwater: Soils and Construction (Landcom 2004), Volume 2A Installation of Services (DECC 2008a) and Volume 2C Unsealed Roads (DECC 2008b). | Pre-construction<br>Construction |
| 46 | As part of the CEMP, a Soil and Water Management Plan (incorporating a Site Drainage Plan and Erosion and Sediment Control Plan) would be prepared, implemented and monitored during the proposal to minimise soil and water impacts. These plans would include provisions to:<br>• install, monitor and maintain erosion controls<br>• identify and protect sensitive features such as native vegetation, dams and Murray Irrigation channels<br>• ensure that machinery leaves the site in a clean condition to avoid tracking of sediment onto public roads<br>• manage topsoil: in all excavation activities, separate subsoils and topsoils to restore natural soil profiles and assist revegetation, guided by the findings of the pre-works soil survey. Topsoils stockpiled for extended periods would be managed to avoid contact with overland runoff, minimise weed risks, and maintain soil organic matter, soil structure and microbial activity | Pre-construction<br>Construction |

| No. | Mitigation measure | Phase |
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| | • minimise the area of disturbance from excavation and compaction and rationalise vehicle movements to minimise soil impacts<br>• ensure any discharge of water from the site is managed to ensure ANZECC (2000) water quality criteria are met<br>• as far as practicable, ensure excavations are not scheduled when heavy rainfall events are predicted or soils are saturated. | |
| 47 | The CEMP, OEMP and DEMP and relevant sub-plans should incorporate the management recommendations in the site soil survey report (McMahon Earth Science 2017, Appendix H), including:<br>• soil disturbance should be kept to a minimum where higher localised salinity or sodicity may be present. Topsoil stripping should avoid mixing salty and/or sodic subsoils with the topsoil – testing is recommended. Excavation of subsoils should be limited and subsoils should be stockpiled and contained to avoid dispersion and sediment transfer<br>• direction of surface waters and run-on should be avoided to minimise mobilisation of any salts stored in the soil<br>• appropriate infrastructure design is required to avoid damage caused by shrink-swell clays<br>• deep rooted vegetation should be maintained where present, ground clearing should be minimised and ground cover around the structures should be maintained where possible<br>• seed bed preparation and rolling, gypsum and/or composted organic matter will improve surface structure and germination in coarse structured soils. Low intensity, deep watering should be used. Fertilisers should be applied before and during plant growing periods. Compaction relief may be required for revegetation<br>• plant species used for revegetation need to be adapted to cracking, alkaline, moderately to poorly drained, fertile soils with high plant available water holding capacity. | Preconstruction<br>Construction<br>Operation<br>Decommissioning |
| 48 | Following the construction phase, a Site Rehabilitation Plan would be implemented remediating soils as required based on the findings of the pre-works soil survey, removing rubbish, restoring soil and landform profiles and decompacting soils in construction areas. | Construction |
| 49 | A Groundcover Management Plan would be developed in consultation with an agronomist and taking account of soil survey results to ensure perennial grass cover is established across the site as soon as practicable after construction and maintained throughout the operation phase (subject to climatic conditions). The plan would cover:<br>• soil restoration and preparation requirements<br>• species election<br>• soil preparation<br>• establishment techniques<br>• maintenance requirements | Pre-construction<br>Construction<br>Operation |

| No. | Mitigation measure | Phase |
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| | • perennial groundcover targets, indicators, condition monitoring, reporting and evaluation arrangements<br>• contingency measures to respond to declining soil or groundcover condition<br>• identification of baseline conditions for rehabilitation following decommissioning. | |
| 50 | Live grass cover would be maintained at or above 70% at all times (subject to climatic conditions) to protect soils and landscape function. Any grazing stock would be removed from the site when cover falls below this level. Grass cover would be monitored on a fortnightly basis using an accepted methodology. | Operation |
| **Hydrology and water quality** | | |
| 51 | The Spill and Contamination Response Plan prepared as part of the Emergency Response Plan would include measures to:<br>• respond to the discovery of existing contaminants at the site (e.g. pesticide containers or asbestos), including stop work protocols and remediation and disposal requirements<br>• manage the storage of any potential contaminants on-site<br>• mitigate the effects of soil and water contamination by fuels or other chemicals (including emergency response and EPA notification procedures)<br>• ensure that machinery and materials arrive on site in a clean and secure condition<br>• prevent contaminants affecting adjacent pastures, irrigation channels, dams and native vegetation<br>• monitor and maintain spill equipment<br>• induct and train site staff. | Pre-construction<br>Construction<br>Operation<br>Decommissioning |
| 52 | If the substation used is oil-cooled, the layout, oil containment bunding and drainage would comply with the standards and guidelines in Ausgrid (2017) NS189 Oil Containment for Major Substations. The substation would be bunded with a capacity exceeding the volume of the cooling oil. The bund would be regularly inspected and cleaned, including removal of rainwater. | Pre-construction<br>Construction<br>Operation |
| 53 | Road and carpark sealing works would not be undertaken if rain is anticipated within 24 hours of the completion of the works. Where possible, sealing works would be scheduled during fine, sunny, warm/hot conditions, avoiding wet, overcast, cool conditions. | Construction |
| 54 | All fuels, chemicals, and liquids would be stored at least 50m from dams or irrigation channels, in an impervious bunded area. The refuelling of plant and maintenance would be undertaken in impervious bunded areas on hardstand areas only. | Construction<br>Operation<br>Decommissioning |
| 55 | All machinery on-site would contain dry and wet spill kits to manage hydrocarbon and other pollutant spills. Machinery would be checked regularly to ensure there is no oil, fuel or other liquids leaking from the machinery. | Construction<br>Operation<br>Decommissioning |

| No. | Mitigation measure | Phase |
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| 56 | Any concrete wash generated at the site would be deposited in a contained, excavated area. | Construction |
| 57 | Any soils contaminated by hydrocarbons, chemicals or concrete during any phase of the proposal would be removed from the site and disposed of appropriately. | Construction<br>Operation<br>Decommissioning |
| 58 | Any soils, fill or track surfacing materials imported to the site would be clean and non-dispersing. | Construction |
| 59 | No detergents or other chemicals would be added to the solar panel cleaning water. | Construction<br>Operation |
| **Social and economic** | | |
| 60 | The Community Consultation Plan would continue to be implemented throughout the planning, assessment and construction phases of the project, and would include:<br>• regular community updates about the progress of the proposal and findings of the assessments<br>• consultation and notification of local residents and other relevant stakeholders regarding the timing of major deliveries and other activities which may produce particular social and economic impacts<br>• an accessible complaints process with a timely response protocol. | Preconstruction<br>Construction |
| 61 | Neighbours of the Tarleigh Park property would be consulted and notified regarding the timing of major deliveries which may require traffic control and disrupt access. | Construction<br>Decommissioning |
| 62 | Local businesses would be used to supply good and services during all phases of the project wherever possible, as a first priority. The proponent would actively liaise with local industry representatives to maximise and coordinate the use of local contractors, manufacturing facilities and goods and materials suppliers, and to minimise adverse impacts to local supplies, services and tourism. | Construction<br>Operation<br>Decommissioning |
| 63 | Large deliveries involving oversize or overmass loads or vehicles requiring traffic control which may inconvenience road users on the Riverina Highway would not be scheduled during festivals or other major tourism activities. Local tourism industry representatives would be consulted to manage potential timing conflicts with local events. | Construction<br>Decommissioning |
| 64 | The proponent would establish a continuing $20,000 pa Community Fund which could be used for local environmental and community projects and scholarship funding for local school students to assist technology training and education. The fund would likely be managed by a local community group or Edward River Council. The project selection criteria and administrative arrangements would be developed in consultation with Council. Council would also be consulted regarding the selection of projects that would affect Council land or assets. | Operation |
| **Traffic, transport and road safety** | | |

| No. | Mitigation measure | Phase |
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| 65 | A Traffic Management Plan would be developed as part of the CEMP and DEMP, in consultation with Edward River Council and Roads and Maritime Services. The appointed transport contractor would be involved in the preparation of the plan. The plan would detail the potential light and heavy traffic impacts associated with the development, the mitigation measures to be implemented, and the procedures to monitor and ensure compliance. The plan would include:<br>• confirmation of designated routes for construction and haulage traffic, requiring all vehicular access to the site to be via the approved access route<br>• details of traffic routes to be used by heavy and light vehicles, and any associated impacts and any road-specific mitigation measures<br>• details of measures to be employed to ensure safety of road users and minimise potential conflict with project generated traffic, including carpooling/shuttle bus arrangements to minimise staff vehicle movements<br>• proposed hours for construction activities, as night time construction presents additional traffic related issues to be considered<br>• the management and coordination of the scheduling of deliveries and movement of vehicles for construction and worker related access to the site and to limit disruption to other motorists, emergency vehicles, school bus timetables and school zone operating times<br>• loads, weights and lengths of haulage and construction related vehicles and the number of movements of such vehicles<br>• procedures for informing the public where any road access will be restricted as a result of the project<br>• any proposed precautionary measures such as signage to warn road users such as motorists about the construction activities for the project and arrangements and locations for traffic controls (speed limits, signage, stop/go)<br>• a Driver Code of Conduct to address such items as; appropriate driver behaviour including adherence to all traffic regulations and speed limits, safe overtaking and maintaining appropriate distances between vehicles, etc and appropriate penalties for infringements of the Code<br>• details of procedures for receiving and addressing complaints from the community concerning traffic issues associated with truck movements to and from the site<br>• evaluation of any road or intersection upgrade requirements and associated traffic controls, in consultation with Edward River Council and Roads and Maritime Services (and consistent with Austroads Guides and Roads and Maritime Services supplements)<br>• procedure to monitor traffic impacts and adapt controls (where required) to reduce impacts<br>• assessment of road condition prior to construction on all local roads that would be utilised, and a road condition monitoring program. | Preconstruction<br>Construction<br>Decommissioning |

| No. | Mitigation measure | Phase |
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| 66 | The proponent would ensure the approval of Edward River Council prior to the selection of the final construction access route on local roads. | Construction |
| 67 | Consultation with stakeholders including Roads and Maritime Services, Edward River Council, local landholders and emergency services would continue during construction and decommissioning to advise of any changes to road use and conditions. | Construction<br>Decommissioning |
| 68 | Where possible, large deliveries requiring stop/go traffic controls would not be scheduled during peak tourism periods (such as during local festivals), and morning and evening commuting or school bus operating periods. The proponent would aim to restrict traffic delays to a maximum of 10 minutes. | Preconstruction<br>Construction<br>Decommissioning |
| 69 | Prior to commencement of, and after completion of, construction (and decommissioning) the proponent would engage an appropriately qualified person to prepare a Road Dilapidation Report, addressing all road related infrastructure for all road routes to be used during the construction (and decommissioning) activities, in consultation with the relevant road authority (Roads and Maritime Services and Council).<br>Any damage resulting from construction or decommissioning traffic, excepting normal wear and tear, would be repaired at the proponent's cost. The proponent accepts accountability for this process, rather than the proposed haulage contractor. The timing of any repair works would be as agreed by the relevant road authorities.<br>The proponent would enter into an agreement with Council, prior to commencement of works, for the additional maintenance of the road network caused by the project. | Preconstruction<br>Construction<br>Decommissioning |
| 70 | Prior to the commencement of construction, the proponent would undertake all necessary road upgrade works, including the road reserve and any public infrastructure in the road reserve, to a standard suitable for use by heavy vehicles to meet any reasonable requirements that may be specified by the relevant roads authority.<br>The design and specifications, and construction, of these works would be completed and certified by an appropriately qualified person to meet the traffic requirements of the project and to the satisfaction of the road authorities.<br>The road upgrade works would include:<br>• the intersection of the Riverina Highway and Parfreys Road would be constructed and the roadside maintained to provide the sight distance requirements for a reaction time of 2.5 seconds in either direction along the Riverina Highway in accordance with the Austroads Publications as amended by the supplements adopted by Roads and Maritime Services for the posted speed limit. Compliance with this requirement would be certified by an appropriately qualified person prior to construction of the vehicular access<br>• a Basic Right Turn (BAR) and Basic Left Turn (BAL) intersection treatment would be constructed on the Riverina Highway at the intersection with Parfreys Road in accordance with the Austroads Guide to Road Design as | Preconstruction<br>Construction |

| No. | Mitigation measure | Phase |
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| | amended by the supplements adopted by Roads and Maritime Services for the posted speed limit. The intersection would be constructed to the standards required for an approved road train route<br>• the intersection would be designed and constructed so that vehicles turning between the Riverina Highway and Parfreys Road are not required to cross to the opposing travel lane in order to perform a turn manoeuvre. The intersection would be line marked in accordance with Australian standards<br>• the intersection would be designed and constructed so as not to interfere with the capacity of the current roadside drainage network and to prevent water from proceeding onto, or ponding on, the carriageway of the Riverina Highway. If a culvert is to be installed and is to be located within the clear zone of the carriageway for the posted speed limit it would be constructed with a traversable type headwall<br>• Parfreys Road would be upgraded to provide for 2 travel lanes and be sealed to the Mulwala Canal Bridge from its intersection with the Riverina Highway. | |
| 71 | Any works to the public road network would be completed prior to commencement of construction. | Construction |
| 72 | Approval from roads authorities would be sought under s138 of the *Roads Act 1993* prior to any works within the Riverina Highway or Conargo Road road reserves. Any damage or disturbance to the road reserve would be restored to match surrounding landform in accordance with Council requirements. The proponent would be responsible for undertaking and funding all repair or public utility adjustment/relocation works within the road reserve required by the project. | Construction<br>Operation<br>Decommissioning |
| 73 | The proponent would enter into a Works Authorisation Deed (WAD) with Roads and Maritime Services before finalising the design or undertaking any construction work within or connecting to the Riverina Highway road reserve. The Works Authorisation Deed documentation would be submitted for each specific change to the state road network for assessment and approval by Roads and Maritime Services prior to commencement of any works within the road reserve. | Pre-construction<br>Construction |
| **Hazards** | | |
| 74 | An Emergency Response Plan (ERP), incorporating an Evacuation Plan, Fire Response Plan, Flood Response Plan and Spill and Contamination Response Plan, would be developed prior to commissioning the solar farm.<br>The ERP would:<br>• specifically address foreseeable on-site and off-site fire events and other emergency incidents (including fires involving solar panel arrays, bushfires in the immediate vicinity or potential hazmat incidents)<br>• detail appropriate risk control measures to be implemented to safely mitigate potential risks to the health and safety of firefighters and other first responders (including electrical hazards), including the level of personal protective clothing required to be worn, the minimum level of | Preconstruction<br>Construction<br>Operation<br>Decommissioning |

| No. | Mitigation measure | Phase |
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| | respiratory protection required, decontamination procedures, minimum evacuation zone distances and a safe method of shutting down and isolating the photovoltaic system (either in its entirety or partially, as determined by risk assessment)<br>• detail other risk control measures that may need to be implemented in a fire emergency due to any unique hazards specific to the site.<br>Two copies of the ERP would be stored in a prominent 'Emergency Information Cabinet' located in a position directly adjacent to the site's main entry point/s. | |
| | **Hazardous materials and development** | |
| 75 | Dangerous or hazardous materials would be transported, stored and handled in accordance with AS1940-2004: *The storage and handling of flammable and combustible liquids* and the ADG Code where relevant. All potential pollutants kept on-site would be stored in accordance with relevant HAZMAT requirements and bunded. | Construction<br>Operation<br>Decommissioning |
| 76 | The transportation of new and waste lithium-ion batteries would comply with the requirements of the Dangerous Goods Code, including specific 'special provisions' and 'packing instructions' applying to the transportation of Li-ion batteries. | Construction<br>Operation<br>Decommissioning |
| | **Fire** | |
| 77 | The Fire Management Plan would be developed in consultation with the local RFS District Fire Control Centre, and include:<br>• a site infrastructure plan<br>• a fire fighting water supply plan<br>• a site access and internal road plan<br>• location of hazards (physical, chemical and electrical) that will impact on fire fighting operations and procedures to manage identified hazards during fire fighting operations<br>• specific management of activities with a risk of fire ignition (hot works, vehicle use, smoking, use of flammable materials, blasting)<br>• incorporation of fire safety and response in staff and contractor induction, training, OHS procedures and Work Method Statements<br>• dedicated staff training on the use and maintenance of fire-fighting equipment and resources<br>• designation of a staff safety officer tasked with ensuring implementation of the plan and regular liaison with firefighting agencies (including 24/7 contact details and alternative telephone contact)<br>• document all firefighting resources maintained at the site with an inspection and maintenance schedule<br>• monitoring and management of vegetation fuel loads<br>• identification of Asset Protection Zones (APZs) and maintenance arrangements | Preconstruction<br>Construction<br>Operation<br>Decommissioning |

| No. | Mitigation measure | Phase |
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| | • a communications strategy incorporating use of mobile phones, radio use (type, channels and call-signs), Fire Danger Warning signs located at the entrance to the site compounds, emergency services agency contacts<br>• activation triggers for the Emergency Response Plan and Fire Response Plan. | |
| 78 | Fire risks associated with the Energy Storage Facility would be managed by:<br>• locating the ESF as far as practicable from any sensitive receivers (residences) or large stands of vegetation<br>• installing reliable automated monitoring (voltage and temperature), alarm and shutdown response systems<br>• installing reliable integrated fire detection and fire suppression systems (inert gas)<br>• ensuring the battery buildings/containers are not vulnerable to external heat effects in the event of a bushfire<br>• designing appropriate separation and isolation between individual battery containers and between batteries and other infrastructure<br>• compliance with all relevant guidelines and standards<br>• preparation of a specific Battery Fire Response Plan under the general Fire Response Plan, in consultation with fire authorities, fire suppression experts, RES' experienced storage team, and with reference to relevant standards and guidelines<br>• facilitation (including funding) of first responder training in the management of Li-ion battery fires at the site for local brigades. | Preconstruction<br>Construction<br>Operation<br>Decommissioning |
| 79 | In developing the Fire Management Plan, NSW RFS would be consulted on the volume and location of water supplies, fire-fighting equipment maintained on-site, fire truck connectivity requirements, proposed APZ and access arrangements, communications, vegetation fuel levels and hazard reduction measures. | Preconstruction |
| 80 | Once constructed and prior to operation, that the operator of the solar farm would contact the relevant Local Emergency Management Committee (LEMC). | Construction |
| 81 | In the event of glint or glare from the solar panels being found to produce significant nuisance, distraction or safety hazard when viewed from a public road, the proponent would immediately implement appropriate mitigation measures. | Operation |
| 82 | An APZ of minimum 10 metres would be maintained between remnant or planted woody vegetation and solar farm infrastructure. The APZ around the perimeter of the site would incorporate a 4 metre wide gravel access track. | Construction<br>Operation |
| 83 | Average grass height within the APZ would be maintained at or below 5 centimetres throughout the October-April fire season. Average grass height outside the APZ, including beneath the solar array, would be maintained at or below 15 centimetres throughout the fire season. | Construction<br>Operation |
| 84 | The overhead powerlines at the site would be managed by maintaining appropriate vegetation clearance limits to minimise potential ignition risks, in | Operation |

| No. | Mitigation measure | Phase |
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| | accordance with the ISSC 3 Guideline for Managing Vegetation Near Power Lines. | |
| 85 | Landscaping around buildings at the site would comply with Appendix 5 Bush Fire Provisions - Landscaping and Property Maintenance in the PBP guidelines. | Construction<br>Operation |
| 86 | Appropriate fire-fighting equipment would be held on site to respond to any fires that may occur at the site during construction. This equipment will include fire extinguishers, a 1000 litre water cart retained on site on a precautionary basis, particularly during any welding operations. Equipment lists would be detailed in Work Method Statements. | Construction |
| 87 | A steel or concrete water storage tank would be installed adjoining the main internal access road for fire-fighting and other non-potable water uses, with a 65 mm Storz outlet, a metal valve and a minimum of 20,000 litres reserved for fire-fighting purposes. | Preconstruction<br>Construction<br>Operation<br>Decommissioning |
| 88 | The NSW RFS and Fire and Rescue would be provided with a contact point for the solar farm, during construction and operation. | Construction<br>Operation |
| 89 | Following commissioning of the solar farm, the local RFS and Fire and Rescue brigades would be invited to an information and orientation day covering access, infrastructure, firefighting resources on-site, fire control strategies and risks/hazards at the site. | Operation |
| 90 | If an oil-cooled substation is used, oil containment and fire safety measures outlined in Ausgrid (2017) NS189 Oil Containment for Major Substations would be implemented. | Preconstruction<br>Construction |
| 91 | The perimeter access track would comply with the requirements for Fire Trails in the PBP guidelines. All access and egress tracks on the site would be maintained and kept free of parked vehicles to enable rapid response for firefighting crews and to avoid entrapment of staff in the case of bush fire emergencies. Access tracks would be constructed as through roads as far as possible. Dead end tracks would be signposted and include provision for turning fire trucks. | Construction<br>Operation<br>Decommissioning |
| 92 | Machinery capable of causing an ignition would not be used during bushfire danger weather, including Total Fire Ban days. | Construction<br>Operation<br>Decommissioning |
| 93 | A Hot Works Permit system would be applied to ensure that adequate safety measures are in place. Fire extinguishers would be present during all hot works. Where possible hot works would be carried out in specific safe areas (such as the Construction Compound temporary workshop areas). | Construction<br>Operation<br>Decommissioning |
| | **EMF** | |
| 94 | All electrical equipment would be designed in accordance with relevant codes and industry best practice standards in Australia. | Preconstruction<br>Construction |
| 95 | All design and engineering would be undertaken by qualified and competent person/s with the support of specialists as required and would aim to minimise EMFs. | Preconstruction<br>Construction |
| | **Aviation** | |

| No. | Mitigation measure | Phase |
|---|---|---|
| 96 | The materials and colour of on-site infrastructure will, where practical, be non-reflective and in keeping with the materials and colouring of the local landscape. | Preconstruction<br>Construction |
| | **Flooding** | |
| 97 | The Flood Response Plan covering all phases of the project would:<br>• detail who would be responsible for monitoring the flood threat and how this is to be done<br>• detail specific response measures to ensure site safety and environmental protection<br>• outline a process for removing any necessary equipment and materials offsite and out of flood risk areas<br>• consideration of site access in the event that some tracks become flooded<br>• establish an evacuation point<br>• define communications protocols with emergency services agencies. | Preconstruction<br>Construction<br>Operation<br>Decommissioning |
| **Historic heritage** | | |
| 98 | If an item of potential historic heritage is uncovered during the works, works would cease and the Heritage Division (OEH) would be contacted for advice. | Construction |
| **Air quality and climate** | | |
| 99 | The Community Consultation Plan would continue to be implemented throughout the planning, assessment and construction phases of the project, and would include:<br>• consultation and notification of local residents and other relevant stakeholders regarding the timing of major deliveries and other activities which may affect local air quality<br>• an accessible complaints process with a timely response protocol. | Preconstruction<br>Construction<br>Decommissioning |
| 100 | Dust generation by vehicles accessing the site and earthworks at the site would be suppressed using water applications or other means as required. Dust management measures to suppress dust generation from the development site and the transportation route would be included in the CEMP and implemented to the satisfaction of Council and Roads and Maritime Services. | Construction<br>Decommissioning |
| 101 | Vehicle loads of material which may create dust or litter would be covered while using the public road system. | Construction<br>Decommissioning |
| 102 | All vehicles and machinery used at the site would be in good condition, fitted with appropriate emission controls and comply with the requirements of the POEO Act, relevant Australian standards and manufacturer's operating recommendations. Plant would be operated efficiently and turned off when not in use. | Construction<br>Decommissioning |
| **Waste** | | |
| 103 | A Waste Management Plan (WMP) would be developed to minimise waste, including: | Construction<br>Operation<br>Decommissioning |

| No. | Mitigation measure | Phase |
|---|---|---|
| | • identification of opportunities to avoid, reuse and recycle, in accordance with the waste hierarchy<br>• quantification and classification of all waste streams<br>• provision for recycling management on-site<br>• provision of toilet facilities for on-site workers and identify that sullage would be disposed of (i.e., pump out to local sewage treatment plant)<br>• tracking of all waste leaving the site<br>• disposal of waste at Deniliquin landfill, which is licensed to accept the waste (the rural landfills at Blighty, Conargo and other villages in the LGA would not be used)<br>• requirements for hauling waste (such as covered loads). | |
| 104 | A septic system would be installed and operated according to the Edward River Council regulations. | Construction<br>Operation |
| **Cumulative impacts** | | |
| 105 | Construction management plans prepared for the proposal would take into account the cumulative impacts of the Currawarra and Finley solar farm projects should these projects occur concurrently. | Preconstruction<br>Construction |

# APPENDIX C FINAL ACHAR

| | |
|---|---|
| **Report Title** | Aboriginal Cultural Heritage Assessment Tarleigh Park Solar Farm- FINAL |
| **Author(s) Name** | Kirsten Bradley and Matthew Barber |
| **Author(s)' Organisation Name** (if applicable) | NGH Environmental Pty Ltd |
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# Aboriginal Cultural Heritage Assessment

## TARLEIGH PARK SOLAR FARM

NOVEMBER 2017

ngh environmental

## Document Verification

| | | |
|---|---|---|
| ngh environmental | Project Title: | Tarleigh Park Solar Farm |

Project Number: 17-103

Project File Name: Tarleigh Park Solar Farm ACHA Final 24112017

| Revision | Date | Prepared by (name) | Reviewed by (name) | Approved by (name) |
|---|---|---|---|---|
| Draft v1 | 22/09/17 | Kirsten Bradley | Matthew Barber | Matthew Barber |
| Final | 24/11/17 | Kirsten Bradley | Matthew Barber | Matthew Barber |
| | | | | |
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| | | | | |



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# EXECUTIVE SUMMARY

## INTRODUCTION

NGH Environmental has been contracted by RES Australia Pty Ltd (RES) to prepare an Aboriginal Cultural Heritage Assessment Report (ACHAR) for the proposed Tarleigh Park Solar Farm, located at Blighty, approximately 23 kilometres south-east of Deniliquin in the Riverina region of New South Wales

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 Tarleigh Park Solar Farm 02/06/17).

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 Edward River Local Government Area.

## PROJECT PROPOSAL

The Tarleigh Park Solar Farm proposal would comprise the installation of a solar plant with a capacity of approximately 90MW. The power generated will be fed into the National Electricity Market (NEM) at the transmission level directly into the TransGrid 132kV network, which passes through the property. RES proposes to develop a portion of the 250 hectares (ha) proposal site within Lot 88/ DP756339, retaining existing viable native vegetation where possible.

The proposal will consist of the following components:

- Solar arrays: approximately 290,000 solar panels mounted on either a fixed or single axis tracking system
- Onsite cabling and electrical connections between solar arrays and panel inverters.
- Trenches for underground cabling.
- A single access point from Parfreys Road
- Internal access tracks to allow for site maintenance.
- Operations and maintenance building with associated car parking
- An electrical substation
- Overhead and underground electrical cable reticulation
- Energy storage facility

- Perimeter security fencing and CCTV security system.
- Planted native vegetation buffers, if required.

Additionally, the intersection of Riverina Highway and Parfreys Rd will likely require upgrading. This would likely only affect 50m either side of the intersection within the road reserve 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, two groups contacted the consultant to register their interest in the proposal. The groups who registered interest were the Deniliquin Local Aboriginal Land Council (Deniliquin LALC) and Yarkuwa Indigenous Knowledge Centre Aboriginal Corporation (Yarkuwa). No other party registered their interest.

The fieldwork was organised and both registered parties were asked to participate in the fieldwork.

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

## ARCHAEOLOGICAL CONTEXT

The assessment included a review of relevant information relating to the landscapes within the proposal area. Included in this was a search of the OEH AHIMS database. No Aboriginal sites have previously been recorded within the proposal area. The closest sites to the proposal area are AHIMS#54-6-0012 and AHIMS #54-6-0013 located approximately 600m south east of the Tarleigh Park proposal area. These two sites are recorded on the AHIMS system as artefacts however the site cards note that both sites were originally recorded as small disturbed oven sites.

Assessment of Aboriginal site models for the region suggest that there is a pattern of site location that relates to the presence of potential resources for Aboriginal use. Archaeologically sensitive areas occur in association with major water sources, including anabranches and ephemeral and relict lake systems and relatively intact tracts of riverine red gum forest along the floodplains of the major active rivers and creeks, and Black Box fringed depressions. The archaeological sensitivity of source bordering dunes and lunettes to water sources, prior streams and sand bodies, including scalded environments is also noted. 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, ovens and scarred trees.

## SURVEY RESULTS

The survey strategy was to cover as much of the ground surface as possible within the proposal area given that the proposal was going to disturb approximately 250 hectares, within the proposal site. Survey transects were undertaken on foot across the proposal area to achieve maximum coverage. All mature trees within or adjacent to the development footprint were also inspected for evidence of Aboriginal scarring. Visibility within the proposal area was variable with visibility ranging from 90% in exposures to less the 5%. The average effective visibility for the rice and canola bays with remnant vegetation was 60%

and overall was quite good. The bays with wheat crop stubble had very poor visibility with an average of less than 5 % while the intersection of Riverina Highway and Parfreys Road had an average visibility of 10%.

Between the survey participants, over the course of the field survey, approximately, 13 km of transects were walked across the rice and canola bays within the proposal area. Allowing for an effective view width of 5m each person, this equates to a surface area examined of 43ha. However, allowing for the visibility restrictions, the effective survey coverage is reduced to 26 ha, or 13%.

The survey coverage for the wheat stubble bays within the proposal area was 10 ha of the 65 ha area, but allowing for visibility restrictions, the effective survey coverage was 0.5 ha or 0.77%. The survey for the intersection of Riverina Highway and Parfreys Road examined 1.5 ha of the 3 ha easement, but allowing for visibility restrictions, the effective survey coverage was 0.15 ha or 5% of the road reserve corridor

Despite the variable visibility encountered during the survey no Aboriginal stone artefacts were found across the proposal area. However, two Aboriginal modified trees were recorded within the northern area of remnant vegetation (i.e. within the area identified as an offset under the PVP attached to the property). The sites have been recorded as Tarleigh Park Scarred Tree 1 (fallen dead Black Box tree) and Tarleigh Park Scarred Tree 2 (living *in situ* Black Box tree)

Based on the land use history, an appraisal of the landscape, soil, level of disturbance and the results from the field survey it was concluded that there was negligible potential for the presence of intact subsurface deposits with high densities of objects or cultural material within the proposal area

Given that the majority of the proposal area has been subject to extensive modification the lack of stone artefacts and ovens as a site type was not unexpected. The modelling for the region notes that dominance of scarred trees in the area, especially where there are remnant stands of native trees. The survey results have confirmed this prediction with two scarred trees recorded in remnant stands of Black Box vegetation.

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

## POTENTIAL IMPACTS

Two archaeological sites were located within the proposal area. While the sites are located outside the solar array development area they are located in close proximity to the proposed new fence line that will replace the existing Lot boundary fence. While the proposed level of disturbance for the construction of the solar farm fence is likely to be minimal the works could still potentially impact the scarred trees if there are no safeguards implemented for works near the sites, such as a plan of management for fencing works. Any inadvertent damage to the root system, trunk or canopy and/ or the removal of the tree would be considered as impacts on the sites.

The impact to the scientific values if the sites Tarleigh Park Scarred Tree 1 and 2 were to be impacted by the current proposal is considered high. Consequently, there is potential that the intrinsic values of the trees and the scaring may be affected by the removal and construction of the proposed fence line. Any damage to the trees would result in high impact to the representative values of the trees.

The Tarleigh Park 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.

| Site name | Site integrity | Type of harm | Degree of harm | Consequence of harm | Recommendation |
|---|---|---|---|---|---|
| **Tarleigh Park Scarred Tree 1** | Poor- *fallen dead tree* | Possible inadvertent harm during removal of existing fence and construction of new fence which may lead to direct/ indirect harm | Inadvertent which may lead to the partial or complete harm | Minimal to total loss of value | Avoid. Plan of management required prior to fence works. |
| **Tarleigh Park Scarred Tree 2** | Good- *in situ* living tree | Possible inadvertent harm during removal of existing fence and construction of new fence which may lead to direct/ indirect harm | Inadvertent which may lead to the partial or complete harm | Minimal to total loss of value | Avoid. Plan of management required prior to fence works. |

## RECOMMENDATIONS

It is recommended that:

1. A plan of management should be implemented prior to the commencement of any works. This plan of management should be developed in consultation with the registered Aboriginal parties.
2. The plan of management must list safe guards that will be implemented for all works within 10m of the sites Tarleigh Park Scarred Tree 1 and Tarleigh Park Scarred Tree 2 to ensure that the sites will not be impacted by the proposed fencing works.
3. At all other times, outside fencing works that are addressed by recommendation 2, a minimum 10m buffer should be in place around the fallen tree Tarleigh Park Scarred Tree 1 and around Tarleigh Park Scarred Tree 2 to protect the root and canopy zone.
4. The development proposal should now be able to proceed without any additional Aboriginal archaeological investigation.
5. RES Australia Pty Ltd should prepare a Cultural Heritage Management Plan (CHMP) to address the potential for finding Aboriginal artefacts during the construction of the Solar Farm and management of known sites. The Plan should include an unexpected finds procedure to deal with construction activity. Preparation of the CHMP should be undertaken in consultation with the registered Aboriginal parties.
6. In the unlikely event that human remains are discovered during the construction, all work must cease in the immediate vicinity. OEH, the local police and the registered Aboriginal parties should be notified. Further assessment would be undertaken to determine if the remains were Aboriginal or non-Aboriginal.
7. Further archaeological assessment would be required if the proposal activity extends beyond the area of the current investigation. This would include consultation with the registered Aboriginal parties and may include further field survey.
8. RES Australia Pty Ltd are reminded that it is an offence under the NSW *National Parks and Wildlife Act 1974* to disturb, damage or destroy and Aboriginal object without approval.

# 1 INTRODUCTION

RES Australia Pty Ltd (RES) proposes to develop a large scale solar farm at Blighty, approximately 23 kilometres south-east of Deniliquin in the Riverina region of New South Wales (Figure 1 and 2). The proposal site is approximately 250 hectares in size and would have a capacity of approximately 90 Mega Watt (MW). NGH Environmental has been contracted by RES 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 provide management strategies that may mitigate any impact.

## 1.1 DEVELOPMENT CONTEXT

The development of renewable energy projects is one of the most effective ways to achieve the commitments of Australia and a large number of other nations under the Paris Agreement to reduce greenhouse gas emissions. The Tarleigh Park Solar Farm would provide the following benefits:

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

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

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

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

> Include an assessment of the likely Aboriginal and historic heritage (cultural and archaeological) impacts of the development, including adequate consultation with the local Aboriginal community (SEARS for Tarleigh Park Solar Farm 02/06/17).

The assessment area of the proposed solar farm comprises of Lot 88/ DP756339 at 260 Parfreys Road, Blighty. The Tarleigh Park Solar Farm proposal site is located approximately 23 kilometres south-east of Deniliquin, within the in the Edward River Local Government Area (LGA).

## 1.2 THE SITE

The proposed Tarleigh Park Solar Farm would be located on a 250 hectare property within Lot 88/ DP756339 at Blighty, NSW. The site is agricultural land used primarily for irrigated cropping and comprises several large paddocks which have been levelled and cleared. Crops include rice, wheat, barley and canola. Remnant

native vegetation appears to be present at the site in the form of paddock trees with cleared or exotic groundcover. Linear woodland remnants with native understorey are located on the northern boundary of the site (outside the development envelope) and along the eastern side of the site (outside the proposal area, within the public road reserve). The northern remnant is protected by a Property Vegetation Plan (PVP) under the *Native Vegetation Act 2003*. The PVP also imposes obligations on the management of soils and groundcover vegetation over some areas within the proposed development site.

Irrigation channels managed by Murray Irrigation Limited are present along the northern, western and southern boundaries of the site. Additional privately owned internal irrigation channels have been constructed within the property to distribute water to paddocks. A large storage dam has been constructed centrally on the property. Surface hydrology, landform and soils have been heavily modified by the paddock development and irrigation works. Additionally, two powerlines (132kV and 66kV) pass through the northern portion of the proposal area in an east-west direction.

## 1.3 THE PROPOSAL

The Tarleigh Park Solar Farm proposal (Figure 3) would comprise of the installation of a solar plant with a capacity of approximately 90MW. The power generated will be fed into the National Electricity Market (NEM) at the transmission level directly into the TransGrid 132kV network, which passes through the property.

RES proposes to develop a portion of a 250ha property on Lot 88/ DP756339, retaining existing viable native vegetation remnants. The majority of the proposal area has been cleared of native vegetation and cultivated.

The proposal will consist of the following components:

- Solar arrays: approximately 290,000 solar panels mounted on either a fixed or single axis tracking system
- Onsite cabling and electrical connections between solar arrays and panel inverters.
- Trenches for underground cabling.
- A single access point from Parfreys Road
- Internal access tracks to allow for site maintenance.
- Operations and maintenance building with associated car parking
- An electrical substation
- Overhead and underground electrical cable reticulation
- Energy storage facility
- Perimeter security fencing and CCTV security system.
- Planted native vegetation buffers, if required.

The proposal includes an energy storage facility of approximately 32MW/16MWh rated capacity which will be provided by banks of lithium-ion batteries. These will be housed within 12 metre shipping containers located in a secure compound adjacent to the collector yard.

Additionally, the intersection of Riverina Highway and Parfreys Rd will likely require upgrading. This would likely only affect 50m either side of the intersection within the road reserve area.

Also, the proposal will require the subdivision of the property.

In total, the construction phase of the proposal is expected to take around 12 months. The Tarleigh Park solar farm is expected to operate for around 30 years. After the initial operating period the solar farm would either be decommissioned, removing all above ground infrastructure and returning the site to its existing land

capability, or upgraded with new PV equipment. Upgrading would be subject to approvals at the time and involve replacing components that were originally installed with new components that reflect technology that is available at that time.

## 1.4 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.

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

- Deniliquin Local Aboriginal Land Council (Deniliquin LALC); and
- Yarkuwa Indigenous Knowledge Centre Aboriginal Corporation (Yarkuwa).

Representative from the Deniliquin LALC and Yarkuwa who participated in the fieldwork were:

- Anthony Jones (Deniliquin LALC);
- Fred Egan (Deniliquin LALC);
- Tracy Hamilton (Yarkuwa);
- Joseph Briggs (Yarkuwa); and
- Brandon Cooper (Yarkuwa).

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

## 1.5 REPORT FORMAT

For the purposes of this assessment of the Tarleigh Park 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 therefore 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, and
- Provide management recommendations for any objects found.

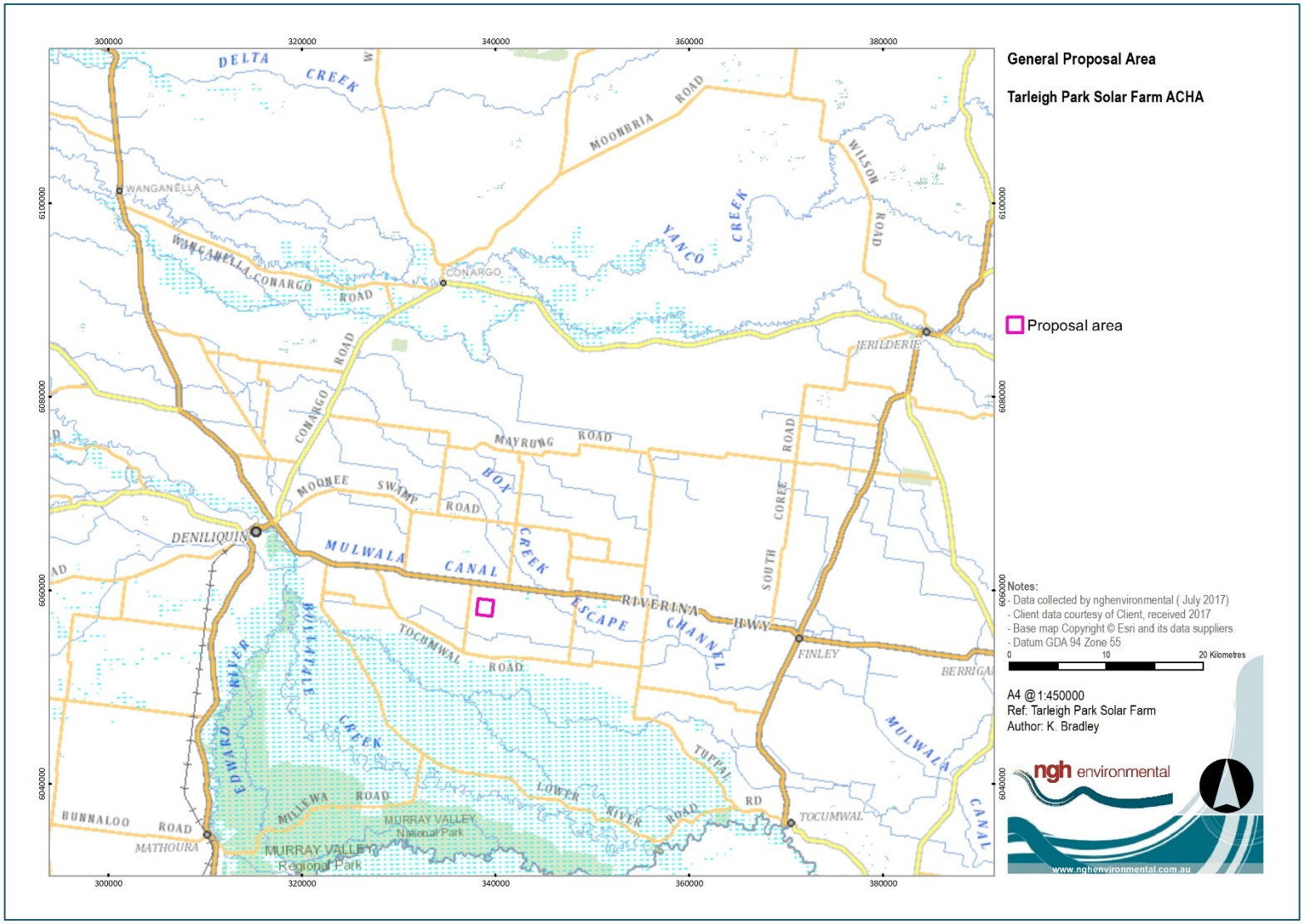



Figure 1. General proposal area.

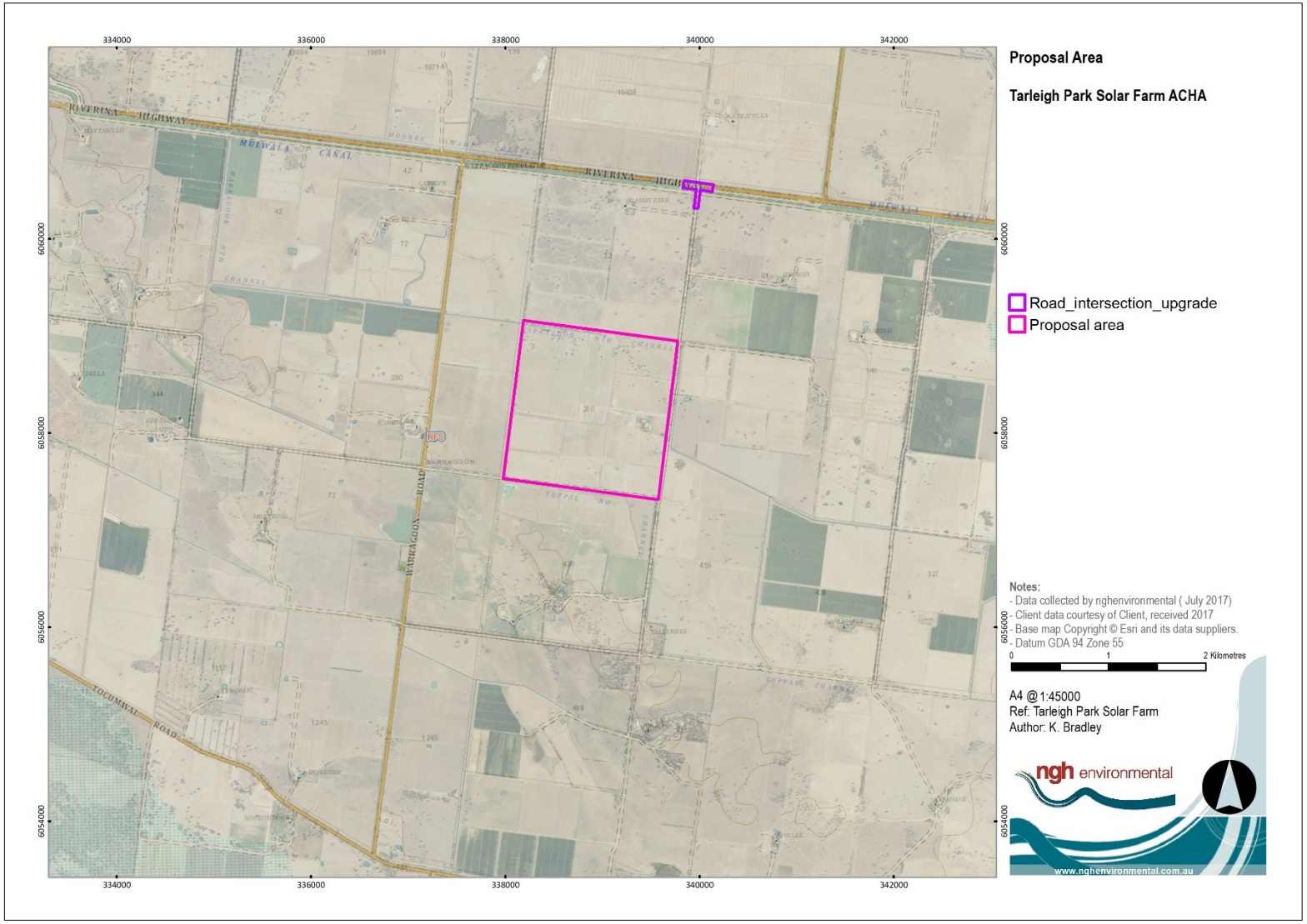



Figure 2. Proposal area.

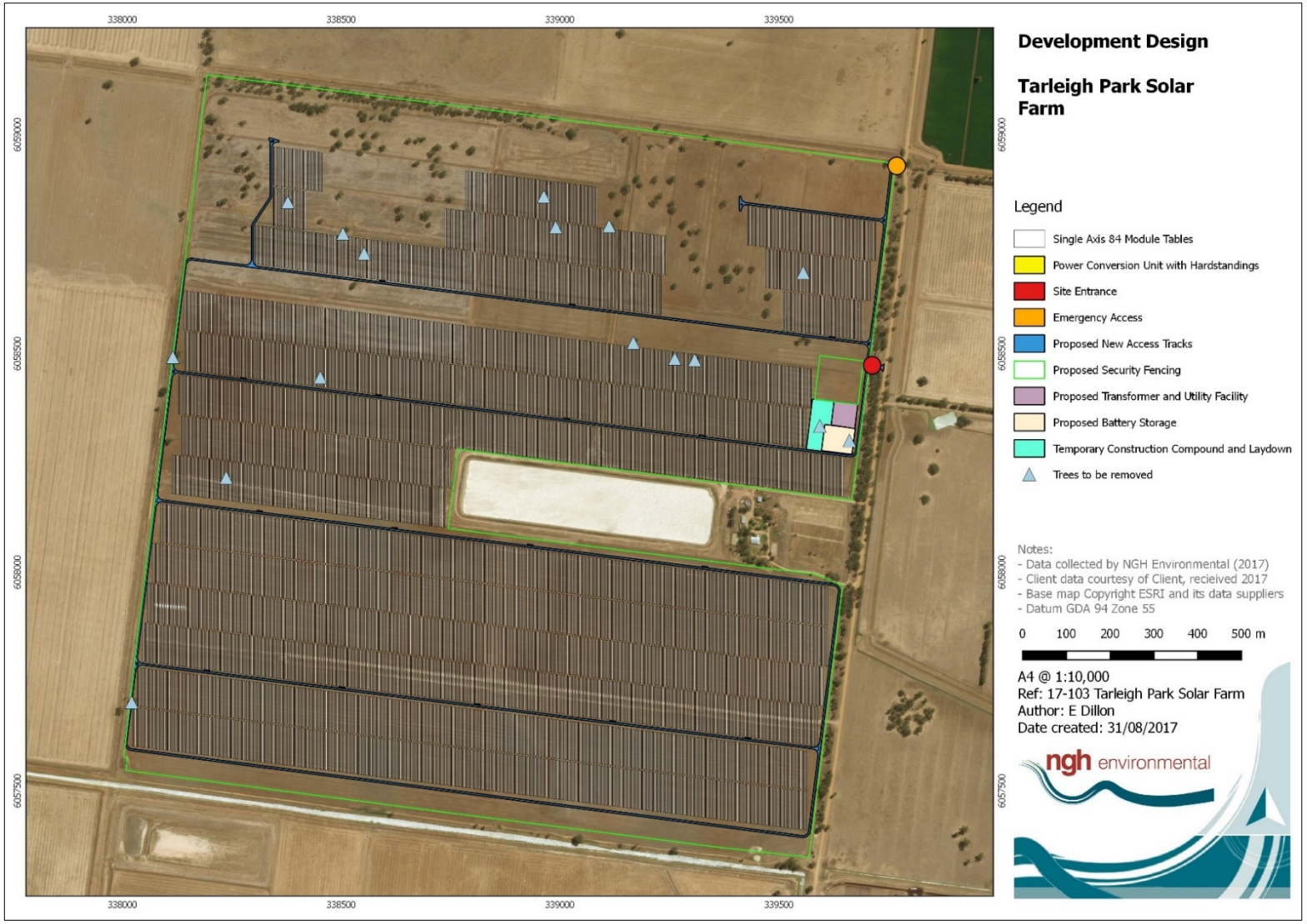



Figure 3. Proposal area with proposed development design.

# 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 Deniliquin LALC and various statutory authorities including OEH, as identified under the ACHCRP. An advertisement was placed in the local newspapers, the *Deniliquin Pastoral Times* on the 25th of April 2017 and the *Southern Riverina News* on the 26th 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, two groups contacted the consultant to register their interest in the proposal. The groups who registered interest were the Deniliquin Local Aboriginal Land Council (Deniliquin LALC) and the Yarkuwa Indigenous Knowledge Centre Aboriginal Corporation (Yarkuwa) who registered via email. No other party registered their interest.

**Stage 2**. On the 29th of May 2017, an Assessment Methodology document for the Tarleigh Park Solar Farm was sent to the Deniliquin LALC. On the 5th of June 2017, an Assessment Methodology document for the Tarleigh Park Solar Farm was sent to the Yarkuwa registered party. 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. No comments were received on the methodology from either registered party however the Deniliquin LALC provided a response noting their requirements for the survey.

**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 both registered parties were asked to participate in the fieldwork. The fieldwork was carried out in early July 2017 by two archaeologists from NGH Environmental and representatives from the Deniliquin LALC and Yarkuwa.

**Stage 4** In September 2017 a draft version of this *Aboriginal Cultural Heritage Assessment Report* for the proposal (this document) was forwarded to the Deniliquin LALC and Yarkuwa 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 the Deniliquin LALC and Yarkuwa with the email responses and summaries of their comments provided in the consultation log in Appendix A. Below is a summary of the main points from the consultation with each group.

Deniliquin LALC were happy with the process to date and confirmed that NGH could finalise the report. No additional comments were provided and the Deniliquin LALC did not raise any concerns with the recommendations outlined in the report.

Yarkuwa felt that some parts of the cultural background information for the report needed to be addressed. The main points noted to be addressed were:

- To acknowledge that Deniliquin and locality lies within the shared country of the Wamba Wamba and Perrepa Perrepa Nations.
- That local knowledge does not support the large movements of people as there is evidence that the Murray River Nations were very settled and boundaries static over at least 10,000 years.
- That the concept of a hunter gatherer lifestyle was not supported.

Additionally, it was noted that as a general comment that Yarkuwa do not classify any cultural material as high or low in significance. Yarkuwa did not raise any concerns with the recommendations outlined in the report. The comments and information provided by Yarkuwa has been incorporated where possible into the final report.

# 3 BACKGROUND INFORMATION

## 3.1 REVIEW OF LANDSCAPE CONTEXT

### *3.1.1 Geology, Topography and Soils*

The landscape context assessment is based on a number of classifications that have been made at national and regional level for Australia. The national Interim Biogeographic Regionalisation for Australia (IBRA) system identifies the proposal area as located within the Riverine Bioregion and the Murray Fans Subregion (DEE 2016). The base geology of the region comprises of Quaternary alluvial sediments with the proposal area mapped as being entirely within the Shepparton Formation (Brown and Stephenson 1991). The Shepparton Formation was deposited by large rivers flowing out of the highlands from the late Pliocene-Pleistocene and comprises a thick sequence between 20-80 m thick of intercalated red-brown palaeosol lithology (Brown and Stephenson 1991).

The majority of the proposal area within the Murray Scalded Plains unit of the Mitchell landscape (DECC 2012). The north-east corner of the site extends into the Murray Depression Plains landscape unit as does the proposed road intersection requiring upgrading. The Murray Source-bordering Dunes unit is located

approximately 600m south of the proposal area. These Mitchell Landscape descriptions are provided in Table 1 below and shown in Figure 4.

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

| Mitchell Landscape |
|---|
| **Murray Scalded Plains** |
| Quaternary alluvial plains with extensive scalding interpreted as relic floodplains, terraces or part of the Cadell tilt block. Red brown texture-contrast soils with extensive scalds. Prior stream channels of deep coarse sands with sandy levees and grey, brown and red cracking clays in depressions, relief 5 to 15m.<br><br>Mostly cleared, cropped and grazed. Formerly open woodland and grasslands of white cypress pine (*Callitris glaucophylla*), grey box (*Eucalyptus microcarpa*), bull oak (*Allocasuarina luehmannii*), and myall (*Acacia pendula*) with annual grasses and herbs. |
| **Murray Depression Plains** |
| Quaternary alluvial plains with numerous circular depressions interpreted as high floodplains or low terraces beyond the reach of average floodwaters. Grey and brown cracking and non- cracking clays often with gilgai on the plains. Sandy rises and levees trace ancestral streams and stand above the general plain, relief 1 to 3m. Sands and red or brown texture-contrast soils on the higher ground.<br><br>Isolated black box (*Eucalyptus largiflorens*), patches of myall (*Acacia pendula*) and prickly wattle (*Acacia victoriae*) with annual saltbushes (*Atriplex sp*.) and grasses. Scattered white cypress pine (*Callitris glaucophylla*), rosewood (*Alectryon oleifolius*), belah (*Casuarina cristata*), wilga (*Geijera parviflora*), narrow-leaf hopbush (*Dodonaea attenuata*) and grasses on sands. Bladder saltbush (*Atriplex vesicaria*), annual saltbush, burrs and grasses on scalded levees. Mostly cleared, cropped and grazed. |
| **Murray Source-bordering Dunes** |
| Sandy rises adjacent to river channels or prior streambeds, deep red and brown sands and loams, relief 3 to 12m. Often heavily grazed and subject to wind erosion.<br><br>White cypress pine (*Callitris glaucophylla*), needlewood (*Hakea leucoptera*), hooked needlewood (*Hakea tephrosperma*), wilga (*Geijera parviflora*), bull oak (*Allocasuarina luehmannii*), emu bush (*Eremophila longifolia*), miljee (*Acacia oswaldii*), yarran (*Acacia homalophylla*), native quince (*Petalostigma pubescens*), and narrow leaf hopbush (*Dodonaea attenuata*) with sparse grasses. |

Two existing powerlines pass through the northern portion of the proposal area in an east-west direction (Plate 1).

Irrigation channels managed by Murray Irrigation Limited (MI) are present along the northern, western and southern boundaries of the site (Plate 2). Privately owned internal irrigation channels and a large dam have also been constructed within the property to store and distribute water to the paddocks. While it is possible that the MI managed channels where once natural creeks or drainage lines that have since been modified into irrigation channels this is unable to be established given the extensive modification of the hydrology of the area, creating controlled use of water.

The surface hydrology, landforms and soils within the proposal area have been heavily modified by paddock development and irrigation works and consequently there is no topographic variation within the land for the proposed Solar Farm as the majority of the proposal area has been subjected to irrigation cultivation. There is no discernible variation in the elevation from one part of the block to another apart from the raised dam and channel banks.

| | |
|---|---|
|  |  |
| Plate 1 View of powerlines that run east-west through the northern portion of the proposal area. | Plate 2 View of the irrigation channels within the proposal area. |

The proposed solar farm area has been heavily modified for the purposes of irrigation. This has included:

- Extensive clearing of native vegetation.
- Wide spread earth moving to flatten the paddocks.
- Construction of irrigation supply channels and a large dam.

Paddocks within the site are lined with irrigation channels which are fed from either the dam in the centre of the proposal area and/or the Tuppal and Warragoon Nth Channels that follow the north, south and western boundaries of the proposal area.

The intersection of Riverina Highway and Parfreys Rd has been subject to extensive road works and maintenance activities. Additionally, the Malwala Canal also intersect this section of the proposed road upgrade.

### *3.1.2 Flora and Fauna*

The biodiversity assessment carried out by NGH Environmental identified two distinct plant community types within the proposal area, the Western Grey Box tall grassy woodlands and Black Box open woodlands, both consisting of remnant patches of vegetation. There were no native species present within the irrigated bays examined during this assessment. The natural vegetation of the area would most likely have consisted of Grey Box (*Eucalyptus microcarpa*) and Black Box (*Eucalyptus largiflorens*) woodlands with chenopods, such as saltbushes, native cotton bushes, bluebushes, goosefoots and copperburrs, an important component of the understorey.

The Grey Box and Black Box Open woodland vegetation community provides numerous habitat types for fauna. These areas provide habitat features such as hollows and are likely to support habitats for a number of threatened bird species. The canopy trees also 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. Where hollow-bearing trees are present, they may provide daytime resting habitat for bats and mammals, and roosting habitat for birds.

The irrigated bays were highly disturbed with a prevalence of exotic or planted exotic flora species that make up the groundcover. Within the proposed array area, the groundcover is mainly crops of wheat, rice and canola with various common agricultural weeds also noted along the irrigation drains and tracks.

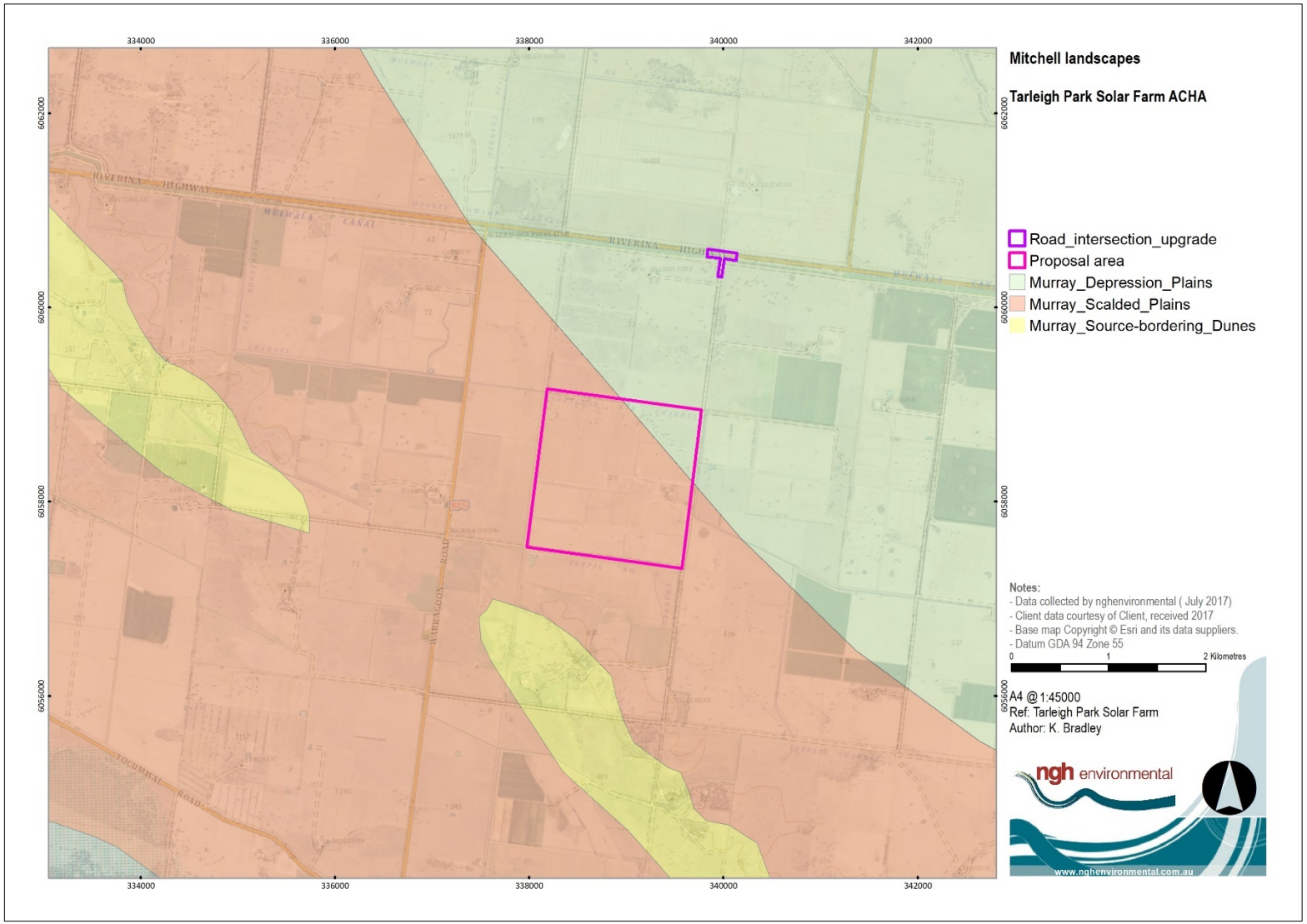



Figure 4. Location of Mitchell landscapes.

### *3.1.3 Historic Land Use*

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 proposal area is located in a rural zone with a dispersed settlement pattern and predominantly broad scale agricultural land uses. The Tarleigh Park property comprises several large paddocks which have been used to produce rice, wheat, barley and canola, over a long period.

It is not known when the proposal area was first cleared and developed but it assumed that it would have been around the time the irrigation system that included the Tuppal and Warragoon Nth Channels were constructed though the area. Prior to the construction of these irrigation systems the proposal area would have most likely been used as pastoral and/or agricultural farm land. The establishment of the irrigation scheme led to development of the region through construction of irrigation channels, either by constructing new ones or channelising existing creek lines and construction of banks and levees. The scale of the development and the subsequent division of the landscape into irrigation bays required extensive earthworks, including clearing and levelling the ground.

The location of the proposed Tarleigh Park Solar Farm is within an irrigation development and therefore has been subject to considerable impacts from farming for many decades. The irrigation bays across the majority of the site at the time of the survey were recently planted with rice and canola crops. There were also fields in the north-eastern portion of the proposal area that were covered in wheat stubble with dense crop waste scattered through the bays. It is clear that the land has been intensively used for farming.

Additionally, two powerlines pass through the site in an east-west direction through the northern portion of the proposal area. The construction of the powerlines would have caused additional disturbance to the area.

Overall, the proposal area would be categorised as highly disturbed through continual modification for farming and irrigation activities over many decades.

### *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 proposal area has been extensively modified, levelled and divided into irrigation bays with no differences in the soil types and no micro features such as sand ridges or palaeochannels identified within the proposal area.

The survey of the solar farm area was therefore divided into two units, rice and canola irrigation bays with remnant vegetation and water logged wheat stubble bays. Soils are heavily disturbed and there is unlikely to be any remnant intact profile within at least the upper 20-30 cm. The area for the possible road upgrade was determined to be its own survey unit.

There are no natural water courses or drainage lines across the proposal area, the nearest permanent water is Tuppal Creek, located about 7.5 km to the south. While it is possible that the major irrigation channels adjacent to the proposal area where once natural creeks or drainage lines that have since been modified into irrigation channels this is unable to be established given the extensive modification of the hydrology of the area. However, prior to European land modifications, this area may have provided resources, shelter, water and food for Aboriginal people.

## 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, Peterson & Wesson 2005, p.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, Peterson & Wesson 2005, pp.8 & 16)

Early mapping of tribal boundaries by Tindale (1940) identified the proposal area as within the Bangerang (Pangerang) tribe boundary. However subsequent mapping by Tindale (1974) identified the proposal area as located near the border between the Joti Jota (Yorta Yorta) and the Jeithi tribal language group boundaries and removed the Bangerang group entirely as a tribal/language group form the region (e.g. Horton 1994).

However, there is dispute concerning this mapping as there are people who identify themselves as Bangerang (Fred Egan pers. comm.). Fred Egan has identified that the Bangerang country included the current assessment area. It is however also suggested that Deniliquin and the current proposal area are within the shared country of the Wamba Wamba and Perrepa Perrepa Nations (David Crew pers. comm.).

The Murray River was a reliable and abundant resource that sustained some the densest populations of Aboriginal people in Australia with the area from Echuca to the Murray Darling junction occupied by a number of Aboriginal clans with relatively small territories that included a portion of the Murray River and country that spans across the river (Edmonds 1997, p.11). The close proximity to each other also meant that people likely spoke multiple languages and dialects.

It was the small family group that was at the core of Aboriginal society. 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 have more diverse archaeological evidence. One such example of this is large oven mounds that are noted by the local Aboriginal community to be a common site type in the region.

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. 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 Deniliquin area in the 1840s. The conflict between the Aboriginal population and the first white settles in the area began early on when the flood of 1843 forced the local Aboriginals off the river flats and onto the higher ground that had been occupied by settlers (AECOM Australia Pty Ltd 2015). However, at this point the Aboriginal population was already 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 which meant that 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 taken to places like Warangesda, a mission established near Darlington Point in 1880, Brungle Reserve between Gundagai and Tumut, or Moonahcullah mission approximately 50 km north-west of Deniliquin that was established in 1916, people were able to maintain at least some form of association with country and maintain traditional stories. The Moonahcullah mission was closed in 1961 with many of the remaining residents relocated to the outskirts of Deniliquin (AECOM Australia Pty Ltd 2015).

There are several ethnographic recordings of Aboriginal life in the Riverine Plains from the 1800s that notably focus on the prevalence of Aboriginal people around water ways in the region. It is however important to consider that the Aboriginal people alive at the time of such observations were survivors of serious epidemics of infectious diseases bought by Europeans, that greatly affected the population sizes and distribution of people within the landscape. Consequently, it is important to consider that early European records may not necessarily reflect pre-contact population distributions and traditional ways of life (Dowling 1997; Littleton & Allen 2007). 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.

Historic accounts of Aboriginal people in the Riverine Plains of south eastern Australian reflect a group of people reliant on a range of both aquatic and terrestrial food resources. During certain seasons fish, shellfish and waterfowl provided a significant part of the flesh diet and corresponds to periods where relatively small areas of land could support large groups of people. In other seasons populations living along the rivers was greatly reduced and the focus on and acquisition of aquatic resources changed. It is during these periods that terrestrial resources became more important and food gathering activities diversified.

During the annual flooding of the rivers, swamps and river flats were inundated and billabongs filled. Under these conditions the netting and trapping of fish by large groups of people became prevalent. The base of a large fibre net would be weighted down with clay heat retainers and at the top of the net reed bundles would be attached as floats. One man would hold one end of the net on the shore while the other would wade into the lagoon gradually dropping the net, once he reached the shore, forming a semi-circle. The two people would start pulling the net back, moving towards one another, hauling the catch of fish towards them. Such activities were recorded to have produced very large volumes of fish (Sturt 1833, Beveridge 1883, Beveridge 1889). Within major billabongs log traps were also constructed to trap fish within a smaller area, for easier access and often associated with large gatherings of people (Gilmore 1934). Additionally, women were recorded catching crawfish, where two women would trawl a fine gauged net along the lagoon bottom.

The trapping of ducks and other waterfowl in lagoons using large nets has also been observed and Beveridge suggests that over a season hundreds of birds are caught in this manner (Beveridge 1883; Beveridge 1889; Ramson 1983). Additionally, huge numbers of waterbird eggs during breeding season are collected using canoes (Beveridge 1883).

Beveridge (1883) observed canoes being manufactured from the a single sheet of Red Gum bark that was propped and moulded into the desired shape and left to season in the sun for ten to fifteen days (Beveridge 1883). He details pronged fish spears that doubled as a means to pole and paddle the canoes, used to harpoon fish in areas of reedy shallow water (Beveridge 1883; Kabaila 1999). Lawrence (1967) suggests that

these spears were probably only used when the reed beds were filled with water and consequently not as important during the remainder of the year.

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, other mammals and insects were also a common food type, in particular grubs and ants and ant eggs (Fraser 1892, Pearson 1981, Beveridge 1889).

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 (Gott 1982). The seeds of the nardoo plant, that grow on the floodplain has also been mentioned as an important plant food in the Riverina area with the seeds ground and water added to form a paste or dough that was then cooked (Morey 1921 as cited by Edmonds 1997).

Early records of the Edward River district and the local Aboriginal people area are document in the diary of Reverend Mereweather (Mereweather 1859). He noted that following the late rain in June mushrooms had sprung up on the plains however the local Aboriginal people preferred a "poisonous looking, disgusting yellow fungus" and that bird eggs were consumed when 'the chicks were near ready to be hatched'. Kangaroo, emu, birds, possums and fish were noted as typical foods, generally caught by spears or boomerangs. He also noted that the men and women were entirely naked in summer and in the winter, they wore possum and/or kangaroo skins (Mereweather 1859).

Mounds were first observed by Mitchell in in 1836 in the Murray River system. He noted how the mounds were used to cook *Typha* in the area of the lower Lachlan and Murrumbidgee Rivers. Beveridge also observed and recorded his observations of mound use in the Murray River area below Swan Hill from the 1850s. Their observations were similar in that the preparation of food was undertaken in much the same way. Beveridge noted that the continued use of these ovens resulted in the build-up of debris and the formation of the mounds, with new clay being introduced each use due to crumbling of the clay heat retainers (as cited in Martin 2006, 2010). Mitchell (1839) also observed the way Aboriginal people of the Murrumbidgee and Murray buried the dead noting that a small thatched hut was erected over a burial. The huts were enclosed by two or three low ridges of dirt in the shape of an ellipse with pointed ends (Mitchell 1839).

Perhaps the most vivid recounting of the landscape and the cultural features within the region comes from Beveridge, who in lived near Swan Hill and described Aboriginal life of the Lower Murrumbidgee, Lachlan, Darling and Murray Rivers in the period 1845 to 1868. His description portrays the annual flooding of the region not as one of hardship but of bounty and plenty.

> *"All over the submerged country, cooking mounds stand up out of the flood, perfect little islands, looking bright and green, and refreshing to the eye, by reason of the great growth of succulent saltbush, dillines [prickly bushes about a metre tall with edible red and yellow berries], and giant mallow with which they are prettily dressed. These oven islands the natives utilise in the flood season for their village sites, conveying their firewood and other requirements over miles of water from the main land in their canoes. A village, or native encampment, will often times remain on one of these tiny islands for a whole month, feasting upon the oleaginous codfish and his congeners, taking ample toll from the great Murray lobster … Aquatic birds, too, of many species, together with their eggs, have to contribute pretty heavily to the aboriginal cuisine, and by way of salad they have the watery ionty, and the bitter sow thistle*… (Beveridge 1889).

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 (Bennet 1834;

Beveridge 1889; Oxley 1820; White 1986). Digging sticks were used by women to collect vegetable foods and 'grub shovels' or small wooden spades were described by Eyre (1845) as being used to dig up grubs, ants and Mallee roots. Skin bags and bark troughs were used to carry water and baskets were made from grasses, rushes and netting (Beveridge 1889; Lawrence 1967). Beverage (1883) describes a wooden trough placed over coals for cooking and 'flints, mussel shells, kangaroo bones and split reeds were used in cutting and skinning foods' (Lawrence 1967). Other materials were observed in use such as stone axes, shell and stone scrapers and bone needles.

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

### *3.2.2 AHIMS Search*

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

A search of the AHIMS database was conducted over an area approximately 60 km east-west x 60 km north-south centred on the proposal area, was undertaken on the 11th of April 2017. The AHIMS Client Service Number was: 276109. There are 92 Aboriginal sites recorded in the search area. No declared Aboriginal Places are recorded in the AHIMS search area. Table 2 below shows the site types previously recorded in the region and Figure 5 and 6 show the location of AHIMS sites in relation to the proposed Tarleigh Park Solar Farm proposal area.

None of the sites are located within the current proposal area. The closest sites to the proposal area are AHIMS#54-6-0012 and AHIMS #54-6-0013 located approximately 600m south east of the Tarleigh Park proposal area. These two sites are recorded on the AHIMS system as artefacts however the original site cards note that both sites were actually recorded as small disturbed oven sites. As these sites were recorded a number of years ago, there is very limited information provided on the site cards. AHIMS #54-6-0012 was recorded in a paddock as a small disturbed oven site that was 10m in length by 6m wide and approximately 10cm high with baked clay present. AHIMS #54-6-0013 was also recorded as a small disturbed oven site with no other additional information provided. Copies of these site cards are provided in Appendix C.

Table 2 Breakdown of previously recorded Aboriginal sites in the region.

| Site Type | Number |
|---|---|
| **Modified Tree** | 64 |
| **Artefact** | 10 |
| **Earth Mound** | 6 |
| **Burials** | 3 |
| **Earth Mound, Hearth, Modified Tree** | 3 |
| **Aboriginal Resource and Gathering, Earth Mound** | 2 |
| **Hearth** | 1 |
| **Modified trees, Aboriginal Resource and Gathering** | 1 |
| **Earth Mound, Hearth** | 1 |
| **Earth Mound, Hearth, Artefact** | 1 |
| **TOTAL** | **92** |

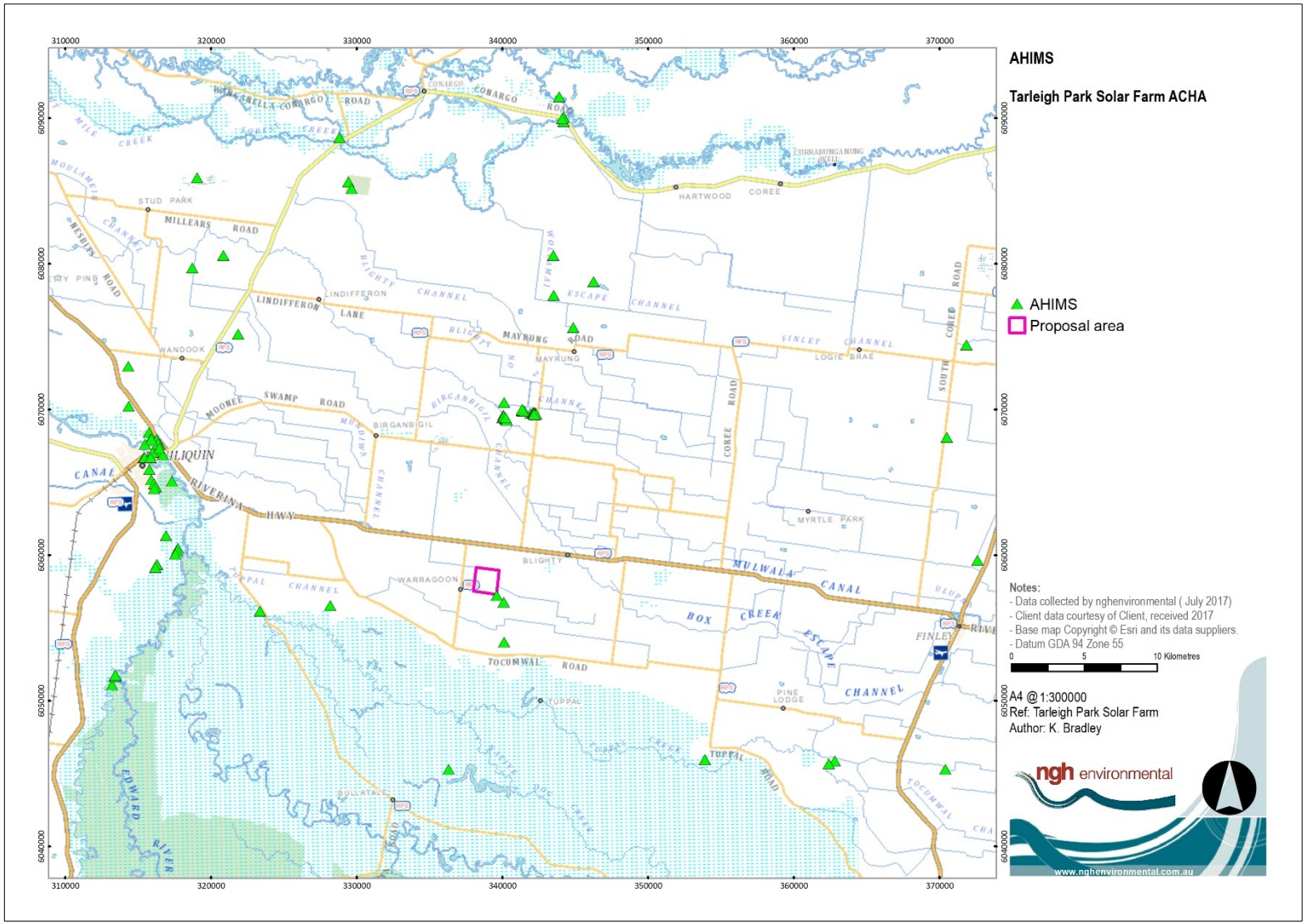



Figure 5. Location of AHIMS sites.

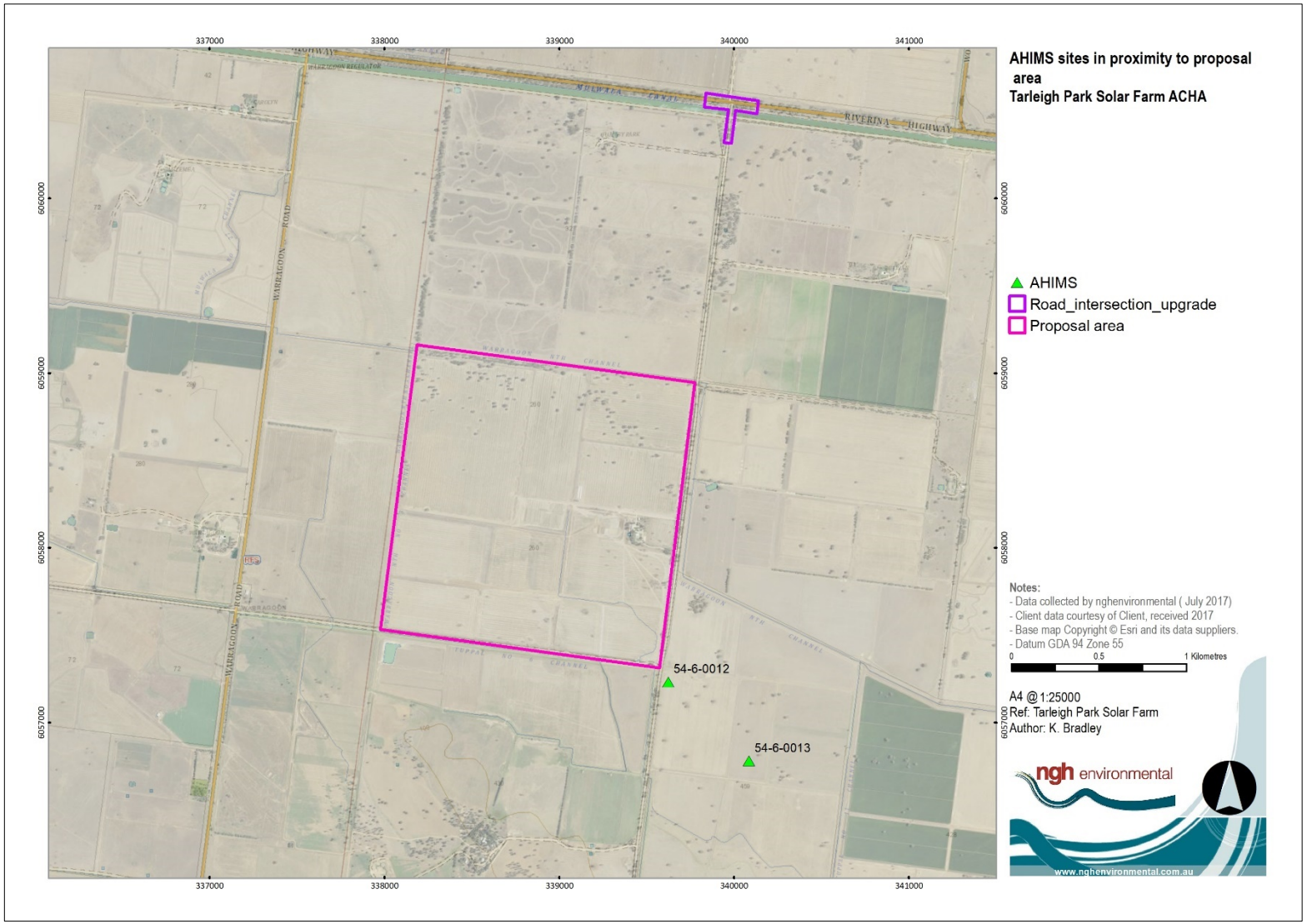



Figure 6. AHIMS sites in proximity to proposal area.

### *3.2.3 Previous archaeological studies*

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. There have been no dated excavations in the Deniliquin area, although the archaeological evidence from Lake Mungo, 300 km to the north-west provides ample evidence of Aboriginal occupation dating back 40,000 years (Bowler et al. 2003; Mulvaney & Kamminga 1999; Hiscock 2007). No regional synthesis of the archaeology has been completed for the Deniliquin area and there have been few archaeological surveys conducted in the area. However, a number of archaeological surveys have been identified to be within proximity of the proposed Tarleigh Park Solar Farms and are summarised below.

In the 1970's Buchan undertook an extensive survey of the Murray Valley on behalf of National Parks and Wildlife Service over a two year period (Buchan 1974). The survey area was limited to 30 miles north of the river, extending from Albury to Mildura however, targeted areas approximately 300 square miles were focused on. One of the areas which included in the survey was the Deniliquin area. A total of 198 sites were recorded over the course of Buchan's survey with 52 scarred trees, 33 earth mounds and one surface campsite recorded within the Deniliquin area (Buchan 1974). Two of these sites (AHIMS #54-6-0012 and AHIMS #54-6-0013) are within close proximity the proposed Tarleigh Park Solar Farm as show above in Figure 6 and described in Section 3.2.2. Buchan noted that ovens, scarred trees, and middens were typically located on the banks of rivers or creeks that suggested the camps were generally located close to a water and food source. Most of the burials were noted to be in sand dunes. Buchan summarised that in general, any areas near a water source were likely to contain sites. Many sites in the area were noted to be under threat from damage or destruction due to intensive cropping and pastoral activities associated with the development of irrigation schemes, roads and dams (Buchan 1974).

In 1985 McIntyre carried out a survey for a 167 km transmission line between Darlington Point and Deniliquin. A total of 27 Aboriginal archaeological sites were recorded with one associated with historic features. The site types recorded were primarily scarred trees with artefact scatters, hearths and mounds also recorded. Artefacts were manufacture from silcrete, quartz, basalt, siltstone, chert and siliceous rock. All scarred trees recorded during the survey were Grey Box trees. McIntyre noted that most sites recorded were clustered around existing water courses (McIntyre 1985).

In 1996 Edmonds (1996a) conducted both pedestrian and vehicular archaeological survey along the Edwards River for the proposed Stage 2 levees and associated borrow pits. Based upon previous archaeological research in the region she concluded that scarred trees, mounds and burials would be the prominent site types located by the study. Edmonds (Edmonds 1996a) suggested that mounds and scarred trees would occur predominantly on the high and low alluvial plains however, burials would be restricted to sand bodies on the low alluvial plain. The survey located nine scarred trees and a single burial in a source bordering dune. The scarred River Red Gums were associated with the river and creek banks and scarred Black Box occurred within the floodplain. The absence of mound sites in the survey area was attributed by Edmonds (1996a) to a combination of disturbance by rural development and lack of suitable land as mounds are generally associated with floodplains back from the river and adjacent to ephemeral drainage lines, swamps and lagoons.

Edmonds (Edmonds 1996b) also conducted a pedestrian and vehicular survey for a proposed drainage channel through the Pinelea Drainage Basin, near Finley, south east of the Tarleigh Park proposal area. This was similar to the previous study in that it was expected that mounds, scarred trees and burials would be the sites most likely to occur. Six scarred trees were recorded during survey on Grey Box associated with swamps, depressions and floodplains, river red gum associated with creek banks and C*allitri*s pine associated with a sandhill.

Bonhomme (1997) surveyed the Riverine Plain bounded by the Lachlan, Murrumbidgee and Murray Rivers for locations of Aboriginal burials, particularly focussing on burials in sand bodies. Known burial sites in the area were reassessed and several previously unrecorded sites were identified. During the study a burial (AHIMS# 54-6-10) was recorded to the north of Deniliquin. The burial, located in a source bordering dune was approximately 100m north of the Edward River.

In 1999 Biosis (1999a) conducted a vehicle and pedestrian survey of Willeroo, Wollamai West and Wollamai East storm water escape channels for the Berriquin Irrigation District. The length of the three proposed channels was approximately 60km in total. The channel was proposed to assist in removing floodwaters into natural watercourses after heavy rainfall. As the survey area was located on the open plains to the south of Billabong Creek and east of the Edward River it was suggested that the landscape would have provided resources that may have supported small groups of people as they moved away from the major water courses for short period of time, particularly during less flood prone months (Biosis 1999a). It was noted that large artefact scatters and mounds were not predicted to occur in the area given that larger sites are generally associated with permanent water sources. No sites were identified during the survey and it was noted that the land along the proposed channel routes had been extensively disturbed by agricultural land use and consequently was not considered likely to contain any Aboriginal sites. Additionally, mature trees in the area were noted to have been removed during land clearing in the 19$^{th}$ century. While no Aboriginal sites were identified three survey marker trees were recorded.

Additional survey of the Willeroo, Wollamai West and Wollamai East storm water escape channels for the Berriquin Irrigation District was conducted by Biosis (Biosis 1999b) in 1999 following an alteration to the initial route surveyed. A single artefact scatter site (AHIMS# 54-3-0020) was recorded on a vehicle track. The site consisted of a broken silcrete flake and a quartz core fragment approximately 30m apart. The remains of two potential hearth features were also noted along the track however these appear to not have been recorded as sites.

In 2008 OzArk surveyed the 68 kilometre proposed 132kV transmission line upgrade route proposed from Finley to Mulwala. The survey did not identify any sites and it was assessed that there was low potential for intact, sub-surface archaeological deposits within the study area given the clay soils, lack of permanent water, scale of tree clearing and agricultural developments and absence of rock outcrops in the assessment corridor (OzArk 2008).

In 2009 Navin Officer surveyed the proposed 132kV transmission line route from Deniliquin to Moama. The route was approximately 69km. Nine modified trees and two historic sites were recorded along the proposed transmission line corridor (Navin Officer Heritage Consultants 2009).

A series of earth mounds, modified trees and artefacts were recorded by Ms Gaye Sutherland of the Yorta Yorta Nation Aboriginal Corporation at Wallamunga located approximately 10 km north of the Tarleigh Park proposal area, these sites are registered with AHIMS, however no report is available.

In 2014 Access Archaeology and Heritage surveyed the area for the Deniliquin Ethanol Plant located approximately 5.5 km outside the township of Deniliquin. Five sites were recorded including three scarred trees, an artefact scatter and a potential hearth. The potential hearth and artefact scatter were assessed to be of low scientific significance and it was recommended they be collected prior to works. The scarred trees were assessed to be of moderate scientific significance and it was recommended that they remain *in situ* (Access Archaeology & Heritage 2014). The Aboriginal community engaged during the fieldwork noted that the sites were a rare find in the local area and recommend that the proposal design be altered to preserver all sites *in situ*. Given the difference in significance assigned to the sites between the archaeologist and the Aboriginal community the Director General of the Department of Planning and Environment engaged AECOM to review the project.

Consequently, in 2015 AECOM conducted a site inspection for the proposed Deniliquin Ethanol Plant to confirm the Aboriginal site locations and their extent and to confirm the significance assessment of the five sites previously identified by Access Archaeology (2014). AECOM (2015) were able to re locate three of the five sites originally recorded. An additional artefact scatter was recorded and a number of management strategies were proposed for the project.

In 2016 NGH Environmental conducted a Due Diligence assessment of Kyalite Stables for rezoning and residential development for the Edward River Council. The area comprised of approximately 13 ha between the Riverina Highway and the Edward River on the eastern edge of the township of Deniliquin. While previous archaeological surveys and modelling for the area suggested that the most archaeologically sensitive areas were relatively intact tracts of riverine Red Gum forest along the floodplains of the major active rivers and creeks, and Black Box fringed depressions no sites were identified (NGH Environmental 2016).

There have also been several archaeological surveys conducted in the broader Murray Valley and Murrumbidgee Province with a focus on burials and mounds that contribute to our understanding of the nature of Aboriginal occupation. The major relevant studies are summarised below.

Simmons (1980) identified 75 mounds, 17 scarred trees and a range of other site types including isolated artefacts, hearths, shell middens and burials within the Murray floodplain and along channels. Mounds were the most common site type and generally consisted of abundant clay nodules in association with burnt fragments of shell or bone while the scarred trees were generally all mature River Red Gums. The sites identified by Simmons were all located in close proximity and/or associated with the floodplains, anabranches and lake systems of the Murray Valley and clearly showed the importance of aquatic resources to the local Aboriginal populations in the region.

Berryman and Frankel (1984) studied mounds along the Wakool River investigating mound function, chronology, structure and location. A total of 95 mounds, ranging between 8-48m in diameter and 11 scarred trees were recorded. A preliminary relationship was observed between the dimension of the mounds and the size of the water body. Excavation of a selection of these mounds provided a point of comparison with mounds recorded elsewhere in the mid-Murray region. While radiocarbon dating was undertaken, new samples using modern dating techniques would be necessary to confirm the antiquity of these sites.

Sample surveys undertaken by Pardoe and Martin (2001) within the Murrumbidgee Province covered an area of approximately 30,000 square kilometres, extending from Balranald to Narrandera and Booligal to Jerilderie. Using an analysis of landforms and identifying gaps in the archaeological knowledge based on the sites recorded in the AHIMS database, they found that there was a bias in the distribution of sites along major waterways and some landforms such as lunettes but there were also large gaps where no sites had been recorded. Pardoe and Martin surveyed 61 sample areas or quadrants from 22 Stations or locations across their project area. This resulted in 347 new sites being recorded. The major site types were scarred trees (26.2%), mounds (24.2%), open sites (14.4%), ovens (12.4%), burials (7.8%) and hearths (6.1%) as shown on Table 3.

Pardoe and Martin analysed their results in order to develop a predictive model for site distribution across the Murrumbidgee Province. They found that mounds varied in size, from 4m-140m in diameter and height also varied from 2cm to 2m. Mounds were most commonly found along floodplain creeks within River Red Gum and Black Box vegetation communities. They found that as well as being situated along the major rivers, they were also located on the plains to the north and south of the Murrumbidgee, such as around the edge of depressions such as lakes and swamps and also on palaeochannel features. Mounds were often characterised as being situated on elevated ground such as lunettes, levees and dunes where silty sandy soil was prevalent (Pardoe and Martin 2001).

Table 3. Sites recorded in Murrumbidgee Province survey (Pardoe and Martin 2001: Table 5.4)

| Site Type | Number | % |
|---|---|---|
| **Modified trees** | 91 | 26.2 |
| **Mound** | 84 | 24.2 |
| **Open Site** | 50 | 14.4 |
| **Oven** | 43 | 12.4 |
| **Burial** | 27 | 7.8 |
| **Hearth** | 21 | 6.1 |
| **Midden** | 9 | 2.6 |
| **Isolated artefact** | 6 | 1.7 |
| **Dinner camp** | 5 | 1.4 |
| **Shell midden** | 3 | 0.9 |
| **Historic** | 3 | 0.9 |
| **Soak** | 1 | 0.3 |
| **Myth** | 1 | 0.3 |
| **Historic burial** | 1 | 0.3 |
| **Bora ring** | 1 | 0.3 |
| **Artefact scatter** | | 0.3 |
| **Total** | **347** | **100.0** |

Burials occurred mostly as individuals within mounds but there were six locations where more than one burial was recorded. Most of the burials were observed as highly fragmented bone disturbed by rabbit activity. Scarred trees were found to be quite variable in the size of the scar with the largest scars being on River Red Gums. Scars were classified into three groups, ceremonial- which were associated with a known burial, extraction- used in extracting food such as honey or grubs, and functional- all other types. The latter varied in size from 0.18m to 3.6m in length and width from 0.09m to 0.55m with an average of 0.38 m (Pardoe and Martin 2001).

Pardoe and Martin (2001) developed a predictive model of site distribution based on their results and an analysis of variables through the use of GIS mapping. They examined proximity to water and found that no sites were more than 12km from a major river channel (in this case the Murrumbidgee River, and the Yanco, Box and Mirool Creeks). They also found that 75% of sites were within 3.3km of such water courses. An assessment of proximity to minor stream was made difficult by the presence of irrigation channels in their GIS layer but nevertheless, they also found that the average distance from a minor stream was 1.8km and 75% of sites were within 2.2km (Pardoe and Martin 2001).

The conclusion regarding Aboriginal site modelling for the region to date suggests that the most archaeologically sensitive areas occur in association with major water sources, including anabranches and ephemeral and relict lake systems and relatively intact tracts of riverine red gum forest along the floodplains of the major active rivers and creeks, and Black Box fringed depressions. The archaeological sensitivity of source bordering dunes and lunettes to water sources, prior streams and sand bodies, including scalded environments is also noted.

### *3.2.4 Summary of Aboriginal land use*

The results of previous archaeological surveys in the region show that there are sites and artefacts present throughout the landscape. There is a dominance of scarred trees in the area especially where there are remnant stands of native trees, particularly along water courses. Scarred trees provide a tangible link to the past and provide evidence of Aboriginal subsistence activities through the deliberate removal of bark or wood. It is likely that the dominance of scarred trees as a site type in the area is related to the more obtrusive nature of scarred trees when compared to small artefact scatters.

There appears to be a pattern of site location that relates to the presence of potential resources for Aboriginal use. The archaeological sensitivity of sand hills (particularly for the presence of burials), Black Box depressions (particularly for the presence of scarred tress) has been noted. Floodplains in association with ephemeral drainage lines, swamps and lagoons has also been linked with the presence of mound sites and the prevalence of scarred trees on River Red Gums along creeks and rivers has been noted. The most likely site type to be encountered within the Tarleigh Park Solar Farm proposal area would be stone artefacts, ovens and scarred trees where old growth trees remain.

In addition, site density in close proximity to the proposal area appears to be low. This may suggest the seasonal occupation of the area by Aboriginal people though it's more likely that there has been a lack of survey in the area or that land clearing and farming activities in the area have disturbed or removed the cultural material evident of the Aboriginal occupation of the area.

A detailed understanding of the Aboriginal land use of the region is lacking, as few in depth studies have been completed. 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.

### *3.2.5 Archaeological Site Location Model*

Based on the results of the previous archaeological investigations in the local area, and through extrapolation of sites from other areas of the Murray Valley and Murrumbidgee Province, it is possible to provide the following model of site location in relation to the proposed Solar Farm area.

**Stone artefact scatters** – representing camp sites these can occur across the landscape, usually in association with some form of resource or landscape unit. While it is uncertain if any natural water features intersected the proposal area given the extensive modification of the landscape there are areas of remnant vegetation that may retain stone artefact scatters. However, due to the level of disturbance in the proposal area large campsites are unlikely to occur.

**Burials** – are generally found in elevated sandy contexts or in association with rivers and major creeks. No such features exist with the 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 within the proposal area. Therefore, this feature is likely to occur.

**Hearths/Ovens** – are identified by burnt clay used for heat retainers. Some are recorded in the district in association with resource locations. However, they could occur either independently or in association with other Aboriginal cultural features such as campsites. Such places are not obvious within the proposal area however this feature is possible to occur though it would likely be disturbed or previously destroyed by farming and irrigation activities.

**Stone resources** – are areas where people used natural stone resources as a source material for flaking. This requires geologically suitable material outcropping to be accessible. The proposal area contains no natural outcropping stone therefore such sites are unlikely to 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. No such natural undisturbed features occur and therefore this site type is unlikely to exist at the proposal area.

**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 lack of topographic, environmental or landscape features within the proposal area means that there are few loci that could potentially be attractive to Aboriginal people to concentrate activity and therefore have a better chance of leaving archaeological traces. 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. This is most likely to be in the form of stone artefacts, ovens and scarred trees in areas of remnant Black Box vegetation.

### *3.2.6 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 Deniliquin district there have only been a few archaeological investigations. The information relating to site patterns, their age and geomorphic context is little understood by archaeologists. The local Aboriginal community has also noted that there are a number of sites in the district that are yet to be recorded on AHIMS.

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. In particular, the prevalence of scarred trees in the AHIMS database is more likely to reflect the obtrusiveness of trees and it can be assumed that other site types would also be prevalent across the landscape but have yet to be found and recorded.

With regard to the limitations of the information available, archaeologists rely on Aboriginal parties to divulge information about places with cultural or spiritual significance in situations where non-archaeological sites may be threatened by development. To date, no such places have been identified within the

archaeological reports carried out within the area. No such places have been identified through the consultation process for the Tarleigh Park Solar Farm proposal area.

# 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 and proposed road intersection upgrade 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.

As already noted, the assessment area is within an irrigation development and has therefore been subject to considerable impacts from farming for many decades with areas of remnant vegetation and exposures adjacent to irrigations bays deemed to have the highest potential for sites.

The strategy therefore was to walk a series of transects across the landscape to achieve maximum coverage focusing on the paddocks with the highest visibility, tracks and edges of the irrigation bays and areas with remnant Black Box vegetation. Because landform was generally a cleared levelled irrigation bays with rice and canola crops, transects were spaced evenly with the survey team spread apart at 30m intervals, walking in parallel lines. The nature of the rice and canola crop bays made this an ideal survey strategy. The team were able to walk in parallel lines, at a similar pace, allowing for maximum survey coverage and maximum opportunity to identify any heritage features. The size of the survey team was a maximum of seven people which allowed a 210 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 RES plan to retain existing viable native vegetation remnants where possible the areas of remnant vegetation were deemed to have high archaeological potential and mature trees within the proposal area were also inspected for any evidence of Aboriginal scarring (c.f Long 2005).

Given that the intersection of Riverina Highway and Parfreys Rd will likely require upgrading the survey of 100m either side of the intersection was also conducted within the road reserve areas The proposed works for the intersection would however likely only affect 50m either side of the intersection within the road reserve area.

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 between the archaeologists and Aboriginal community representatives to ensure all were satisfied and agreed with the spacing, coverage and methodology.

The proposal area was divided into three sections as follows:

- Rice and canola crops with irrigation bays and remanent vegetation- comprising approximately 200 hectares.
- Water logged wheat stubble fields comprising approximately 65 hectares.
- Intersection of Riverina Highway and Parfreys Rd comprising of 3 hectares.

The survey of the solar farm proposal area was undertaken by archaeologists from NGH Environmental with representatives of the Aboriginal community on the 10th of July 2017. The survey for the intersection of

Riverina Highway and Parfreys Road was undertaken by archaeologists from NGH Environmental with representatives of the Aboriginal community on the 13th of July 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

Survey transects were undertaken on foot focusing on the rice and canola bays that had the highest visibility, tracks and edges of the irrigation bays and areas with remnant Black Box vegetation. Parts of the solar farm proposal area has likely been laser levelled. The intersection of Riverina Highway and Parfreys Road has previously been disturbed by road and canal construction and maintenance works.

Soils within the proposal area consisted of grey-brown or reddish-brown silty clays. Most of the bays had recently been ploughed and planted with rice and canola crops. However, the survey was severely impeded by the water logging of the bays with wheat crop stubble in the north-eastern portion of the proposal area. These bays had been cropped leaving a mat of cut stubble that in additional to being water logged reduced visibility significantly. The visibility along the tracks and bays with recently planted rice and canola crops was generally very good and ranged from 90% to 40% with an average visibility of 60%. The bays with wheat crop stubble had very poor visibility with an average of less than 5 %. The intersection of Riverina Highway and Parfreys Road had some exposures along Parfreys Road and very poor visibility along the Riverina highway with an average visibility of 10%.

While the majority of the remnant vegetation will not be disturbed by the proposal the Black Box stands and isolated mature tree within the fields were inspected as these areas were deemed to have high archaeological sensitivity. The stands of trees offered a good perspective of the nature of the relatively undisturbed landscape of the area and were likely to have scarred trees. Mature trees were inspected to ascertain if there was any evidence of cultural modification.

Table 4 below shows the calculations of effective survey coverage and plates 3-10 show examples of the transects units within the proposal area. Figure 7 shows the division of the units within the proposal area.

Between the survey participants, over the course of the field survey, approximately, 13 km of transects were walked across the rice and canola bays within the proposal area. Allowing for an effective view width of 5m each person, this equates to a surface area examined of 43ha. However, allowing for the visibility restrictions, the effective survey coverage is reduced to 26 ha, or 13%.

The survey coverage for the wheat stubble bays within the proposal area was 10 ha of the 65 ha area, but allowing for visibility restrictions, the effective survey coverage was 0.5 ha or 0.77%. The survey for the intersection of Riverina Highway and Parfreys Road examined 1.5 ha of the 3 ha easement, but allowing for visibility restrictions, the effective survey coverage was 0.15 ha or 5% of the road reserve corridor.

Overall, it is considered that the surface survey of the Tarleigh Park Solar Farm proposal area had sufficient and effective survey coverage. The effective survey coverage is considered sufficient given that the proposed development area is highly modified. The results identified are considered a true reflection of the nature of the Aboriginal archaeological record present within the proposal area.

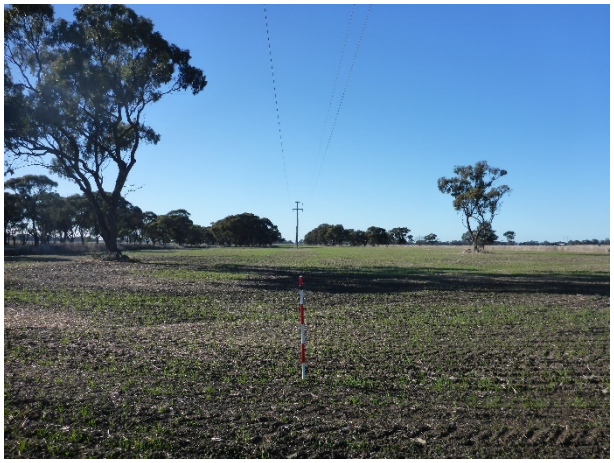
| | |
|---|---|
|  |  |
| Plate 3 View north across water logged wheat bays with crop stubble in north-east area of proposal. | Plate 4 View south across water logged wheat bays with crop stubble in north-east area of proposal with house in background. |
|  |  |
| Plate 5 View west across water logged wheat bays with crop stubble adjacent to the dam. | Plate 6 View east along north powerline through rice crops near remnant vegetation in northern portion of the proposal area. |
|  |  |
| Plate 7 View south along track separating rice and wheat crops in northern portion of the proposal area. | Plate 8 View south of rice crops in southern portion of proposal area. |

Plate 9 View north of irrigated canola bay and irrigation channel in southern portion of the proposal area.

Plate 10 Intersection of Riverina Highway and Parfreys Road.

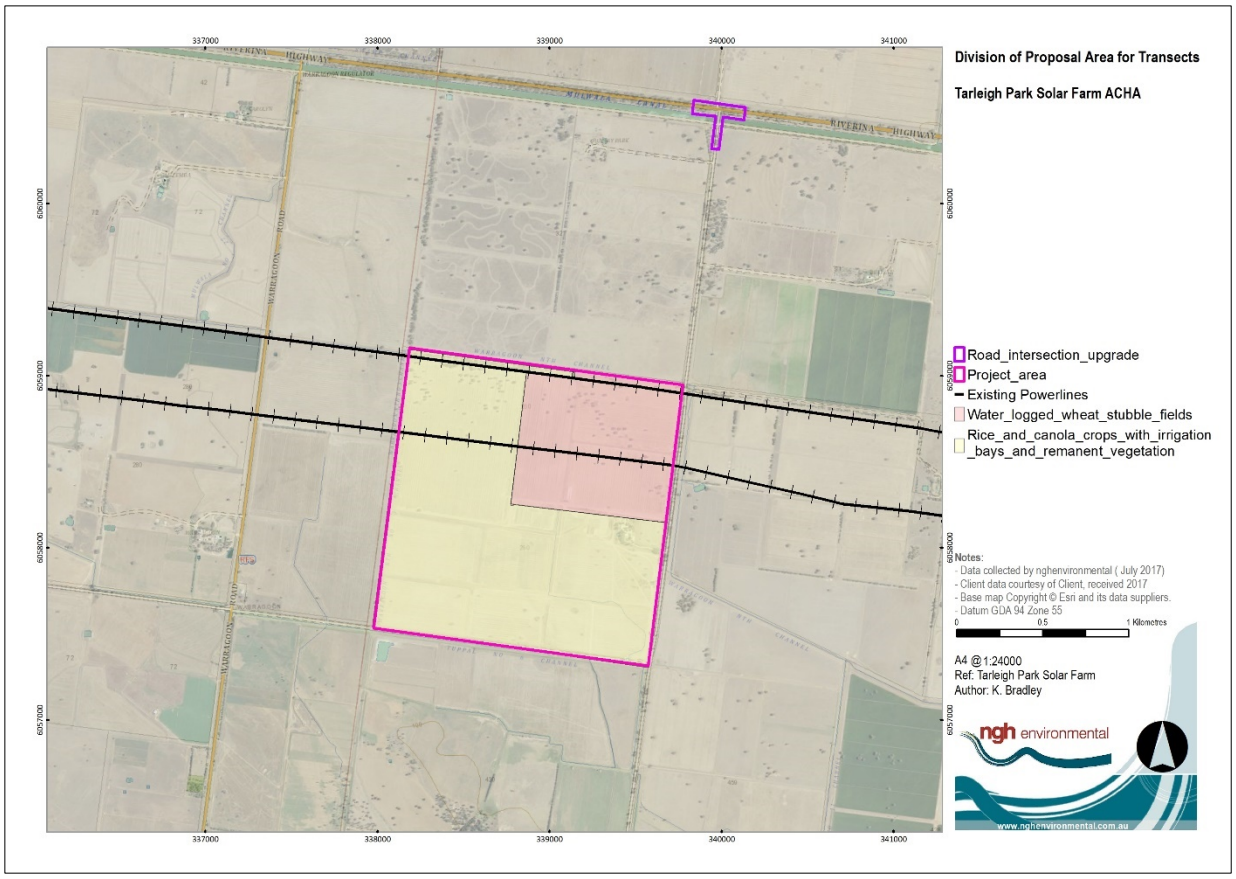



Figure 7. Division of Proposal Area for Transects

Table 4. Transect information.

| Survey Section | Number of Survey Transects | Topography | Exposure type | Proposal Area ha | Surveyed area (length m x width m) | Survey Area $m^2$ | Visibility | Effective coverage (area x visibility) $m^2$ | Proposal Area surveyed (ha) | Percentage of Proposal area effectively surveyed | Archaeological result |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Rice and canola crops with irrigation bays and remanent vegetation | 10 | Level plain with irrigation bays predominantly laser levelled | Bare ground, plough lines, soil mounds, vehicle tracks, channel banks | 200 | 12,350 x 35 | 432,215 | 60% average | 259,329 | 25.93 | 12.96 | 2 Scarred trees |
| Water logged wheat stubble fields. | 6 | Level plain with irrigation bays predominantly laser levelled | Bare ground, plough lines, vehicle tracks, channel banks | 65 | 2,900 x 35 | 101,500 | 5% average | 5,075 | 0.50 | 0.77 | Nil |
| Intersection of Riverina Highway and Parfreys Rd | 2 | Level plain with disturbance | Bare ground, soil mounds, tracks | 3 | 1000 x 15 | 15,000 | 10% average | 1,500 | 0.15 | 5 | Nil |

## 4.3 SURVEY RESULTS

### *4.3.1 Survey Finds*

Despite the variable visibility encountered during the survey no Aboriginal stone artefacts were found across the proposal area. However, two Aboriginal modified trees were recorded within the northern area of remnant vegetation. The details of the sites are outlined below and in Table 5; their location is shown in Figure 8.

*Tarleigh Park Scarred Tree 1*

This site consists of a single scarred tree considered to be Aboriginal in origin within an area of remnant vegetation. The tree is a fallen dead Black Box 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 approximately 10m in height and is located along the properties northern fence line. The small oval scar is located on the trunk of the fallen tree. The base of the scar would have been approximately 1m above the ground. One axe mark was noted. The tree appears to have fallen naturally.

Plate 11. View west of Tarleigh Park Scarred Tree 1.

Plate 12. Close up of Tarleigh Park Scarred Tree 1.

*Tarleigh Park Scarred Tree 2*

This site consists of a single scarred tree considered to be Aboriginal in origin within an area of remnant vegetation. The tree is a mature living Black Box in moderate 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 northern fence line and is approximately 10m in height. It was noted that the tree had a number of dead branches and partially fallen limbs. The oval scar is located on the trunk of the tree facing southeast. The base of the scar is approximately 95 cm above the ground. Two axe marks were noted.

Plate 13. View northwest of Tarleigh Park Scarred Tree 2.

Plate 14. Close up of Tarleigh Park Scarred Tree 2.

Table 5. Scarred tree characteristics

| AHIMS #* | Site Name | Artefact Type | Raw Material | Dimensions (mm) | Comments |
|---|---|---|---|---|---|
| 54-6-0078 | Tarleigh Park ST 1 | Modified tree | Black Box tree (dead) | 300 x 149 x 60 | Small oval scar on trunk, scar approximately 1m above ground surface, tree fallen and dead, a single axe mark noted. |
| 54-6-0079 | Tarleigh Park ST 2 | Modified tree | Black Box tree (living) | 590 x 260 x 50 | Oval scar on trunk face south-east, scar approximately 95cm above ground surface, two axe mark noted, circumference of trunk 3.12m. Number of upper limbs noted to be dead and falling. |

### *4.3.2 Consideration of Potential for Subsurface material*

Discussions were held in the field with the representatives present to assess the potential for subsurface deposits across the proposal area. Based on the land use history, an appraisal of the landscape, soil, level of disturbance and the results from the field survey it was concluded that there was negligible potential for the presence of intact subsurface deposits with high densities of objects or cultural material within the proposal area. It was determined by the archaeologists and representatives from the Aboriginal community present during the survey that subsurface testing was not warranted.

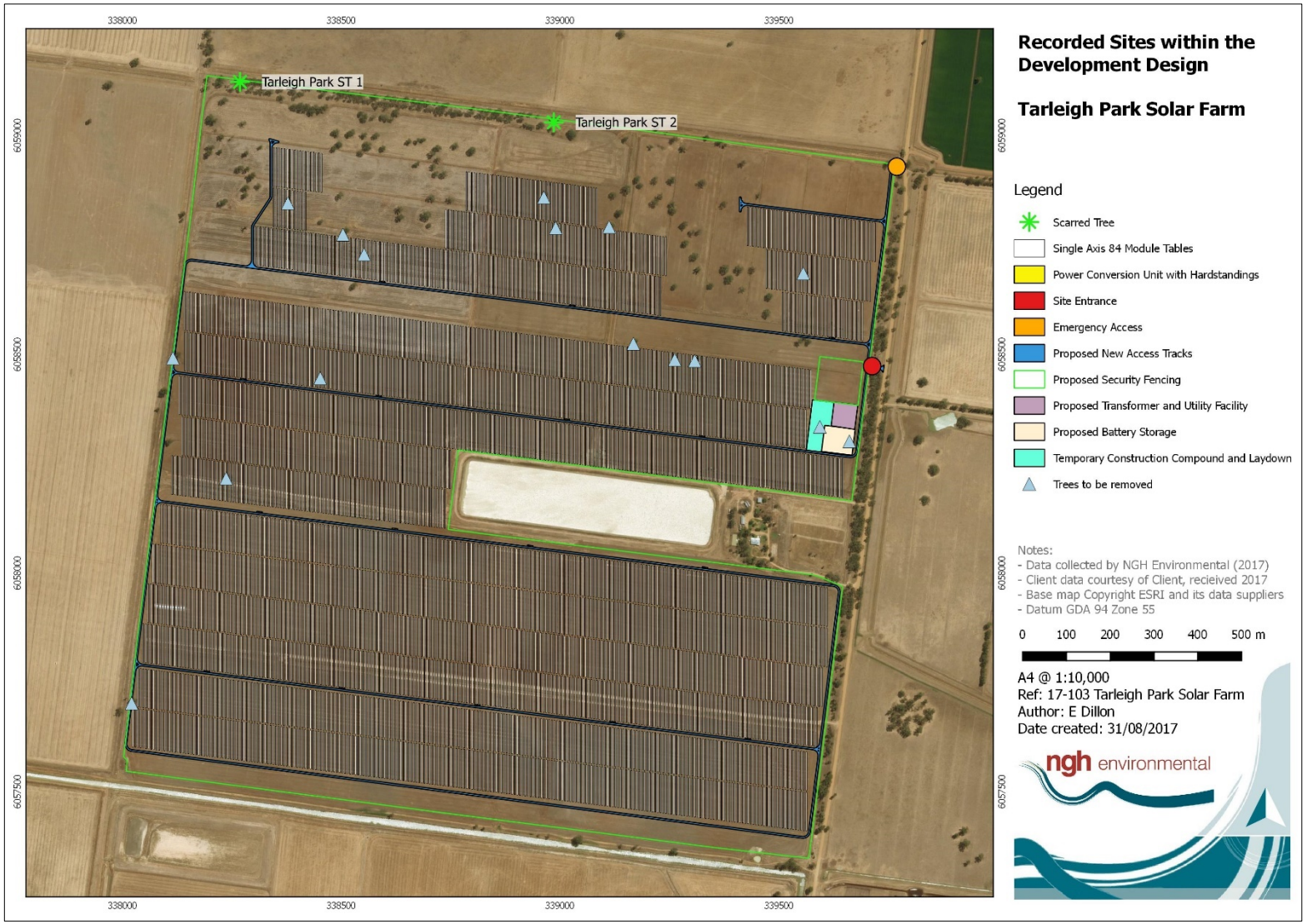



Figure 8. Location of recorded sites.

## 4.4 DISCUSSION

The predictions based on the modelling for the proposal area were that stone artefacts, ovens and scarred trees were the most likely manifestation of Aboriginal occupation of the area. It was noted that the remnant stands of native trees and Black Box vegetation where likely to have scarred trees. Exposures and tracks adjacent to irrigation bays may contain stone artefacts and ovens however they would likely be disturbed or previously destroyed by farming and irrigation activities.

Given that part of the proposal area has been laser levelled and the rest subject to extensive agricultural disturbance the lack of stone artefacts and ovens as a site type was not unexpected. The presence of two Aboriginal scarred trees within the remnant stands of Black Box vegetation confirmed the site type prediction and suggests that while the area has been subject to previous large scale land clearing, areas of remnant Black Box vegetation have high archaeological sensitivity and that there is potential for scarred trees to occur in stands of remnant vegetation in the area.

The modelling for the region notes the dominance of scarred trees in the area, especially where there are remnant stands of native trees. The survey results have confirmed this prediction with two scarred trees recorded in remnant stands of Black Box vegetation. Scarred trees provide a tangible link to the past and provide evidence of Aboriginal subsistence activities through the deliberate removal of bark or wood. It is likely that the dominance of scarred trees as a site type in the area is related to the more obtrusive nature of scarred trees when compared to stone artefacts. In 1974 Buchan noted that many of the sites in the area were under threat from damage or destruction due to intensive cropping and pastoral activities associated with the development of irrigation schemes, roads and dams. Given the absence of ovens and stone artefacts identified during this survey it is likely that land clearing and farming activities in the area have disturbed or removed the cultural material evident of these site types in the area.

Furthermore, due to the extensive modifications of the drainage patterns within and adjacent to the proposal area through the construction of channels and continual cultivation, no relationship between the location of the scarred trees and proximity to local resources such as water are able to be ascertained from these survey results. However, it is likely the landscape would have provided resources that may have supported small groups of people as they moved away from the major water courses for short period of time, particularly during less flood prone months.

In terms of the current proposal therefore, extrapolating from the results of this survey, it is unlikely that *in situ* stone artefacts or ovens occur within the proposed development footprint. However, consideration must also be given to the level of disturbance of any such sites. Based on the land use history of the proposal area, and an appraisal of the results from the field survey, there is negligible potential for the presence of intact subsurface deposits with high densities of objects or cultural material within the Tarleigh Park Solar Farm proposal area.

# 5 CULTURAL HERITAGE VALUES AND STATEMENT OF SIGNIFICANCE

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

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

All sites or places have some degree of value, but of course, some have more than others. In addition, where a site is deemed to be significant, it may be so on different levels or contexts ranging from local to regional to national, or in very rare cases, international. Further, sites may either be assessed individually, or where they occur in association with other sites the value of the complex 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 while in the field with representatives from the Deniliquin LALC and Yarkuwa indicated that all sites hold cultural value to the Aboriginal community. It was also clear that scarred trees were viewed as important and a particular site type that should be avoided by development.

Yarkuwa have also noted as a general comment that they do not classify any cultural material as high or low in significance as all sites hold cultural value to the Aboriginal community.

### Scientific (archaeological) value.

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

to be established and therefore no additional information pertaining to the proximity to local resources, such as water, as able to be established.

The scarred trees most likely represents the opportunistic use of the landscape but any further observations are restricted due to the clearing of the area and modification of natural waterways in close proximity to the proposal area. The isolated nature of the trees recorded in remnant vegetation along the northern fence line of the proposal area and the fact that the adjacent landscape has been cleared means that as a representative example this site type has high value. While scarred trees are a common site type in the district and dominate the recorded site types in the area they are relativity rare within a 20km buffer of the proposal area. Given that Tarleigh Park ST 1 tree is dead and fallen the viability of its medium term survival, therefore its integrity is low. The tree recorded as Tarleigh Park ST 2 is alive and healthy which enhances the viability of its medium term survival, therefore its integrity is high. 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 trees are therefore assessed overall as having high conservation value.

#### Aesthetic value.

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

#### Other Values

There are no other known heritage values associated with the subject 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 that historically the solar farm proposal area has been impacted through land use practices, such as laser levelling, clearing, ploughing and the construction of irrigation channels and bays. The proposed intersection of Riverina Highway and Parfreys Rd has also been impacted through road and channel construction and maintenance activities.

The implications of this activity is that the archaeological record has been compromised in terms of the potential for scarred trees to remain outside the areas of remnant vegetation. The scale of the earthworks for laser levelling of the irrigation bays means that any stone artefacts and other features such as ovens that may have been present are now likely to have been removed or displaced.

Despite these localised impacts, two scarred trees were recorded along the northern boundary of the proposal area and Aboriginal artefacts and cultural material remain in the broader district, indicating the presence of past Aboriginal people and providing indications of their use of this landscape.

## 6.2 PROPOSED DEVELOPMENT ACTIVITY

As noted in section 1.3, the proposal involves the construction of a solar plant with a capacity up to 90MW. The power generated will be fed into the National Electricity Market (NEM) at the transmission level directly into the TransGrid 132kV network, which passes through the property.

RES proposes to develop a portion of the 250ha property within Lot 88/ DP756339, retaining existing viable native vegetation remnants. Additionally, the intersection of Riverina Highway and Parfreys Rd will likely require upgrading. This would likely only affect 50m either side of the intersection within the road reserve area.

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.

Flat plate PV modules would be installed and spread across the site. Each of them would be linked to an inverter and a transformer.

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 or a compacted layer of gravel laid on stripped bare natural ground.

Some ancillary facilities would also be required including parking facilities, operations and maintenance buildings.

A perimeter fence would be constructed around the solar farm and if required vegetation buffers would possibly planted in some areas.

An energy storage facility of approximately 32MW/16MWh rated capacity which will be provided by banks of lithium-ion batteries. These will be housed within 12 metre shipping containers located in a secure compound adjacent to the collector yard

In total, the construction phase of the proposal is expected to take around 12 months. The Tarleigh Park solar farm is expected to operate for around 30 years. After the initial operating period the solar farm would either be decommissioned, removing all above ground infrastructure and returning the site to its existing land capability, or upgraded with new PV equipment. Upgrading would be subject to the relevant approvals at the time and involve replacing components that were originally installed with new components that reflect technology that is available at that time.

The development activity will therefore involve disturbance of the ground during the construction of the solar farm and upgrade to the intersection of Riverina Highway and Parfreys Rd. 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 2018.

## 6.3 ASSESSMENT OF HARM

As described in this report, two archaeological sites were located within the proposal area. While the sites are located outside the solar array development area as shown in Figure 8, they are located in close proximity to the proposed new fence line that will replace the existing Lot boundary fence. The following

table (Table 6) provides a summary of the degree of harm and the consequence of that harm upon the heritage values of each site resulting from the proposed works for the solar farm fence.

While the proposed level of disturbance for the construction of the solar farm fence is likely to be minimal the works could still potentially impact the scarred trees if there are no safeguards implemented for works near the sites, such as a plan of management for fencing works.

Table 6 Identified risk to known sites

| Site name | Site integrity | Type of harm | Degree of harm | Consequence of harm | Recommendation |
|---|---|---|---|---|---|
| **Tarleigh Park Scarred Tree 1** | Poor- *fallen dead tree* | Possible inadvertent harm during removal of existing fence and construction of new fence which may lead to direct/ indirect harm | Inadvertent which may lead to the partial or complete harm | Minimal to total loss of value | Avoid. Plan of management required prior to fence works. |
| **Tarleigh Park Scarred Tree 2** | Good- *in situ* living tree | Possible inadvertent harm during removal of existing fence and construction of new fence which may lead to direct/ indirect harm | Inadvertent which may lead to the partial or complete harm | Minimal to total loss of value | Avoid. Plan of management required prior to fence works. |

The impact is likely to be most extensive where earthworks such as clearing vegetation may occur, the removal of exiting fence line and the construction of a new fence line. The possible harm to the scarred trees during the removal of the existing boundary fence and the construction of a new 2 m high fence may involve inadvertent damage to the root system, trunk or canopy and/ or the removal of the tree. These types of harm, should they occur, are considered impacts on the sites. It should be noted, however, that the scarred trees are located within an offset area set by the PVP attached to the property. The vegetation, including the trees, cannot be removed as a result of the works.

While the proposed fence line will result in only a small area of disturbance within a 10m buffer of Tarleigh Park Scarred Tree 1 and 2 there is still potential that the removal of the existing fence and the construction of that new fence may impact these two sites. Consequently, to ensure no harm will occur to these sites which will be avoided by the solar array development it is recommend that a plan of management be implemented prior to any fence works.

If the scarred trees are avoided, the assessment of harm overall is therefore assessed as nil.

## 6.4 IMPACTS TO VALUES

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

The impact to values for this development are summarised in Table 6 above

The impact to the scientific values if the sites Tarleigh Park Scarred Tree 1 and 2 were to be impacted by the current proposal is considered high. While the scarred tree sites are located outside the solar array proposal area they are located in close proximity to the proposed new fence line that will replace the existing fence. Consequently, there is potential that the intrinsic values of the trees and the scarring may be affected by the removal and construction of the proposed fence line. Any damage to the trees would reduce the scientific value they retain and would result in high impact to the representative values of the trees.

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

# 7 AVOIDING OR MITIGATING HARM

## 7.1 CONSIDERATION OF ESD PRINCIPLES

Consideration of the principles of Ecologically Sustainable Development (ESD) and the use of the precautionary principle was undertaken when assessing the harm to the sites and the potential for mitigating impacts to the sites recorded within the Tarleigh Park 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 region. The immediate local area has a dominant site type of scarred trees and the identification of two scarred trees during this survey suggest that the dominance of scarred tree in the local area as a site type is accurate and the that the occurrence of other site types may be influenced by the extensive land clearing and farming activities in the area that have disturbed or removed other cultural material.

Currently there is no clear regional synthesis of the nature, number, extent and content for archaeological sites within the Edward River LGA. Nevertheless, given the size of the geographical area, it is certain that there would be similar scarred trees present within the region. The result of this Aboriginal heritage assessment has confirmed the archaeological sensitivity of remnant stands of native trees and Black Box vegetation in the area. The implications for ESD principles is that other scarred trees are likely to be present in the district.

As noted above, the archaeological values of the sites within the solar farm, considering the scientific, representative and rarity values, was deemed to be high. Although scarred trees are the dominate site type in AHIMS for the local area they are a finite site type with a poor long-term survival prognosis. It is argued therefore that any impacts to the sites through the development would adversely affect the broader archaeological record for the local area or the region.

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

We therefore consider, that if the current proposed fencing alignment for the solar farm proposal inadvertently impacts the two scarred tree sites, the overall cumulative impact on the archaeological record for the region is likely to be moderate.

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

## 7.2 CONSIDERATION OF HARM

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.

Avoiding harm to the two sites is possible through the implementation of a plan of management for the proposed fencing works. Given the proximity of the sites to the boundary fence line, the adjustment of the fence would pose serious constraints to identifying the boundary of Lot 88/ DP756339 should it be adjusted to ensure a minimum 10m buffer between these sites and the fence works.

Given the avoidance of Tarleigh Park Scarred Tree 1 and 2 by the solar array proposal it is argued here that mitigation in the form of the implementation of a plan of management for the proposed fencing works is warranted given that the redesign of the fence line for the northern boundary of Lot 88/ DP756339 is not feasible.

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 the development proposal proceeding.

# 8 LEGISLATIVE CONTEXT

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

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

An Aboriginal object is defined as:

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

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

- A person must not harm or desecrate an object that the person knows is an Aboriginal object.
- A person must not harm an Aboriginal object.
- For the purposes of this section, "circumstances of aggravation" are:
    - that the offence was committed in the course of carrying out a commercial activity, or

  - that the offence was the second or subsequent occasion on which the offender was convicted of an offence under this section.
- A person must not harm or desecrate an Aboriginal place.

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

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

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

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

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

The Tarleigh Park 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. A plan of management should be implemented prior to the commencement of any works. This plan of management should be developed in consultation with the registered Aboriginal parties.
2. The plan of management must list safe guards that will be implemented for all works within 10m of the sites Tarleigh Park Scarred Tree 1 and Tarleigh Park Scarred Tree 2 to ensure that the sites will not be impacted by the proposed fencing works.
3. At all other times, outside fencing works that are addressed by recommendation 2, a minimum 10m buffer should be in place around the fallen tree Tarleigh Park Scarred Tree 1 and around Tarleigh Park Scarred Tree 2 to protect the root and canopy zone.
4. The development proposal should now be able to proceed without any additional Aboriginal archaeological investigation.
5. RES Australia Pty Ltd should prepare a Cultural Heritage Management Plan (CHMP) to address the potential for finding Aboriginal artefacts during the construction of the Solar Farm and management of known sites. The Plan should include an unexpected finds procedure to deal with construction activity. Preparation of the CHMP should be undertaken in consultation with the registered Aboriginal parties.
6. In the unlikely event that human remains are discovered during the construction, all work must cease in the immediate vicinity. OEH, the local police and the registered Aboriginal parties should be notified. Further assessment would be undertaken to determine if the remains were Aboriginal or non-Aboriginal.
7. Further archaeological assessment would be required if the proposal activity extends beyond the area of the current investigation. This would include consultation with the registered Aboriginal parties and may include further field survey.
8. RES Australia Pty Ltd are reminded that it is an offence under the NSW *National Parks and Wildlife Act 1974* to disturb, damage or destroy and Aboriginal object without approval.

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# APPENDIX A ABORIGINAL COMMUNITY CONSULTATION

**Consultation Log of Tarleigh Park Solar project.**

| Organisation | Contact | Action | Date Sent | Reply Date | Replied by | Response |
|---|---|---|---|---|---|---|
| OEH | Peter Ewin | letter sent via email | 24/04/2017 | 5/05/2017 | email | Presented list of potential RAPs for each solar farm. |
| NTScorp | | letter sent via email | 24/04/2017 | | | |
| National Native Title Tribunal | | online search- no Native title claim, other claims dismissed | 24/04/2017 | | | |
| Office of Registrar *Aboriginal Land Rights Act* | | letter sent via email | 24/04/2017 | 4/05/2017 | email | The project area described does not appear to have Registered Aboriginal Owners pursuant to Division 3 of the Aboriginal Land Rights Act 1983 (NSW). Suggest contacting Deniliquin Local Aboriginal Council |
| Murray Local land services | | letter sent via email | 24/04/2017 | 5/05/2017 | email | Karen Mobourne- recommend the following two Aboriginal Organisations - Deniliquin Local Aboriginal Land Council and Yarkuwa Indigenous Knowledge Centre- letter subsequently sent<br>Andrew Cooper- Finley and Deniliquin has two LALC regions, Deniliquin LALC and Cummeragunja LALC |
| Edward River Council | | letter sent via email | 24/04/2017 | | | 5/5/17 Emily called the council and was recommended to re-send letter. Letter was resent via email |
| Edward River Council | Marie Sutton | email to NGH | 12/05/2017 | | | notified that David Crew of Yarkuwa Indigenous Knowledge Centre may be an interested party. NGH have already written to group as noted above. |
| Deniliquin LALC | | letter sent via email | 24/4/2017 | 16/5/17 | email | 5/5/17- Emily called land council no answer or voicemail<br>16/5/17-Emily called and was told they had not received the original letter. New letter was sent via email<br>16/5/17- Registered interest and noted that an aboriginal site assessment will be required. Also, that the proposed areas extend into the Cummergunja Local Aboriginal Land council area.<br>Emily sent a map of proposal area and land council boundaries to Deniliquin LALC to confirm that the Cummergunja LALC was outside of the project area |
| | | | | | | |
| **Local Newspaper** | | Deniliquin Pastoral Times | 25/04/2017 | | | |
| | | Southern Riverina News | 26/04/2017 | | | |
| | | | | | | |

| Organisation | Contact | Action | Date Sent | Reply Date | Replied by | Response |
|---|---|---|---|---|---|---|
| **OEH list of potential stakeholders** | | | | | | |
| Deniliquin LALC | | letter already sent | 24/04/2017 | | | |
| Yarkuwa Indigenous Knowledge Centre Aboriginal Corporation | | letter sent via email | 5/05/2017 | 1/05/2017 | via email | registered interest in project |
| John Jackson | | letter sent via email | 5/05/2017 | | | |
| Bangerang Aboriginal Corporation | | letter sent via email 5/5/17- email bounced<br>Two letters sent by post to addresses supplied by OEH | 5/05/2017 | | | 17/5/17- Jerilderie address returned to sender |
| Bangerang Aboriginal Corporation | Fred Dowling via Tianni Given | letter sent via email | 8/05/2017 | | | |
| | | | | | | |
| **Letter to OEH advising of registered parties and return to sender letters** | Peter Ewin | via email | 19/06/2017 | 19/06/2007 | via email | NGH notified OEH that 2 RAP registered for project and advised 1 group email bounced and letter returned to sender. OEH emailed acknowledgement of email sent. |
| | | | | | | |
| **Methodology** | | | | | | |
| Deniliquin LALC | | Methodology sent via email | 29/05/17 | 30/5/17 | Phone call | Rayna called Emily - will send through comments in writing<br>suggested that<br>-a complete walkover of sites would be required<br>-if ground disturbance is over 15cm site monitors would be required<br>- Due to burials in the region it is important to have a best practice finds protocol<br>-Require a male and female site monitor to be present<br>-Will provide rates and insurance |
| Yarkuwa Indigenous Knowledge Centre Aboriginal Corporation | David Crew | Methodology sent via email | 5/06/2017 | | | **comments due 3 July** |
| Yarkuwa Indigenous Knowledge Centre Aboriginal Corporation | David Crew | KB sent follow up email requesting rates and insurance details | 19/06/2017 | 19/06/2017 | email | Provided rates and insurances. KB notes insurances for 16/17 FY and will need 17/18 cert of currency. |
| Deniliquin LALC | | contacted for participation in fieldwork | 21/06/2017 | 26/06/2017 | email | Provided updated insurance and details of person for fieldwork |

| Organisation | Contact | Action | Date Sent | Reply Date | Replied by | Response |
|---|---|---|---|---|---|---|
| Yarkuwa Indigenous Knowledge Centre Aboriginal Corporation | | contacted for participation in fieldwork | 21/06/2017 | 22/06/2017 | email | Provided updated insurance and details of person for fieldwork |
| | | | | | | |
| **Draft report** | | | | | | |
| Deniliquin LALC | Rayna | sent via email | 25/09/2017 | 6/11/2017 | via email | Jessie Peuker responded via email that she had spoken to Rayna and confirmed that she is happy with the process and to finalise the report. |
| Yarkuwa Indigenous Knowledge Centre Aboriginal Corporation | David Crew | sent via email | 25/09/2017 | 16/10/2017 | via email | comments provided via email. Comments relate mostly to the ethnographic chapter. Also noted that as a general comment Yarkuwa do not classify any cultural material as high or low in significance. Currently working on a statement and will forward to you ASAP. |
| Yarkuwa Indigenous Knowledge Centre Aboriginal Corporation | David Crew | KB followed up statement as not received to date | 13/11/2017 | 13/11/2017 | via email | David confirmed he will sent statement shortly. |
| Yarkuwa Indigenous Knowledge Centre Aboriginal Corporation | David Crew | Via email | 21/11/2017 | | | Tarleigh & Currawarra Solar Farms summary statement provided to NGH for inclusion in Final report consultation appendix |

**Public Notice placed in the Pastoral Times on 25th of April 2017**.



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## IN MEMORIAM

HUSSEY Beverley.
20.02.1939 - 24.04.2013.
We think of you in silence.
We often speak your name.
What would we give to hear your voice,
And see your face again.
❤ Forever in our hearts ❤
—Kevin, Karen, Leanne, Guy and families. xx

## IN MEMORIAM

TEBBENS, Hannah "Anne".
26.04.2012.
Five years have passed, Still we miss you every day.
*Cherished Memories Of A Beautiful Lady*
—Your loving family.

remember loved ones... 1300 660 886

## BRENDAN JOHN STRONGMAN

01.01.1990 - 23.04.2016

Sadly, it has been 12 months since the passing of our beautiful son BRENDAN STRONGMAN at the age of 26 years old.

As parents and family members Brendan's presence is still very much a part of our lives and always will be. We are finding it hard to imagine what Brendan endured during his short life due to a physical debilitating condition and how he coped mentally (a STRONG MAN he was).

Our love will be deeper; our life will be fuller because we shared his short life with us.

When someone you love becomes a memory, the memory becomes a treasure.

- Maria, Peter, Paul and Steph, Leigh and Dimity, Karla and Shae.

remember loved ones... 1300 660 886

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## PUBLIC NOTICES

RAFFLE WINNER
Winner of the Rotary Club of Deniliquin Easter Art Show Raffle is D Kingston. Thank you to everyone for their support.

## PUBLIC NOTICES

### Notification for registration of interest for Aboriginal stakeholders

NGH Environmental has been contracted by Res Australia Pty Ltd (Res Australia) to undertake an Aboriginal Cultural Heritage Assessment (ACHA) for two proposed solar farms between Deniliquin and Finley that will be identified as Currawarra and Tarleigh Park. The proposed location for the Currawarra Solar Farm is approximately 15km north of the proposed Tarleigh Park Solar Farm.

The assessment area for the proposed Currawarra Solar Farm comprises of the Lots 28, 30 and 40/DP756344 and Lots 105, 106, 109 and 110/ DP 756305 at 1385 Mayrung Road, Mayrung, in the Edward River Local Government Area.

The assessment area for the proposed Tarleigh Park Solar Farm comprises of Lot 88/ DP 756339 at 260 Parfreys Road, Blighty, in the Edward River Local Government Area.

The proponent (Res Australia, Suite 4, Level 1 760 Pacific Highway, Chatswood, NSW) is proposing to construct a utility scale solar farm at each location including panels, electrical conduits, transformers, internal access tracks, site office and perimeter fencing.

The purpose of this consultation, particularly with Aboriginal people, is to assist the proponent in the preparation of an ACHA for each proposal site and to be involved in consultation as part of the lodgement of a State Significant Development application.

In order to fulfil the requirements set out in the OEH Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010, NGH Environmental is seeking interested Aboriginal parties who hold cultural knowledge of the assessment areas to register their interest in the consultation process for the projects and to assist in the determination of cultural significance of any Aboriginal objects or places located within the proposed Currawarra and Tarleigh Park Solar Farm areas.

**Registrations should be provided in writing to:**
**NGH Environmental Pty Ltd**
**PO Box 62, FYSHWICK ACT 2609**

**Or Via Email to:** ngh@nghenvironmental.com.au

**All correspondence must be received by COB 12 May 2017.**

*Those registering an interest will be contacted to discuss the project further.*

*Those who do register are advised that their details will be provided to OEH and the Local Aboriginal Land Council, unless they specifically advise in writing that their details are not to be forwarded.*

Call today to place your **CLASSIES AD**
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## PUBLIC NOTICES

PUBLIC NOTICE — murray river council

### PROPOSED MURRAY RIVER COUNCIL EVENTS POLICY

Notification is hereby given of the proposed Murray River Council Events Policy, which Council supported the creation of at its Ordinary Meeting held 21 February 2017.

The proposed Murray River Council Events Policy can be viewed at Council's Barham, Mathoura, Moama and Moulamein Customer Service Centres (Barham Office, 15 Murray Street Barham, Mathoura Office, 21-25 Conargo Street Mathoura, Moama Office, 6 Meninya Street Moama, and Moulamein Office, 20 Tualka Terrace Moulamein) between 9.00am to 4:00pm Monday to Friday (except public holidays) until **Friday 26 May 2017.** Please contact Council if you wish to arrange a time to view the documents. The proposed Policy is also available on Council's website, www.murrayriver.nsw.gov.au.

Any submissions regarding the proposed Events Policy should be made in writing. Submissions should also quote the Policy name and be addressed to the **Interim General Manager, Murray River Council, PO Box 21, Mathoura NSW 2710** or email admin@murrayriver.nsw.gov.au before 4:30pm on **Friday 26 May 2017.**

**M STORK**
**INTERIM GENERAL MANAGER**

**For further information contact council on 1300 087 004 or visit www.murrayriver.nsw.gov.au**

PUBLIC NOTICE — murray river council

### PROPOSED MURRAY RIVER COUNCIL CONTAMINATED LAND MANAGEMENT POLICY

Notification is hereby given of the proposed Murray River Council Contaminated Land Management Policy, which Council supported the creation of at its Ordinary Meeting held 21 February 2017.

The proposed Murray River Council Contaminated Land Management Policy can be viewed at Council's Barham, Mathoura, Moama and Moulamein Customer Service Centres (Barham Office, 15 Murray Street Barham, Mathoura Office, 21-25 Conargo Street Mathoura, Moama Office, 6 Meninya Street Moama, and Moulamein Office, 20 Tualka Terrace Moulamein) between 9.00am to 4:00pm Monday to Friday (except public holidays) until **Friday 26 May 2017.** Please contact Council if you wish to arrange a time to view the documents. The proposed Policy is also available on Council's website, www.murrayriver.nsw.gov.au.

Any submissions regarding the proposed Contaminated Land Management Policy should be made in writing. Submissions should also quote the Policy name and be addressed to the **Interim General Manager, Murray River Council, PO Box 21, Mathoura NSW 2710** or **email admin@murrayriver.nsw.gov.au** before 4:30pm on **Friday 26 May 2017.**

**M STORK**
**INTERIM GENERAL MANAGER**

**For further information contact council on 1300 087 004 or visit www.murrayriver.nsw.gov.au**

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## FOR SALE

FOOD WARMER
Magic Maid Deluxe, cabinet control, $150. Phone 0427 585 038.

## VEHICLES

TOYOTA
KLUGER KXR
2012 white, V6 auto, 177,000kms, towbar, bullbar, reverse camera, bluetooth, aux con, Rego: CK-14-VD, $21,500. Ph 0438 634 273.

## MEETINGS

Deniliquin Little Athletics
Annual General Meeting
Thursday, April 27, 2017, 7pm at the Deniliquin RSL Club
All Welcome

## PETS

Amended legislation in Victoria regarding the sale of cats and dogs - As of January 1, 2012, it is now a requirement under the Victorian and NSW Domestic Animals Act 1994 that all cats and dogs be microchipped prior to being sold. The animal/s can only be advertised through the paper when each individual microchip number is included in the advert.

If you have any further queries regarding the amended legislation, please contact localclassies on 1300 660 886.

localclassies

1300 660 886 localclassies

## MEETINGS

Deniliquin Netball Association
**Deniliquin Netball Association**
**AGM**
**Date:** Wednesday 24 May **Time:** 5.00pm
**Location:** DNA Clubrooms, Memorial Park
*A representative from each is required to attend.*

## SITUATIONS VACANT

Railway Hotel
Bar/ Bottleshop
Must have RSA and RCG
*Phone Jason for details (03) 5881 1498*

Carpenter/ Labourer
Wanted to help erect frames and trusses.
Phone
0427 742 678

Need Staff?
Phone localclassies to find out about employment rates and packages.
PHONE 1300 660 886
localclassies

## PUBLIC NOTICES

res — Two new solar farms proposed for the Deniliquin area

**RES Australia (RES)** is excited to announce the commencement of community consultation for two proposed solar farms in the Deniliquin area. Residents living close to the sites will soon be contacted to ensure they're aware of the proposal and residents of the wider areas will get the chance to learn more about the projects with Open Days soon to be announced by RES.

The first project, called Currawarra, is located 25km north east of Deniliquin at Mayrung. The proposal will generate up to 175MW of renewable energy which will connect directly into the TransGrid 132kV transmission network.

The second project, called Tarleigh Park, is located 23km south east of Deniliquin at Blighty. The proposal will generate up to 90MW of renewable energy which will connect directly into the TransGrid 132kV network.

Both projects will use ground mounted solar panels with associated access tracks, substation, operation and maintenance building, overhead and underground electrical reticulation and fencing.

Environmental impact assessments have been commissioned with local expert consultants who are carefully assessing the impact of the solar farms. These studies include heritage, noise, visual impact, transport and ecology and will inform the planning application.

As our plans progress, we will be keeping the local community up to date with newsletters, adverts in the Deniliquin Pastoral Times and project websites which will go live in the next few weeks. Anyone who is interested in either or both projects will have the opportunity to comment during the planning process and RES looks forward to receiving the views of the community.

**Contact:**
**Name:** Mike Whitbread, Development Project Manager, RES Australia
**Website:** http://www.res-group.com/en/countries/australia/
**Email:** info.australia@res-group.com
**Address:** RES Australia Pty Ltd
Suite 4, Level 1, 760 Pacific Highway
Chatswood, NSW, 2067

Looking for staff?
Phone localclassies to find out about employment rates and packages.
Phone 1300 660 886
or email advertise@localclassies.com.au

**Public Notice placed in the Southern Riverina News on 26th of April 2017.**



## PUBLIC NOTICES

### WATER BROKERS

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NSW, VIC & SA
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rob.crow@southernrivers.com.au
www.southernrivers.com.au
OFFICE: 03 5874 2732 MEMBER: AWBA

### Important Notice To All Advertisers

**The Competition and Consumer Act 2010 provides that advertised prices for goods and services which attract GST should be advertised as GST inclusive.**

Prices should not be quoted as being 'excluding GST' or 'plus GST', or by the use of words or phrases conveying similar meaning.

Readers are entitled to expect that the advertised prices are the actual prices at which they can purchase the particular goods and services.

No MMG publications will knowingly accept for publication, any advertisement which may be in breach of the Competition and Consumer Act 2010 or any other relevant law.


## SITUATIONS VACANT

### Yard Maintenance Person

Required one day per week for commercial business in Finley.
Days required are flexible.
**Contact 0427 056 240.**

### Motel Managers (Full Time) X2

A motel in Finley requires two permanent full time Motel Managers to work on a day shift and night shift rotating roster.

Must either hold a diploma or higher level qualification in Management, Business or Hospitality or have three years' work experience in similar or closely related role in the absence of formal qualification.

Market Salary $50K-$60K per annum.

Flexible work environment.

**Email jandubhupinder@yahoo.com.au**

NCMC BSP

### Employment opportunities - NSW North Coast

The Northern Cooperative Meat Company Ltd (NCMC) is a leading export food processor with production facilities at Casino and Booyong near Lismore in the Northern Rivers area of the NSW far north coast.

We are seeking suitably experienced workers in slaughtering, boning and slicing for our Pork Processing Plant (BSP) in Booyong. We are also looking for qualified tradespeople for both Booyong and Casino Maintenance Departments. All these positions offer a great opportunity to combine your career with the excellent lifestyle offered by our region.

**We will be holding information and recruitment sessions from 1st May opposite the Moira Council Chambers. If you are interested we look forward to seeing you or you can forward your application to: hr@cassino.com.au**

## SITUATIONS VACANT

### Retail Manager (Full Time)

A retail store and fuel station in Finley requires permanent full time retail manager to manage its daily operations.

Must either hold diploma or higher level qualification in Management, Business or Retail, or have three years' work experience in similar or closely related role in the absence of formal qualification.

Market Salary $50K-$60K per annum.

Flexible work environment.

**Email jandubhupinder@yahoo.com.au**

### Important Notice To All Advertisers

***Discrimination in Advertising is Unlawful.***

Under Commonwealth law it is unlawful for an advertiser to show any intention to discriminate on one of the following grounds, although this list is not exhaustive; the basis of sex, pregnancy, race, age, marital status, political or religious belief or activity, industrial activity, parental or career status, physical features, disability, lawful sexual activity/ sexual orientation, HIV/AIDS status or on the basis of being associated with a person with one of the above characteristics, unless covered by an exception or granted an exception under the legislation, as we could be held equally responsible should we print an unlawful advertisement we will not accept advertisements that in our opinion appear to breach legislation.

For more information about discrimination in advertising, contact your legal advisor, the Equal Opportunity Commission on 1800 134 142.

**Advertisers please note:**
Placing a misleading job ad is an offence against the Competition and Consumer Act and Fair Trading Act.

All advertisements are subject to the publishers approval.

**Further advice can be obtained from the Australian Competition and Consumer Commission by telephoning 1300 302 502 or Jobwatch 1800 331 617.**

*Thank you for your assistance.*

1300 660 886 localclassies

## SITUATIONS VACANT

Barooga Public School is seeking to fill the position for a

**Part-time School Learning Support Officer (Teachers Aide)**

The successful applicant will assist the teacher to implement learning programs in the classroom.

Approximately 16 hours per week over 4 days.

Qualifications and experience desirable but not essential.

**For more information, Contact the school on (03) 5873 4242.**

Applications to the Principal Hughes Street, Barooga, 3644 by Friday, May 5, 2017.

barooga-p.school@det.nsw.edu.au

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**PHONE: 1300 660 886**

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### Need a career change? This could be for you...

★ *Seeking a motivated energetic person to join our staff.*
★ *Must be a team player and have some computer skills.*
★ *Good customer relations essential.*

**Please ring (03) 5874 2048 to arrange an interview.**

**March's IGA, Tocumwal.**

Southern Riverina News

### Career Opportunities

### Cadet Journalist

The Southern Riverina News is a weekly newspaper, part of the McPherson Media Group, one of the largest independent family-owned media groups in Australia.

We currently have an exciting opportunity for an enthusiastic and motivated cadet journalist to join our team on a full time basis.

We are looking for a budding writer who has the skills, passion and determination to develop a career in journalism and writing. You will be expected to produce news stories, sports reports and features for publication in the Southern Riverina News . Breaking news stories online and producing video content will also be required as will the use of social media and websites.

Candidates must have excellent verbal and written English language communication skills and sound computer skills. You will need to demonstrate solid general knowledge to be considered for this role, you must be self-motivated, and have an ability to build rapport quickly. Working to deadlines, you will be organised with good time management skills and strong attention to detail.

This role would suit both an entry level cadet such as a recent school leaver or a university graduate, with formal and on-the-job training provided depending on the level of the successful candidate.

A valid driver's licence and the ability to work flexible hours including weekends, evenings and public holidays are essential. Experience in photography and with video will also be an advantage.

For further information, or a position description please contact Sam Hall, Managing Editor, on (03) 5881 2322 or email careers@mmg.com.au.

**Applications, including a hand written covering letter and resume, together with examples of published work, if available, should be sent to: PO Box 330 Finley, NSW, 2713 by close of business, Friday, April 28, 2017.**

***McPherson Media Group is an equal opportunity employer***

McPherson MEDIA GROUP

1300 660 886 localclassies

## PUBLIC NOTICES

### Notification for registration of interest for Aboriginal stakeholders

NGH Environmental has been contracted by Res Australia Pty Ltd (Res Australia) to undertake an Aboriginal Cultural Heritage Assessment (ACHA) for two proposed solar farms between Deniliquin and Finley that will be identified as Currawarra and Tarleigh Park. The proposed location for the Currawarra Solar Farm is approximately 15km north of the proposed Tarleigh Park Solar Farm.

The assessment area for the proposed Currawarra Solar Farm comprises of the Lots 28, 30 and 40/DP756344 and Lots 105, 106, 109 and 110/ DP 756305 at 1385 Mayrung Road, Mayrung, in the Edward River Local Government Area.

The assessment area for the proposed Tarleigh Park Solar Farm comprises of Lot 88/ DP 756339 at 260 Parfreys Road, Blighty, in the Edward River Local Government Area.

The proponent (Res Australia, Suite 4, Level 1 760 Pacific Highway, Chatswood, NSW) is proposing to construct a utility scale solar farm at each location including panels, electrical conduits, transformers, internal access tracks, site office and perimeter fencing.

The purpose of this consultation, particularly with Aboriginal people, is to assist the proponent in the preparation of an ACHA for each proposal site and to be involved in consultation as part of the lodgement of a State Significant Development application.

In order to fulfil the requirements set out in the OEH Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010, NGH Environmental is seeking interested Aboriginal parties who hold cultural knowledge of the assessment areas to register their interest in the consultation process for the projects and to assist in the determination of cultural significance of any Aboriginal objects or places located within the proposed Currawarra and Tarleigh Park Solar Farm areas.

**Registrations should be provided in writing to:**
**NGH Environmental Pty Ltd**
**PO Box 62, FYSHWICK ACT 2609**

**Or Via Email to:** ngh@nghenvironmental.com.au

**All correspondence must be received by COB 12 May 2017.**

*Those registering an interest will be contacted to discuss the project further.*

*Those who do register are advised that their details will be provided to OEH and the Local Aboriginal Land Council, unless they specifically advise in writing that their details are not to be forwarded.*

We are looking for motivated people to join the AGS Family

ags Australian Grain Storage

We currently have a number of exciting, permanent opportunities available, including;

Shed Operators
Mill Supply Operators
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To see a full list of all vacancies visit www.sunrice.com.au and go to the SunRice Careers Page

*Apply today!*

SunRice will consider qualified applicants for employment based on their merit, individual skills, qualifications and other appropriate criteria relevant to the role for which they are applying. All correspondence will be dealt with in strict confidence. SunRice is committed to creating a diverse environment and is proud to be an equal opportunity employer.

Want to chat about these opportunities? Call Elise Wilson 0428 285 795.

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OR EMAIL: advertise@localclassies.com.au

**Draft report response via email from Deniliquin LALC 6/11/2017**

From: Rayna <lalcd@bigpond.com>

Date: 6/11/17 4:38 pm (GMT+10:00)

To: Emily Dillon <emily.d@nghenvironmental.com.au>

Subject: RE: Tarleigh Park and Currawara Solar Farm ACHA Draft reports

Afternoon Emily,

I have just spoken to Rayna and she is happy with the process and to finalize on the report. We will also will send the invoice to you in the next 7 working days.

Kind Regards

Jessie Peuker

Personal Assistant

**Draft report response via email from Yarkuwa Indigenous Knowledge Centre Aboriginal Corporation 16/10/2017**

**From:** David Crew [mailto:david.crew@yarkuwa.com]
**Sent:** Monday, 16 October 2017 4:13 PM
**To:** Kirsten Bradley <kirsten.b@nghenvironmental.com.au>
**Subject:** RE: Tarleigh Park and Currawara Solar Farm ACHA Draft reports

Kirsten

There are some general comments on these reports what is on Tarleigh also applies to Currawara

Tracy and I are working on a statement from Yarkuwa and will forward to you ASAP

Please let me know if you have any questions about my comments.

David

**Tarleigh & Currawarra Solar Farms summary statement provided via email from Yarkuwa Indigenous Knowledge Centre Aboriginal Corporation 21/11/2017.**

13th November 2017

Tarleigh & Currawarra Solar Farms summary statement

Yarkuwa's involvement in the solar farms was the through the cultural assessment.

Yarkuwa was represented by local traditional owner Tracy Hamilton with assistance from Joe Briggs and Brandon Cooper, also local traditional owners. Tracy Hamilton maintained the collection of information and comments from members of the local community.

Generally there are no concerns with the trees recorded during the survey and the recommendations in the report are accepted.

Artefacts were found in the Currawarra site and these will require collection if the develop proceeds. The artefacts are likely to represent a large occupation area and therefore consideration needs to be made for the discovery of other material in the immediate area. As there is no local stone all stone material should be considered for its cultural character. It will be important to induct the workers who will be excavating the holes for the solar stands to ensure that they are aware that stone material may be found. If there is to be prior ground clearance then this will also need to consider the potential for disturbing additional cultural material.

It is recommended that a cultural protocol be established prior to work commencing on the site to ensure that undiscovered material is identified and if necessary recorded and collected. Should skeletal material, or large numbers of artefacts be located then work should cease and further consultations and negotiations take place.

# APPENDIX B AHIMS SEARCH

Office of Environment & Heritage

# AHIMS Web Services (AWS)

## Extensive search - Site list report

Your Ref/PO Number : Tarleigh and Currawarra

Client Service ID : 276109

| SiteID | SiteName | Datum | Zone | Easting | Northing | Context | Site Status | SiteFeatures | SiteTypes | Reports |
|---|---|---|---|---|---|---|---|---|---|---|
| 55-4-0205 | Logie Brae 4 | AGD | 55 | 370400 | 6067900 | Open site | Valid | Modified Tree (Carved or Scarred) : - | Scarred Tree | |
| | Contact | Recorders | Ms.Vanessa Edmonds | | | | | Permits | | |
| 54-5-0186 | Deniliquin Golf Course 3 | AGD | 55 | 315800 | 6065000 | Open site | Valid | Modified Tree (Carved or Scarred) : - | Scarred Tree | |
| | Contact | Recorders | Ms.Vanessa Edmonds | | | | | Permits | | |
| 54-5-0187 | Deniliquin Golf Course 2 | AGD | 55 | 316000 | 6064700 | Open site | Valid | Earth Mound : -, Hearth : -, Modified Tree (Carved or Scarred) : - | Mound (Oven),Scarred Tree | |
| | Contact | Recorders | Ms.Vanessa Edmonds | | | | | Permits | | |
| 54-5-0188 | Deniliquin Gold Course 1 | AGD | 55 | 316100 | 6064500 | Open site | Valid | Earth Mound : -, Hearth : -, Modified Tree (Carved or Scarred) : - | Mound (Oven),Scarred Tree | |
| | Contact | Recorders | Ms.Vanessa Edmonds | | | | | Permits | | |
| 54-3-0010 | D D #6; | AGD | 55 | 344100 | 6089900 | Open site | Valid | Modified Tree (Carved or Scarred) : - | Scarred Tree | 1326,1352 |
| | Contact | Recorders | J Carroll,George McIntyre | | | | | Permits | | |
| 54-3-0012 | D D #6; | AGD | 55 | 344100 | 6089600 | Open site | Valid | Modified Tree (Carved or Scarred) : - | Scarred Tree | 1326 |
| | Contact | Recorders | Doctor.Susan Mcintyre-Tamwoy | | | | | Permits | | |
| 54-3-0013 | D D #6; | AGD | 55 | 344100 | 6089900 | Open site | Valid | Modified Tree (Carved or Scarred) : - | Scarred Tree | 1326 |
| | Contact | Recorders | J Carroll,George McIntyre | | | | | Permits | | |
| 54-3-0014 | D D #6; | AGD | 55 | 344000 | 6089800 | Open site | Valid | Modified Tree (Carved or Scarred) : - | Scarred Tree | 1326 |
| | Contact | Recorders | J Carroll,George McIntyre | | | | | Permits | | |
| 54-3-0015 | Picaninny Creek; | AGD | 55 | 328700 | 6088500 | Open site | Valid | Modified Tree (Carved or Scarred) : - | Scarred Tree | |
| | Contact | Recorders | J Brickhill | | | | | Permits | | |

**Report generated by AHIMS Web Service on 11/04/2017 for Kirsten Bradley for the following area at Lat, Long From : -35.7389, 144.9317 - Lat, Long To : -35.3081, 145.6149 with a Buffer of 50 meters. Additional Info : background information. Number of Aboriginal sites and Aboriginal objects found is 92**

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

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Office of Environment & Heritage

# AHIMS Web Services (AWS)

## Extensive search - Site list report

Your Ref/PO Number : Tarleigh and Currawarra
Client Service ID : 276109

| SiteID | SiteName | Datum | Zone | Easting | Northing | Context | Site Status | SiteFeatures | SiteTypes | Reports |
|---|---|---|---|---|---|---|---|---|---|---|
| 54-3-0016 | Oddys Drain 5; | AGD | 55 | 321750 | 6074980 | Open site | Valid | Modified Tree (Carved or Scarred) : - | Scarred Tree | |
| | Contact | Recorders | Ms.Vanessa Edmonds | | | | | Permits | | |
| 54-3-0017 | Oddys Drain 3;CSIRO; | AGD | 55 | 320750 | 6080410 | Open site | Valid | Earth Mound : -, Hearth : -, Artefact : - | Isolated Find,Mound (Oven) | |
| | Contact | Recorders | Ms.Vanessa Edmonds | | | | | Permits | | |
| 54-3-0018 | Oddys Drain @;Wanook Farm; | AGD | 55 | 318610 | 6079530 | Open site | Valid | Modified Tree (Carved or Scarred) : - | Scarred Tree | |
| | Contact | Recorders | Ms.Vanessa Edmonds | | | | | Permits | | |
| 54-3-0019 | Oddys Drain 1;CSIRO; | AGD | 55 | 318930 | 6085720 | Open site | Valid | Artefact : - | Isolated Find | |
| | Contact | Recorders | Ms.Vanessa Edmonds | | | | | Permits | | |
| 54-6-0034 | Harringtons; | AGD | 55 | 316810 | 6061160 | Open site | Valid | Modified Tree (Carved or Scarred) : - | Scarred Tree | |
| | Contact | Recorders | Ms.Vanessa Edmonds | | | | | Permits | | |
| 54-6-0035 | North Tuppal Tocumwal; | AGD | 55 | 353796 | 6045766 | Open site | Valid | Artefact : - | Open Camp Site | |
| | Contact | Recorders | ASRSYS | | | | | Permits | | |
| 54-6-0036 | Pine lea 1 | AGD | 55 | 362700 | 6045700 | Open site | Valid | Modified Tree (Carved or Scarred) : - | Scarred Tree | 3656 |
| | Contact | Recorders | Ms.Vanessa Edmonds | | | | | Permits | | |
| 54-6-0037 | Nth delinquin 1 | AGD | 55 | 316380 | 6067430 | Open site | Valid | Modified Tree (Carved or Scarred) : - | Scarred Tree | 3665 |
| | Contact | Recorders | Ms.Vanessa Edmonds | | | | | Permits | | |
| 54-6-0038 | Brick Kiln Creek; | AGD | 55 | 316510 | 6066880 | Open site | Valid | Modified Tree (Carved or Scarred) : - | Scarred Tree | |
| | Contact | Recorders | Ms.Vanessa Edmonds | | | | | Permits | | |
| 54-6-0039 | Nth Deniliquin 5 | AGD | 55 | 316180 | 6067750 | Open site | Valid | Modified Tree (Carved or Scarred) : - | Scarred Tree | 3665 |
| | Contact | Recorders | Ms.Vanessa Edmonds | | | | | Permits | | |
| 55-4-0181 | Site 1 Newell Highway; | AGD | 55 | 372500 | 6059450 | Open site | Valid | Modified Tree (Carved or Scarred) : - | Scarred Tree | |
| | Contact | Recorders | Giles Hamm Archaeology | | | | | Permits | | |

**Report generated by AHIMS Web Service on 11/04/2017 for Kirsten Bradley for the following area at Lat, Long From : -35.7389, 144.9317 - Lat, Long To : -35.3081, 145.6149 with a Buffer of 50 meters. Additional Info : background information. Number of Aboriginal sites and Aboriginal objects found is 92**



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Office of Environment & Heritage

# AHIMS Web Services (AWS)

## Extensive search - Site list report

Your Ref/PO Number : Tarleigh and Currawarra
Client Service ID : 276109

| SiteID | SiteName | Datum | Zone | Easting | Northing | Context | Site Status | SiteFeatures | SiteTypes | Reports |
|---|---|---|---|---|---|---|---|---|---|---|
| 54-5-0157 | Site 105 Scarred Tree; | AGD | 55 | 313100 | 6050900 | Open site | Valid | Modified Tree (Carved or Scarred) : - | Scarred Tree | 2205 |
| | Contact | Recorders | John Craib | | | | | Permits | | |
| 54-5-0158 | Site 106 Scarred Tree; | AGD | 55 | 313300 | 6051480 | Open site | Valid | Modified Tree (Carved or Scarred) : - | Scarred Tree | 2205 |
| | Contact | Recorders | John Craib | | | | | Permits | | |
| 54-5-0159 | Site 107 Scarred Tree; | AGD | 55 | 313320 | 6051580 | Open site | Valid | Modified Tree (Carved or Scarred) : - | Scarred Tree | 2205 |
| | Contact | Recorders | John Craib | | | | | Permits | | |
| 54-5-0058 | N.D. 1; | AGD | 55 | 315900 | 6066900 | Open site | Valid | Modified Tree (Carved or Scarred) : - | Scarred Tree | 884 |
| | Contact | Recorders | N Ross | | | | | Permits | | |
| 54-2-0020 | Deniliquin TO68; | AGD | 55 | 314207 | 6072793 | Open site | Valid | Modified Tree (Carved or Scarred) : - | Scarred Tree | 884 |
| | Contact | Recorders | ASRSYS | | | | | Permits | | |
| 54-2-0021 | Deniliquin TO1; | AGD | 55 | 314235 | 6070051 | Open site | Valid | Modified Tree (Carved or Scarred) : - | Scarred Tree | 884 |
| | Contact | Recorders | ASRSYS | | | | | Permits | | |
| 54-6-0040 | Nth Delinquin 3 | AGD | 55 | 316180 | 6067750 | Open site | Valid | Modified Tree (Carved or Scarred) : - | Scarred Tree | 3665 |
| | Contact | Recorders | Ms.Vanessa Edmonds | | | | | Permits | | |
| 54-6-0041 | Nth Delinquin 2 | AGD | 55 | 316240 | 6067470 | Open site | Valid | Burial : - | Burial/s | 3665 |
| | Contact | Recorders | Ms.Vanessa Edmonds | | | | | Permits | | |
| 54-6-0043 | South Deniliquin 3 | AGD | 55 | 315660 | 6065710 | Open site | Valid | Modified Tree (Carved or Scarred) : - | Scarred Tree | 3665 |
| | Contact | Recorders | Ms.Vanessa Edmonds | | | | | Permits | | |
| 54-6-0044 | Sth Deliniquin 2 | AGD | 55 | 315290 | 6066500 | Open site | Valid | Modified Tree (Carved or Scarred) : - | Scarred Tree | 3665 |
| | Contact | Recorders | Ms.Vanessa Edmonds | | | | | Permits | | |

**Report generated by AHIMS Web Service on 11/04/2017 for Kirsten Bradley for the following area at Lat, Long From : -35.7389, 144.9317 - Lat, Long To : -35.3081, 145.6149 with a Buffer of 50 meters. Additional Info : background information. Number of Aboriginal sites and Aboriginal objects found is 92**



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Office of Environment & Heritage

# AHIMS Web Services (AWS)

## Extensive search - Site list report

Your Ref/PO Number : Tarleigh and Currawarra
Client Service ID : 276109

| SiteID | SiteName | Datum | Zone | Easting | Northing | Context | Site Status | SiteFeatures | SiteTypes | Reports |
|---|---|---|---|---|---|---|---|---|---|---|
| 54-6-0045 | Sth Deniliquin 1 | AGD | 55 | 315320 | 6066500 | Open site | Valid | Modified Tree (Carved or Scarred) : - | Scarred Tree | 3665 |
| | Contact | Recorders | Ms.Vanessa Edmonds | | | | | Permits | | |
| 54-6-0046 | Tuppal Creek 1; | AGD | 55 | 362300 | 6045500 | Open site | Valid | Modified Tree (Carved or Scarred) : - | Scarred Tree | |
| | Contact | Recorders | Ms.Vanessa Edmonds | | | | | Permits | | |
| 54-2-0030 | North Deniliquin; | AGD | 55 | 315750 | 6066500 | Open site | Valid | Modified Tree (Carved or Scarred) : - | Scarred Tree | 884 |
| | Contact | Recorders | N Ross | | | | | Permits | | |
| 54-3-0001 | Mayrung;TO78; | AGD | 55 | 343388 | 6080404 | Open site | Valid | Earth Mound : -, Hearth : -, Modified Tree (Carved or Scarred) : - | Mound (Oven),Scarred Tree | 884 |
| | Contact | Recorders | ASRSYS | | | | | Permits | | |
| 54-3-0002 | Mayrung;TO80; | AGD | 55 | 343416 | 6077661 | Open site | Valid | Earth Mound : -, Hearth : - | Mound (Oven) | 884 |
| | Contact | Recorders | ASRSYS | | | | | Permits | | |
| 54-3-0003 | Mayrung;TO79; | AGD | 55 | 346149 | 6078603 | Open site | Valid | Artefact : - | Open Camp Site | 884 |
| | Contact | Recorders | ASRSYS | | | | | Permits | | |
| 54-3-0004 | Deniliquin State Forest;Edward River; | AGD | 55 | 317200 | 6064900 | Open site | Valid | Modified Tree (Carved or Scarred) : - | Scarred Tree | 884 |
| | Contact | Recorders | N Ross | | | | | Permits | | |
| 55-4-0192 | Pine Lea 2 | AGD | 55 | 336200 | 6045100 | Open site | Valid | Modified Tree (Carved or Scarred) : - | Scarred Tree | 3656 |
| | Contact | Recorders | Ms.Vanessa Edmonds | | | | | Permits | | |
| 54-3-0006 | Deniliquin North;Davidson Street; | AGD | 55 | 316600 | 6066700 | Open site | Valid | Modified Tree (Carved or Scarred) : - | Scarred Tree | 884 |
| | Contact | Recorders | N Ross | | | | | Permits | | |
| 54-6-0001 | North Tuppal Tocumwal; | AGD | 55 | 353796 | 6045766 | Open site | Valid | Artefact : - | Open Camp Site | 884 |
| | Contact | Recorders | ASRSYS | | | | | Permits | | |
| 54-6-0011 | Black Lagoon;Moria State Forest; | AGD | 55 | 328070 | 6056350 | Open site | Valid | Burial : - | Burial/s | 884 |
| | Contact | Recorders | C Walker | | | | | Permits | | |
| 54-6-0012 | Tuppal Channel; | AGD | 55 | 339510 | 6057049 | Open site | Valid | Artefact : - | Open Camp Site | 884 |

**Report generated by AHIMS Web Service on 11/04/2017 for Kirsten Bradley for the following area at Lat, Long From : -35.7389, 144.9317 - Lat, Long To : -35.3081, 145.6149 with a Buffer of 50 meters. Additional Info : background information. Number of Aboriginal sites and Aboriginal objects found is 92**

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NSW GOVERNMENT

# AHIMS Web Services (AWS)

## Extensive search - Site list report

Your Ref/PO Number : Tarleigh and Currawarra
Client Service ID : 276109

| SiteID | SiteName | Datum | Zone | Easting | Northing | Context | Site Status | SiteFeatures | SiteTypes | Reports |
|---|---|---|---|---|---|---|---|---|---|---|
| | Contact | Recorders | ASRSYS | | | | | Permits | | |
| 54-6-0013 | Tuppal Channel; | AGD | 55 | 339972 | 6056597 | Open site | Valid | Artefact : - | Open Camp Site | 884 |
| | Contact | Recorders | ASRSYS | | | | | Permits | | |
| 54-6-0014 | Tuppal Channel; | AGD | 55 | 340000 | 6053854 | Open site | Valid | Artefact : - | Open Camp Site | 884 |
| | Contact | Recorders | ASRSYS | | | | | Permits | | |
| 55-4-0195 | Lagunyah 1 | AGD | 55 | 370300 | 6045100 | Open site | Valid | Modified Tree (Carved or Scarred) : - | Scarred Tree | 3656 |
| | Contact | Recorders | Ms.Vanessa Edmonds | | | | | Permits | | |
| 54-3-0008 | D D #4; | AGD | 55 | 340000 | 6070300 | Open site | Valid | Modified Tree (Carved or Scarred) : - | Scarred Tree | 1326 |
| | Contact | Recorders | J Carroll,George McIntyre | | | | | Permits | | |
| 54-3-0009 | D D #7; | AGD | 55 | 343800 | 6091300 | Open site | Valid | Modified Tree (Carved or Scarred) : - | Scarred Tree | 1326 |
| | Contact | Recorders | J Carroll,George McIntyre | | | | | Permits | | |
| 54-3-0020 | Wollamai West | AGD | 55 | 344750 | 6075450 | Open site | Valid | Artefact : - | | |
| | Contact | Recorders | Helen Cekalovic | | | | | Permits | | |
| 55-1-0026 | Booroobanilly 1 | AGD | 55 | 371750 | 6074250 | Open site | Valid | Hearth : 1 | | |
| | Contact | Recorders | Harvey Johnston | | | | | Permits | | |
| 54-6-0010 | Deniliquin | AGD | 55 | 315625 | 6068236 | Open site | Valid | Burial : - | Burial/s | 884,1216 |
| | Contact | Recorders | ASRSYS | | | | | Permits | | |
| 54-6-0042 | South Deliniquin 4 | AGD | 55 | 315990 | 6064390 | Open site | Valid | Modified Tree (Carved or Scarred) : - | Scarred Tree | 3665 |
| | Contact | Recorders | Ms.Vanessa Edmonds | | | | | Permits | | |
| 54-5-0197 | DMA1 | AGD | 55 | 316198 | 6059159 | Open site | Valid | Modified Tree (Carved or Scarred) : 1 | | |
| | Contact | Recorders | Navin Officer Heritage Consultants Pty Ltd | | | | | Permits | | |
| 54-5-0198 | DMA2 | AGD | 55 | 317618 | 6060291 | Open site | Valid | Modified Tree (Carved or Scarred) : 1 | | |
| | Contact | Recorders | Navin Officer Heritage Consultants Pty Ltd | | | | | Permits | | |
| 54-5-0199 | DMA3 | AGD | 55 | 317539 | 6060095 | Open site | Valid | Modified Tree (Carved or Scarred) : 1 | | |
| | Contact | Recorders | Navin Officer Heritage Consultants Pty Ltd | | | | | Permits | | |

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## AHIMS Web Services (AWS)

**Extensive search - Site list report**

Your Ref/PO Number : Tarleigh and Currawarra
Client Service ID : 276109

| SiteID | SiteName | Datum | Zone | Easting | Northing | Context | Site Status | SiteFeatures | SiteTypes | Reports |
|---|---|---|---|---|---|---|---|---|---|---|
| 54-5-0200 | DMA4 | GDA | 55 | 317559 | 6060062 | Open site | Valid | Modified Tree (Carved or Scarred) : 1 | | |
| | Contact | Recorders | Navin Officer Heritage Consultants Pty Ltd | | | | | Permits | | |
| 54-5-0201 | DMA5 | AGD | 55 | 316163 | 6059178 | Open site | Valid | Modified Tree (Carved or Scarred) : 1 | | |
| | Contact | Recorders | Navin Officer Heritage Consultants Pty Ltd | | | | | Permits | | |
| 54-5-0202 | DMA6 | GDA | 55 | 316194 | 6059156 | Open site | Valid | Modified Tree (Carved or Scarred) : 1 | | |
| | Contact | Recorders | Navin Officer Heritage Consultants Pty Ltd | | | | | Permits | | |
| 54-6-0054 | Wallamunga Scar Tree 7 | GDA | 55 | 342081 | 6069717 | Open site | Valid | Modified Tree (Carved or Scarred) : - | | |
| | Contact | Recorders | Ms.Gaye Sutherland,Yorta Yorta Nation Aboriginal Corporation | | | | | Permits | | |
| 54-6-0055 | Wallamunga Scar Tree 8 | GDA | 55 | 342297 | 6069708 | Open site | Valid | Modified Tree (Carved or Scarred) : - | | |
| | Contact | Recorders | Ms.Gaye Sutherland,Yorta Yorta Nation Aboriginal Corporation | | | | | Permits | | |
| 54-6-0056 | Wallamunga Scar Tree 9 | GDA | 55 | 342298 | 6069698 | Open site | Valid | Modified Tree (Carved or Scarred) : - | | |
| | Contact | Recorders | Ms.Gaye Sutherland,Yorta Yorta Nation Aboriginal Corporation | | | | | Permits | | |
| 54-6-0057 | Wallamunga Scar Tree 10 | GDA | 55 | 342262 | 6069671 | Open site | Valid | Modified Tree (Carved or Scarred) : - | | |
| | Contact | Recorders | Ms.Gaye Sutherland,Yorta Yorta Nation Aboriginal Corporation | | | | | Permits | | |
| 54-6-0058 | Wallamunga Scar Tree 11 | GDA | 55 | 342269 | 6069675 | Open site | Valid | Modified Tree (Carved or Scarred) : - | | |
| | Contact | Recorders | Ms.Gaye Sutherland,Yorta Yorta Nation Aboriginal Corporation | | | | | Permits | | |
| 54-6-0059 | Wallamunga Scar Tree 12 | GDA | 55 | 341935 | 6069714 | Open site | Valid | Modified Tree (Carved or Scarred) : - | | |
| | Contact | Recorders | Ms.Gaye Sutherland,Yorta Yorta Nation Aboriginal Corporation | | | | | Permits | | |
| 54-6-0060 | Wallamunga Aboriginal Mound 2 | GDA | 55 | 342161 | 6069776 | Open site | Valid | Earth Mound : - | | |
| | Contact | Recorders | Ms.Gaye Sutherland,Yorta Yorta Nation Aboriginal Corporation | | | | | Permits | | |

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# AHIMS Web Services (AWS)

## Extensive search - Site list report

Your Ref/PO Number : Tarleigh and Currawarra
Client Service ID : 276109

| SiteID | SiteName | Datum | Zone | Easting | Northing | Context | Site Status | SiteFeatures | SiteTypes | Reports |
|---|---|---|---|---|---|---|---|---|---|---|
| 54-6-0063 | Wallamunga Scar Tree 15 | GDA | 55 | 340080 | 6069617 | Open site | Valid | Modified Tree (Carved or Scarred) : - | | |
| | Contact | Recorders | Ms.Gaye Sutherland,Yorta Yorta Nation Aboriginal Corporation | | | | | Permits | | |
| 54-6-0064 | Wallamunga Scar Tree 17 | GDA | 55 | 340260 | 6069310 | Open site | Valid | Modified Tree (Carved or Scarred) : - | | |
| | Contact | Recorders | Ms.Gaye Sutherland,Yorta Yorta Nation Aboriginal Corporation | | | | | Permits | | |
| 54-6-0065 | Wallamunga Scar Tree 13 | GDA | 55 | 341414 | 6069903 | Open site | Valid | Modified Tree (Carved or Scarred) : - | | |
| | Contact | Recorders | Ms.Gaye Sutherland,Yorta Yorta Nation Aboriginal Corporation | | | | | Permits | | |
| 54-6-0066 | Wallamunga scar Tree 16 | GDA | 55 | 340233 | 6069384 | Open site | Valid | Modified Tree (Carved or Scarred) : - | | |
| | Contact | Recorders | Ms.Gaye Sutherland,Yorta Yorta Nation Aboriginal Corporation | | | | | Permits | | |
| 54-6-0067 | Wallamunga Aboriginal Mound 4 | GDA | 55 | 341344 | 6069941 | Open site | Valid | Earth Mound : - | | |
| | Contact | Recorders | Ms.Gaye Sutherland,Yorta Yorta Nation Aboriginal Corporation | | | | | Permits | | |
| 54-6-0068 | Wallamunga Artefact Scatter 2 | GDA | 55 | 340031 | 6069438 | Open site | Valid | Artefact : - | | |
| | Contact | Recorders | Ms.Gaye Sutherland,Yorta Yorta Nation Aboriginal Corporation | | | | | Permits | | |
| 54-6-0069 | Wallamunga Aboriginal Mound 6 | GDA | 55 | 340293 | 6069255 | Open site | Valid | Earth Mound : - | | |
| | Contact | Recorders | Ms.Gaye Sutherland,Yorta Yorta Nation Aboriginal Corporation | | | | | Permits | | |
| 54-6-0070 | Wallamunga Aboriginal Mound 5 | GDA | 55 | 340098 | 6069540 | Open site | Valid | Earth Mound : - | | |
| | Contact | Recorders | Ms.Gaye Sutherland,Yorta Yorta Nation Aboriginal Corporation | | | | | Permits | | |
| 54-6-0071 | Wallamunga Scar Tree 14 | GDA | 55 | 341530 | 6069905 | Open site | Valid | Modified Tree (Carved or Scarred) : - | | |
| | Contact | Recorders | Ms.Gaye Sutherland,Yorta Yorta Nation Aboriginal Corporation | | | | | Permits | | |
| 54-6-0047 | Wallamunga Aboriginal Mound 1 | GDA | 55 | 342256 | 6069750 | Open site | Valid | Earth Mound : - | | |
| | Contact | Recorders | Ms.Gaye Sutherland,Yorta Yorta Nation Aboriginal Corporation | | | | | Permits | | |
| 54-6-0048 | Wallamunga Scar Tree 5 | GDA | 55 | 342110 | 6069773 | Open site | Valid | Modified Tree (Carved or Scarred) : - | | |
| | Contact | Recorders | Ms.Gaye Sutherland,Yorta Yorta Nation Aboriginal Corporation | | | | | Permits | | |
| 54-6-0049 | Wallamunga Scar Tree 6 | GDA | 55 | 342128 | 6069732 | Open site | Valid | Modified Tree (Carved or Scarred) : - | | |
| | Contact | Recorders | Ms.Gaye Sutherland,Yorta Yorta Nation Aboriginal Corporation | | | | | Permits | | |

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# AHIMS Web Services (AWS)

## Extensive search - Site list report

Your Ref/PO Number : Tarleigh and Currawarra

Client Service ID : 276109

| SiteID | SiteName | Datum | Zone | Easting | Northing | Context | Site Status | SiteFeatures | SiteTypes | Reports |
|---|---|---|---|---|---|---|---|---|---|---|
| 54-6-0050 | Wallamunga Scar Tree 1 | GDA | 55 | 342219 | 6069642 | Open site | Valid | Aboriginal Resource and Gathering : -, Modified Tree (Carved or Scarred) : - | | |
| | Contact | Recorders | Ms.Gaye Sutherland,Yorta Yorta Nation Aboriginal Corporation | | | | | Permits | | |
| 54-6-0051 | Wallamunga Scar Tree 3 | GDA | 55 | 342232 | 6069706 | Open site | Valid | Modified Tree (Carved or Scarred) : - | | |
| | Contact | Recorders | Ms.Gaye Sutherland,Yorta Yorta Nation Aboriginal Corporation | | | | | Permits | | |
| 54-6-0052 | Wallamunga Scar Tree 4 | GDA | 55 | 342169 | 6069758 | Open site | Valid | Modified Tree (Carved or Scarred) : - | | |
| | Contact | Recorders | Ms.Gaye Sutherland,Yorta Yorta Nation Aboriginal Corporation | | | | | Permits | | |
| 54-6-0053 | Wallamunga Scar Tree 2 | GDA | 55 | 342205 | 6069691 | Open site | Valid | Modified Tree (Carved or Scarred) : - | | |
| | Contact | Recorders | Ms.Gaye Sutherland,Yorta Yorta Nation Aboriginal Corporation | | | | | Permits | | |
| 54-5-0246 | Bkcrtre1 | GDA | 55 | 316460 | 6067323 | Open site | Valid | Modified Tree (Carved or Scarred) : - | | |
| | Contact | Recorders | Murray Catchment Management Authority (CMA),Miss.Maureen Zeschke | | | | | Permits | | |
| 54-5-0241 | Scar Tree, Corkscrew Scar | GDA | 55 | 315908 | 6067861 | Open site | Valid | Modified Tree (Carved or Scarred) : 1 | | |
| | Contact Yarkuwa Indigenous Knowled | Recorders | Mr.Mick Lalor | | | | | Permits | | |
| 54-5-0242 | Large Coolamon | GDA | 55 | 315874 | 6067996 | Open site | Valid | Modified Tree (Carved or Scarred) : 1 | | |
| | Contact | Recorders | Mr.Mick Lalor | | | | | Permits | | |
| 54-5-0243 | Ring Tree, large grey box next to road | GDA | 55 | 315464 | 6067605 | Open site | Valid | Modified Tree (Carved or Scarred) : 1 | | |
| | Contact | Recorders | Mr.Mick Lalor | | | | | Permits | | |
| 54-5-0244 | Coolamon | GDA | 55 | 315913 | 6067973 | Open site | Valid | Modified Tree (Carved or Scarred) : 1 | | |
| | Contact | Recorders | Mr.Mick Lalor | | | | | Permits | | |
| 54-6-0061 | Wallamunga Artefact 1 | GDA | 55 | 340235 | 6069441 | Open site | Valid | Artefact : - | | |
| | Contact | Recorders | Ms.Gaye Sutherland,Yorta Yorta Nation Aboriginal Corporation | | | | | Permits | | |

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Office of Environment & Heritage

# AHIMS Web Services (AWS)

## Extensive search - Site list report

Your Ref/PO Number : Tarleigh and Currawarra

Client Service ID : 276109

| SiteID | SiteName | Datum | Zone | Easting | Northing | Context | Site Status | SiteFeatures | SiteTypes | Reports |
|---|---|---|---|---|---|---|---|---|---|---|
| 54-6-0062 | Wallunga Aboriginal Mound 3 | GDA | 55 | 341367 | 6070013 | Open site | Valid | Earth Mound : - | | |
| | Contact | Recorders | Ms.Gaye Sutherland,Yorta Yorta Nation Aboriginal Corporation | | | | | Permits | | |
| 54-6-0073 | Wallamunga Swamp 1 | GDA | 55 | 342339 | 6069667 | Open site | Valid | Aboriginal Resource and Gathering : -, Earth Mound : - | | |
| | Contact | Recorders | Ms.Julia Cusack | | | | | Permits | | |
| 54-6-0072 | Wallamunga Swamp East 2 | GDA | 55 | 342174 | 6069670 | Open site | Valid | Aboriginal Resource and Gathering : -, Earth Mound : - | | |
| | Contact | Recorders | Ms.Julia Cusack | | | | | Permits | 3737 | |
| 54-3-0021 | MVNP-Tholobin-Modified Tree | GDA | 55 | 329442 | 6085634 | Open site | Valid | Modified Tree (Carved or Scarred) : - | | |
| | Contact | Recorders | Mr.Mick Lalor | | | | | Permits | | |
| 54-3-0022 | MVNP-Tholobin-Modified Tree Food Gathering | GDA | 55 | 329650 | 6085148 | Open site | Valid | Modified Tree (Carved or Scarred) : 1 | | |
| | Contact | Recorders | Mr.Mick Lalor | | | | | Permits | | |
| 54-6-0076 | TCRTRE01 | GDA | 55 | 323364 | 6056153 | Open site | Valid | Modified Tree (Carved or Scarred) : - | | |
| | Contact | Recorders | Murray Catchment Management Authority (CMA),Miss.Maureen Zeschke | | | | | Permits | | |

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# APPENDIX C AHIMS SITE CARDS

Name: Tuppal Channel Site no. 54-6-12

SITE SURVEY DATA FORM

OPEN - OVEN

PROJECT : Murray Valley Survey RECORDER : R.A.Buchan DATE 6/11/73.

NAME OF PROPERTY : 'Caromar' OWNER : Mr J Edwards. ADDRESS :

OCCUPANT : As above

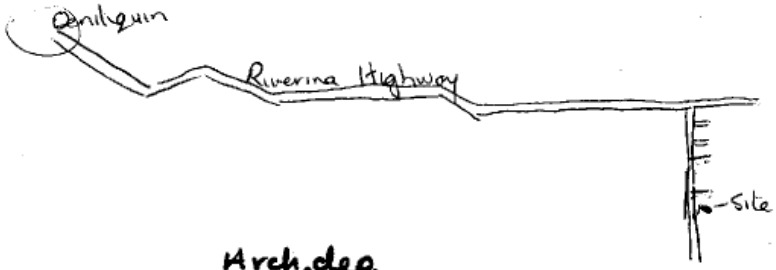
STATUS OF LAND : Freehold LOCALITY : County of Townsend

MAP REFERENCES : TOPOGRAPHICAL : ST55-13 CADASTRAL : Parish of Warrawool Portion 32, NW corne

Map Deniliquin 32356035

DIRECTIONS TO SITE (including sketch map) :

Take Riverina Highway east from Deniliquin. 21 Km from Deniliquin, turn south off the highway and proceed for 3 Km to a track on the east side of the road. Site is in the paddock just south of the track.




TYPE OF SITE : ~~Oven~~ Arch.dep. NAME OF SITE : SITE NO. : To 73

DATUM :

DIMENSIONS OF SITE : 10m by 6m in area. 10cm High.

DESCRIPTION OF SITE : Oven

Small, disturbed oven in pasture.

54-6-0012

0

NATURE OF DEPOSIT :

Soft, dark, friable, silty. Small pieces of grey-coloured ~~xxxx~~ baked clay are throughout the deposit.

ASSOCIATIONS :

Name : Tuppal Channel

Site no 54-6-13

SITE SURVEY DATA FORM

OPEN - OVEN

PROJECT : Murray Valley Survey RECORDER : R.A.Buchan DATE 6/11/73

NAME OF PROPERTY : 'Caromar' OWNER : Mr J Edwards ADDRESS :

OCCUPANT : As above

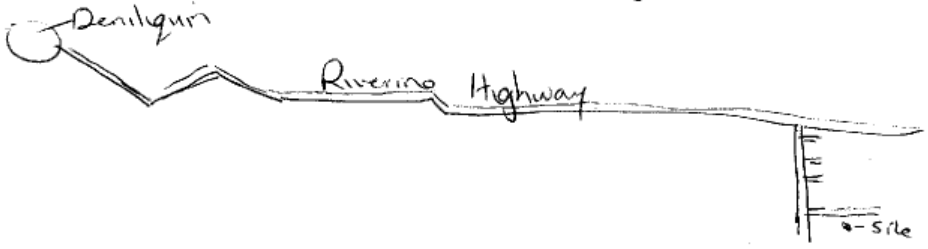
STATUS OF LAND : Freehold LOCALITY : County of Townsend

MAP REFERENCES : TOPOGRAPHICAL : SI55-13 824603 CADASTRAL : Parish of Warrawool Portion 32, north central part

Map Deniliquin

DIRECTIONS TO SITE (including sketch map) :

Take the Riverina Highway east from Deniliquin. 24 Km from Deniliquin turn south from highway and proceed for 3 Km to a track leading east. Follow track for c. 800m. Site is in pasture just to the south of the track.




TYPE OF SITE : OPEN : OVEN NAME OF SITE : SITE NO. : To 75

DATUM :

DIMENSIONS OF SITE :

DESCRIPTION OF SITE :
Small, low oven in pasture.

NATURE OF DEPOSIT :
Dark, ~~friable~~ friable, consolidated. There are small pieces of grey-coloured baked clay on the surface of the site.

ASSOCIATIONS :

54-6-0013

O

Office of Environment & Heritage

# Aboriginal Site Recording Form

**AHIMS Registrar**
**PO Box 1967, Hurstville 2220 NSW**

**AHIMS site ID:** 54-6-0078 **Date recorded:** 08-09-2017

## Site Location Information

**Site name:** Tarleigh Park ST 1

**Easting:** 338268 **Northing:** 6059123 **Coordinates must be in GDA (MGA)**

**Horizontal Accuracy (m):** 5

**Zone:** 55 **Location method:** Non-Differential GPS

## Recorder Information

(The person responsible for the completion and submission of this form)

| Title | Surname | First name |
|---|---|---|
| Mr. | Barber | Matthew |

**Organisation:** 75

**Address:** Po Box 62 Fyshwick ACT 2609

**Phone:** 0407485018 **E-mail:** matthew.b@nghenvironmental.com.au

## Site Context Information

**Land Form Pattern:** Plain **Land Use:** Farming Intensive

**Land Form Unit:** Flat **Vegetation:** Revegetated

**Distance to Water (m):** 40 **Primary Report:** NGH Environmental 2017 ACHA Tarleigh Park Solar Farm

**How to get to the site:** On private property, accessed via 260 Parfreys Road, Blighty. Road is off the Riverina Highway

**Other site information:**

1

## Site location map


## Site contents information

**open/closed site:** Open **Site condition:** Poor

| Features: | Number of features | Length of feature(s) extent (m) | Width of feature (s) extent (m) | Scarred Trees: Scar Depth (cm) | Regrowth (cm) | Scar shape | Tree Species |
|---|---|---|---|---|---|---|---|
| 1. Modified Tree | 1 | | | 6 | 0 | 30 | 14.9 |
| | | | | Oval | | | Box |

Description:

Small oval scar on trunk, scar approximately 1m above ground surface, tree fallen and dead, a single axe mark noted.The tree is approximately 10m in height and is located along the properties northern fence line. The tree appears to have fallen naturally.

| Features: | Number of features | Length of feature(s) extent (m) | Width of feature (s) extent (m) | Scarred Trees: Scar Depth (cm) | Regrowth (cm) | Scar shape | Tree Species |
|---|---|---|---|---|---|---|---|
| 2. | | | | | | | |

Description:

2

| Features: | Number of features | Length of feature(s) extent (m) | Width of feature (s) extent (m) | Scarred Trees: Scar Depth (cm) | Regrowth (cm) | Scar shape | Tree Species |
|---|---|---|---|---|---|---|---|
| 3. | | | | | | | |

Description:

| Features: | Number of features | Length of feature(s) extent (m) | Width of feature (s) extent (m) | Scarred Trees: Scar Depth (cm) | Regrowth (cm) | Scar shape | Tree Species |
|---|---|---|---|---|---|---|---|
| 4. | | | | | | | |

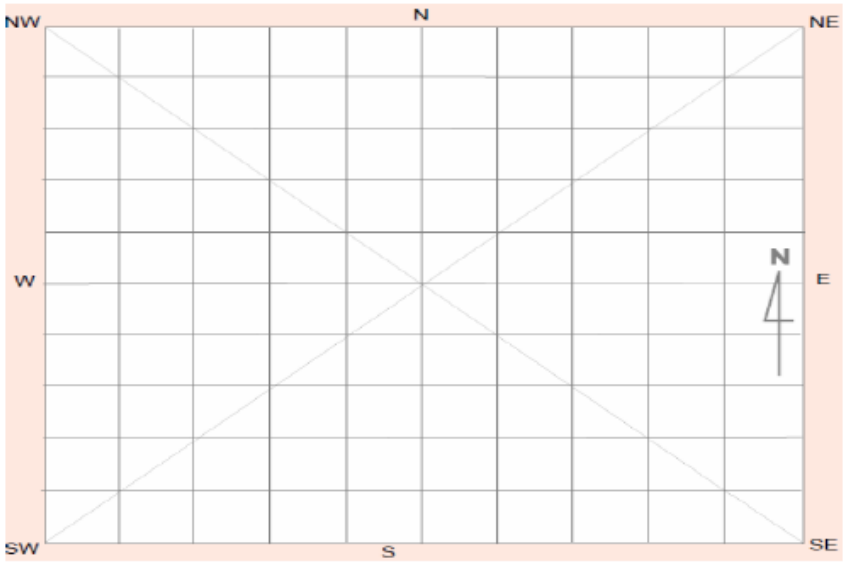
Description:

| Features: | Number of features | Length of feature(s) extent (m) | Width of feature (s) extent (m) | Scarred Trees: Scar Depth (cm) | Regrowth (cm) | Scar shape | Tree Species |
|---|---|---|---|---|---|---|---|
| 5. | | | | | | | |

Description:

Other Site Info:

**Site plan**




3

## Site photographs

Description: Close up of Tarleigh Park Scarred Tree 1.

Description: View west of Tarleigh Parks Scarred Tree 1.

Description: View north- west of Tarleigh Parks Scarred Tree 1

Description:

## Site restrictions

Do you want to Restrict this site?:

Restriction type: Gender General Location

Why is this site restricted?:

## Further information contact

Title Surname First name

Organisation:

Address:

Phone: E-mail:

4

NSW GOVERNMENT Office of Environment & Heritage

# Aboriginal Site Recording Form

**AHIMS Registrar**
**PO Box 1967, Hurstville 2220 NSW**

**AHIMS site ID:** 54-6-0079 **Date recorded:** 08-09-2017

## Site Location Information

**Site name:** Tarleigh Park ST 2

**Easting:** 338985 **Northing:** 6059030 **Coordinates must be in GDA (MGA)**

**Horizontal Accuracy (m):** 5

**Zone:** 55 **Location method:** Non-Differential GPS

## Recorder Information

(The person responsible for the completion and submission of this form)

| Title | Surname | First name |
|---|---|---|
| Mr. | Barber | Matthew |

**Organisation:** 75

**Address:** Po Box 62 Fyshwick ACT 2609

**Phone:** 0407485018 **E-mail:** matthew.b@nghenvironmental.com.au

## Site Context Information

**Land Form Pattern:** Plain **Land Use:** Farming Intensive

**Land Form Unit:** Flat **Vegetation:** Revegetated

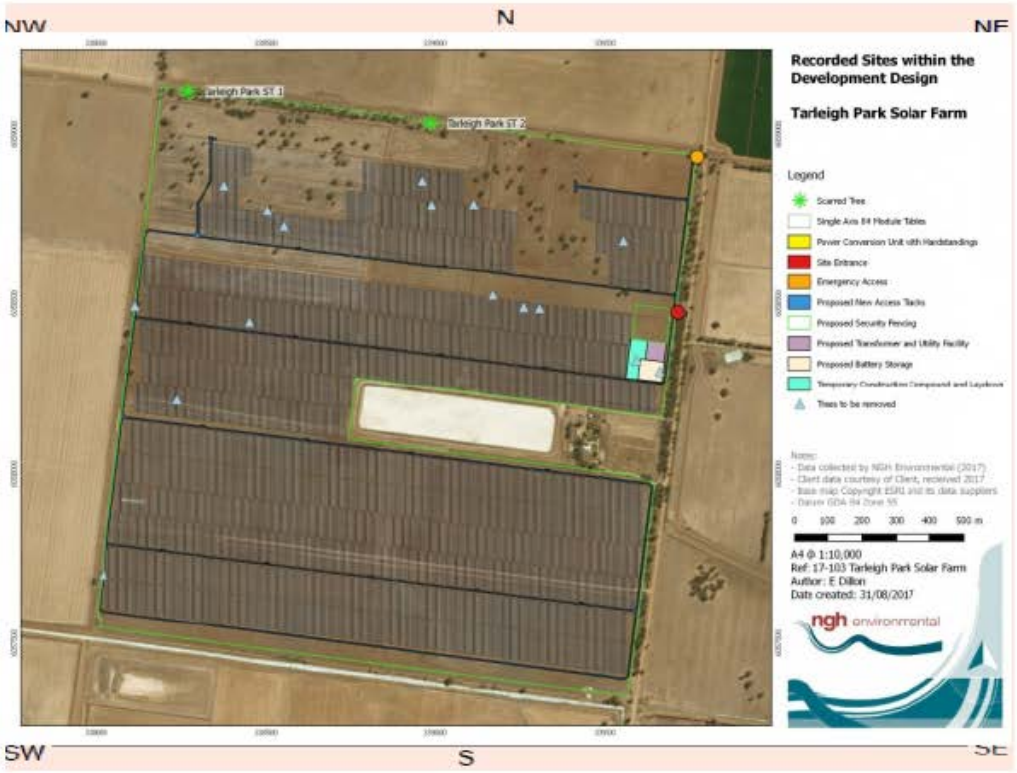
**Distance to Water (m):** 40 **Primary Report:** NGH Environmental 2017 ACHA Tarleigh Park Solar Farm

**How to get to the site:** On private property, accessed via 260 Parfreys Road, Blighty. Road is off the Riverina Highway

**Other site information:**

1

## Site location map




## Site contents information

**open/closed site:** Open **Site condition:** Limb Fall

| Features: | Number of features | Length of feature(s) extent (m) | Width of feature (s) extent (m) | Scarred Trees: Scar Depth (cm) | Regrowth (cm) | Scar shape | Tree Species |
|---|---|---|---|---|---|---|---|
| 1. Modified Tree | 1 | | | 5 | 0 | 59 | 26 |
| | | | | Oval | | | Box |

Description:

Oval scar on trunk facing south-east, scar approximately 95cm above ground surface, two axe mark noted, circumference of trunk 3.12m. ). The tree is located along the properties northern fence line and is approximately 10m in height. Tree had a number of dead branches and partially fallen limbs

| Features: | Number of features | Length of feature(s) extent (m) | Width of feature (s) extent (m) | Scarred Trees: Scar Depth (cm) | Regrowth (cm) | Scar shape | Tree Species |
|---|---|---|---|---|---|---|---|
| 2. | | | | | | | |

Description:

2

| Features: | Number of features | Length of feature(s) extent (m) | Width of feature (s) extent (m) | Scarred Trees: Scar Depth (cm) | Regrowth (cm) | Scar shape | Tree Species |
|---|---|---|---|---|---|---|---|
| 3. | | | | | | | |

Description:

| Features: | Number of features | Length of feature(s) extent (m) | Width of feature (s) extent (m) | Scarred Trees: Scar Depth (cm) | Regrowth (cm) | Scar shape | Tree Species |
|---|---|---|---|---|---|---|---|
| 4. | | | | | | | |

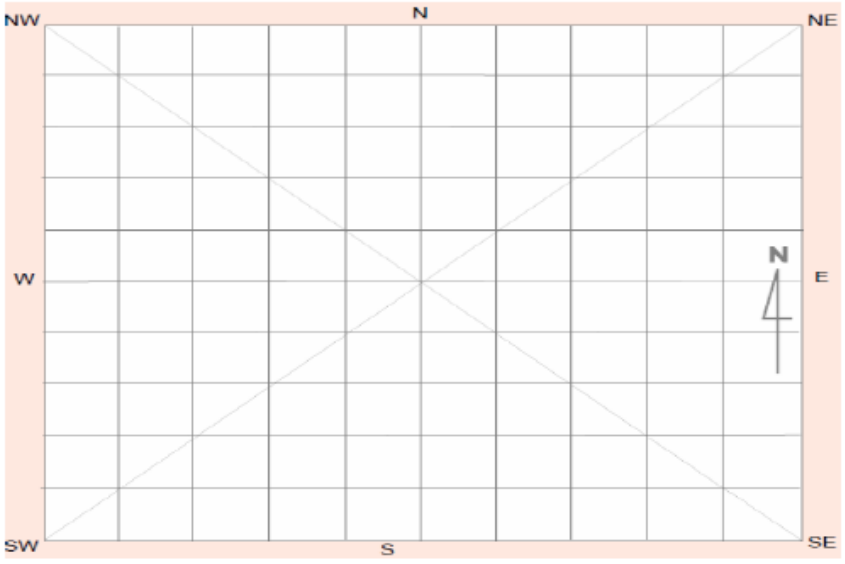
Description:

| Features: | Number of features | Length of feature(s) extent (m) | Width of feature (s) extent (m) | Scarred Trees: Scar Depth (cm) | Regrowth (cm) | Scar shape | Tree Species |
|---|---|---|---|---|---|---|---|
| 5. | | | | | | | |

Description:

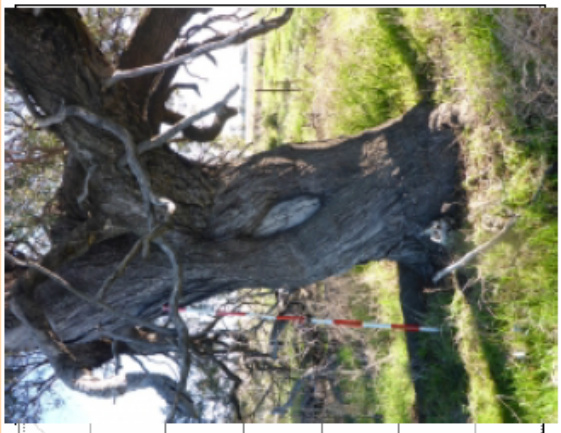
Other Site Info:

**Site plan**

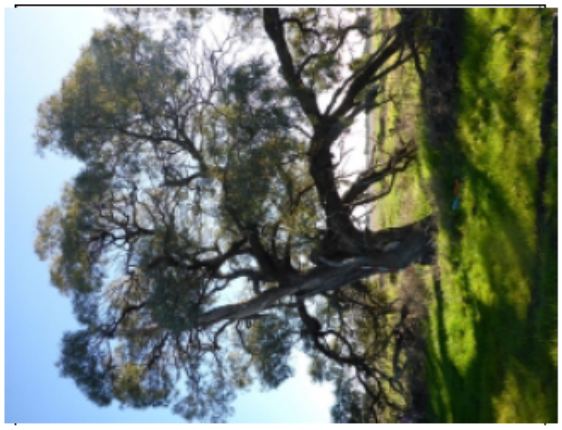



3

## Site photographs



Description: Close up of Tarleigh Parks Scarred Tree 2



Description: View northwest of Tarleigh Parks Scarred Tree 2.

Description:

Description:

## Site restrictions

Do you want to Restrict this site?:

Restriction type: Gender General Location

Why is this site restricted?:

## Further information contact

Title Surname First name

Organisation:

Address:

Phone: E-mail:

4

# APPENDIX D UPDATED BIOBANKING CREDIT REPORT

# *Biodiversity credit report*

**This report identifies the number and type of biodiversity credits required for a major project.**

Date of report: 8/03/2018 Time: 11:25:50AM Calculator version: v4.0

## Major Project details

| | |
|---|---|
| **Proposal ID:** | 0035/2017/4338MP |
| **Proposal name:** | Tarleigh solar farm 2 |
| **Proposal address:** | Parfreys Road, Blighty, Blighty NSW 2713 |
| **Proponent name:** | RES Australia PTY LTD |
| **Proponent address:** | Suite 4 Level 1 760 Pacific Highway Chatswood NSW 2067 NSW 2067 |
| **Proponent phone:** | 0400 210 325 |
| **Assessor name:** | Brooke Marshall |
| **Assessor address:** | 1/216 Carp St Bega NSW 2250 |
| **Assessor phone:** | 64928333 |
| **Assessor accreditation:** | 0035 |

## Summary of ecosystem credits required

| Plant Community type | Area (ha) | Credits created |
|---|---|---|
| Black Box grassy open woodland wetland of rarely flooded depressions in south western NSW (mainly Riverina Bioregion and Murray Darling Depression Bioregion) | 0.02 | 0.14 |
| Black Box open woodland wetland with chenopod understorey mainly on the outer floodplains in south-western NSW (mainly Riverina Bioregion and Murray Darling Depression Bioregion) | 1.73 | 11.00 |
| Western Grey Box tall grassy woodland on alluvial loam and clay soils in the NSW South Western Slopes and Riverina Bioregions | 0.93 | 1.41 |
| **Total** | 2.68 | 13 |

## Credit profiles

**1. Western Grey Box tall grassy woodland on alluvial loam and clay soils in the NSW South Western Slopes and Riverina Bioregions, (MU555)**

| | |
|---|---|
| Number of ecosystem credits created | 0 |
| IBRA sub-region | MU Fans |

| Offset options - Plant Community types | Offset options - IBRA sub-regions |
|---|---|
| Western Grey Box tall grassy woodland on alluvial loam and clay soils in the NSW South Western Slopes and Riverina Bioregions, (MU555) | MU Fans<br>and any IBRA subregion that adjoins the IBRA subregion in which the development occurs |

**2. Western Grey Box tall grassy woodland on alluvial loam and clay soils in the NSW South Western Slopes and Riverina Bioregions, (MU555)**

| | |
|---|---|
| Number of ecosystem credits created | 1 |
| IBRA sub-region | MU Fans |

| Offset options - Plant Community types | Offset options - IBRA sub-regions |
|---|---|
| Western Grey Box tall grassy woodland on alluvial loam and clay soils in the NSW South Western Slopes and Riverina Bioregions, (MU555) | MU Fans<br>and any IBRA subregion that adjoins the IBRA subregion in which the development occurs |

**3. Black Box grassy open woodland wetland of rarely flooded depressions in south western NSW (mainly Riverina Bioregion and Murray Darling Depression Bioregion), (MU514)**

| | |
|---|---|
| Number of ecosystem credits created | 0 |
| IBRA sub-region | MU Fans |

| Offset options - Plant Community types | Offset options - IBRA sub-regions |
|---|---|
| Black Box grassy open woodland wetland of rarely flooded depressions in south western NSW (mainly Riverina Bioregion and Murray Darling Depression Bioregion), (MU514)<br><br>Black Box - Lignum woodland wetland of the inner floodplains in the semi-arid (warm) climate zone (mainly Riverina Bioregion and Murray Darling Depression Bioregion), (MU513)<br><br>Black Box open woodland wetland with chenopod understorey mainly on the outer floodplains in south-western NSW (mainly Riverina Bioregion and Murray Darling Depression Bioregion), (MU515) | MU Fans<br>and any IBRA subregion that adjoins the IBRA subregion in which the development occurs |

**4. Black Box open woodland wetland with chenopod understorey mainly on the outer floodplains in south-western NSW (mainly Riverina Bioregion and Murray Darling Depression Bioregion), (MU515)**

| | |
|---|---|
| Number of ecosystem credits created | 3 |
| IBRA sub-region | MU Fans |

| Offset options - Plant Community types | Offset options - IBRA sub-regions |
|---|---|
| Black Box open woodland wetland with chenopod understorey mainly on the outer floodplains in south-western NSW (mainly Riverina Bioregion and Murray Darling Depression Bioregion), (MU515)<br><br>Black Box - Lignum woodland wetland of the inner floodplains in the semi-arid (warm) climate zone (mainly Riverina Bioregion and Murray Darling Depression Bioregion), (MU513) | MU Fans<br>and any IBRA subregion that adjoins the IBRA subregion in which the development occurs |

**5. Black Box open woodland wetland with chenopod understorey mainly on the outer floodplains in south-western NSW (mainly Riverina Bioregion and Murray Darling Depression Bioregion), (MU515)**

| | |
|---|---|
| Number of ecosystem credits created | 8 |
| IBRA sub-region | MU Fans |

| Offset options - Plant Community types | Offset options - IBRA sub-regions |
|---|---|
| Black Box open woodland wetland with chenopod understorey mainly on the outer floodplains in south-western NSW (mainly Riverina Bioregion and Murray Darling Depression Bioregion), (MU515)<br><br>Black Box - Lignum woodland wetland of the inner floodplains in the semi-arid (warm) climate zone (mainly Riverina Bioregion and Murray Darling Depression Bioregion), (MU513) | MU Fans<br>and any IBRA subregion that adjoins the IBRA subregion in which the development occurs |

## Summary of species credits required

# BioBanking Credit Calculator

## Ecosystem credits

| | |
|---|---|
| Proposal ID : | 0035/2017/4338MP |
| Proposal name : | Tarleigh solar farm 2 |
| Assessor name : | Brooke Marshall |
| Assessor accreditation number : | 0035 |
| Tool version : | v4.0 |
| Report created : | 08/03/2018 11:26 |

| Assessment circle name | Landscape score | Vegetation zone name | Vegetation type name | Condition | Red flag status | Management zone name | Management zone area | Current site value | Future site value | Loss in site value | Credit required for bio diversity | Credit required for TS | TS with highest credit requirement | Average species loss | Species TG Value | Final credit requirement for management zone |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| one | 3.00 | MU515_Moderate/Good | Black Box open woodland wetland with chenopod understorey mainly on the outer floodplains in south-western NSW (mainly Riverina Bioregion and Murray Darling Depression Bioregion) | Moderate/Good | Yes | 1 | 0.10 | 62.89 | 0.00 | 62.89 | 0 | 3 | Little Pied Bat | 66.67 | 2.10 | 3 |
| one | 3.00 | MU515_Low | Black Box open woodland wetland with chenopod understorey mainly on the outer floodplains in south-western NSW (mainly Riverina Bioregion and Murray Darling Depression Bioregion) | Low | No | 1 | 1.30 | 6.67 | 0.00 | 6.67 | 0 | 0 | | 0.00 | 0.00 | 0 |
| one | 3.00 | MU515_Moderate/Good_Poor | Black Box open woodland wetland with chenopod understorey mainly on the outer floodplains in south-western NSW (mainly Riverina Bioregion and Murray Darling Depression Bioregion) | Moderate/Good_Poor | Yes | 1 | 0.33 | 44.67 | 0.00 | 44.67 | 0 | 8 | Little Pied Bat | 11.11 | 2.10 | 8 |
| one | 3.00 | MU555_Low | Western Grey Box tall grassy woodland on alluvial loam and clay soils in the NSW South Western Slopes and Riverina Bioregions | Low | No | 1 | 0.90 | 12.50 | 0.00 | 12.50 | 9 | 0 | | 0.00 | 0.00 | 0 |
| one | 3.00 | MU555_Moderate/Good | Western Grey Box tall grassy woodland on alluvial loam and clay soils in the NSW South Western Slopes and Riverina Bioregions | Moderate/Good | Yes | 1 | 0.03 | 61.46 | 0.00 | 61.46 | 1 | 1 | Little Pied Bat | 61.11 | 2.10 | 1 |
| one | 3.00 | MU514_Moderate/Good | Black Box grassy open woodland wetland of rarely flooded depressions in south western NSW (mainly Riverina Bioregion and Murray Darling Depression Bioregion) | Moderate/Good | Yes | 1 | 0.02 | 24.00 | 0.00 | 24.00 | 0 | 0 | Little Pied Bat | 16.67 | 2.10 | 0 |

# *BioBanking Credit Calculator*

## Species credits

Proposal ID :

Proposal name :

Assessor name :

Assessor accreditation number :

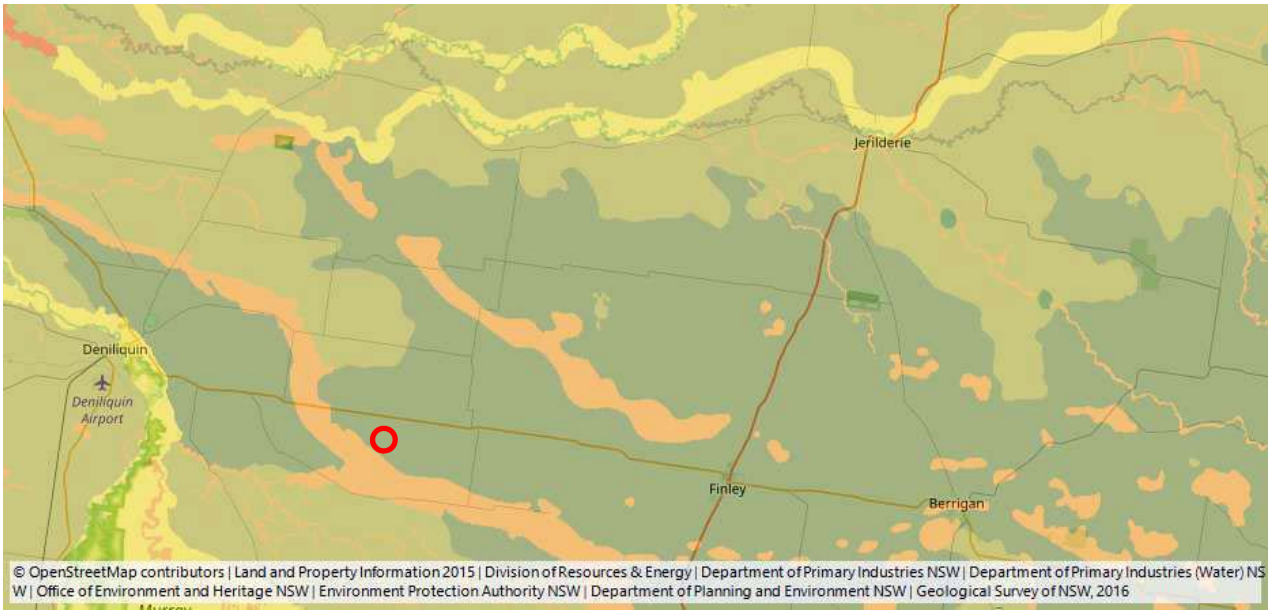
Tool version : v4.0

Report created : 08/03/2018 11:26

| Scientific name | Common name | Species TG value | Identified population? | Can Id. popn. be offset? | Area / number of loss | Negligible loss | Red flag status | Number of credits |
|---|---|---|---|---|---|---|---|---|
| | | | No | | | | | |

# APPENDIX E SOIL, CAPABILITY AND LAND USE MAPPING

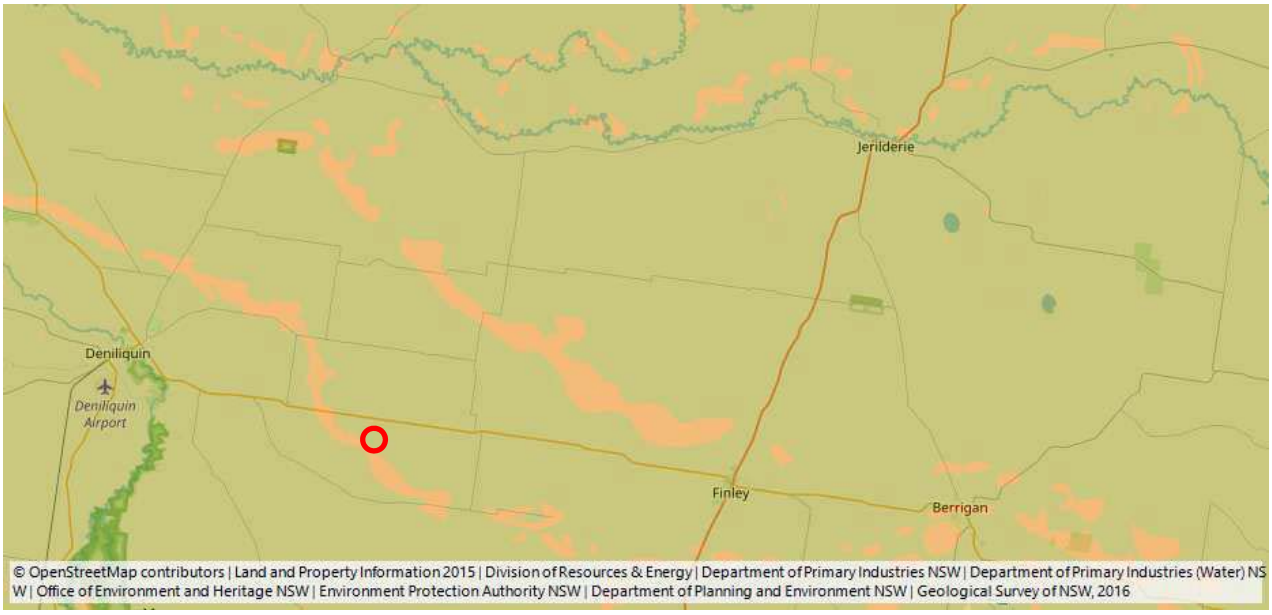
Extent of soils, land capability and land uses within the locality and sub-region from the SEED online database (NSW Government 2018). Location of proposal site indicated with red circle.




Land capability classes in the sub-region: class 3 (moderate limitations) – dark green, class 4 (moderate to severe limitations) - pale green, class 5 (severe limitations) – yellow, class 6 (very severe limitations) – orange


Dominant land uses in the locality: cropping – pale pink, grazing – pale tan


Australian Soil Classification (ASC) soil types in the sub-region: chromosols - brown, vertosols - grey, rudosols - pale tan




Inherent Soil Fertility in the sub-region: moderate fertility – green, low fertility - orange

# APPENDIX F CONSULTATION DETAILS

## Edward River Council and Doherty's Pit

Hello Raphael,

The SEAR's guides the preparation of the EIS and stipulates matters that must be addressed for the development.

Below are some additional comments you may wish to address in the EIS;

- Traffic movements during construction;
- B-Double route access does not extend to either side;
- Impact of traffic movements on local roads;
- Environmental impact on the development of primary production land during the operation of the solar farm;
- Potential impacts on adjoining primary production land; and
- Safety of the operation – potential health impacts on persons within the vicinity of the site.

In relation to the quarry located south of the Tarleigh Park farm, it is considered that any impact on Doherty's Pit would be minimal and that the only impact may be the wear and tear on Parfreys Road.

If you have any further questions please do not hesitate to contact me.

Thanks

Shavaun

From: Raphael Morgan [mailto:raphael.m@nghenvironmental.com.au]
Sent: Monday, 3 July 2017 8:47 AM
To: Marie Sutton <marie.sutton@edwardriver.nsw.gov.au>
Cc: Shavaun Tasker <shavaun.tasker@edwardriver.nsw.gov.au>
Subject: FW: Feedback request on proposed solar farm projects - Deniliquin

Hi Marie,

Thanks for your response. I will contact Shavaun to gain some feedback but happy to also receive any feedback from you when you get back.

Shavaun, please see below and attached. I am seeking any feedback on the proposed solar farms in Deniliquin as part of preparing the EIS. Please do not hesitate to contact me should you have any questions.

Best regards,

Raphael

Raphael Morgan | Manager, Sydney Region
PhD (Marine Biology) | Certified Environmental Practitioner (CEnvP)

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We tweet!

From: Marie Sutton [mailto:marie.sutton@edwardriver.nsw.gov.au]
Sent: Thursday, June 29, 2017 8:45 PM
To: Raphael Morgan <raphael.m@nghenvironmental.com.au>
Subject: Re: Feedback request on proposed solar farm projects - Deniliquin

Hi Raphael

I am on leave until 17 July 2017. If you require a response prior to this date please contact Councils planning officer Shavaun Tasker on 0358983000 or shavaun.tasker.nsw.gov.au and she will be able to assist you in this matter.

Regards

Marie Sutton

Edward River Council

On 26 Jun 2017, at 5:04 pm, Raphael Morgan <raphael.m@nghenvironmental.com.au> wrote:

Dear Marie,

We are currently preparing an environmental impact statement for two solar farm projects near Deniliquin. As per attached, we are seeking further feedback on any issues you would like us to consider in our assessment.

A response by the 7th July 2017 would be greatly appreciated.

Best regards,

Raphael

Raphael Morgan | Manager, Sydney Region
PhD (Marine Biology) | Certified Environmental Practitioner (CEnvP)

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*bathurst nsw 2795*
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*bega*
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*(po box 470)*
*bega nsw 2550*
*t 61 2 6492 8333*

*canberra*
*unit 17, 27 yallourn st*
*(po box 62)*
*fyshwick act 2609*
*t 61 2 6280 5053*
*f 61 2 6280 9387*

*newcastle*
*7/11 union st*
*newcastle west nsw 2302*
*t 61 2 4929 2301*

*wagga wagga*
*suite 1, 39 fitzmaurice st*
*(po box 5464)*
*wagga wagga nsw 2650*
*t 61 2 6971 9696*
*f 61 2 6971 9693*

*ngh@nghenvironmental.com.au*
*www.nghenvironmental.com.au*

27 June 2017

Graham Leetham
South Deni Concrete
350 Old Racecourse Rd
Deniliquin NSW 2710
southdeniconcrete@bigpond.com

Dear Graham,

**RE – Currawarra Solar Farm (SSD 8437) and Tarleigh Park Solar Farm (SSD8436)**

RES Australia Pty Ltd is seeking approval to build two utility scale solar farms:

- The Currawarra Solar Farm is approximately 26 kilometres north-east of Deniliquin, north of the Riverina Highway (B58) along Mayrung Road. The 750 hectare Currawarra Solar Farm proposal site would be located on the freehold Lot 109 DP DP756305, Lot 110 DP756305, Lot 106 DP756305, Lot 105 DP756305, Lot 28 DP756344, Lot 30 DP756344 and Lot 40 DP756344 Mayrung.
- The Tarleigh Solar Farm site is located approximately 23 kilometres east of Deniliquin, on Parfreys Road 1.6 kilometres south of the Riverina Highway (B58). The 250 hectare Tarleigh Park Solar Farm proposal site would be located on the freehold Lot 88 DP756339 Blighty.

NGH Environmental is currently preparing an Environmental Impact Statement (EIS) on behalf of RES in accordance with the obtained Secretary's Environmental Assessment Requirements (SEARs) for the Currawarra and Tarleigh Park Solar Farms.

The Department of Planning and Environment - Resource Assessment and Planning Services made us aware that the council is the operator of a quarry west of the proposed Tarleigh Park solar farm (Thorleys Pit, location attached to this letter). DP&E has requested that we specifically consult with you in regards to the quarry and if there may be any issues we need to consider as part of the EIS.

A response by the 7th July 2017 would be greatly appreciated.

Yours sincerely,

Raphael Morgan

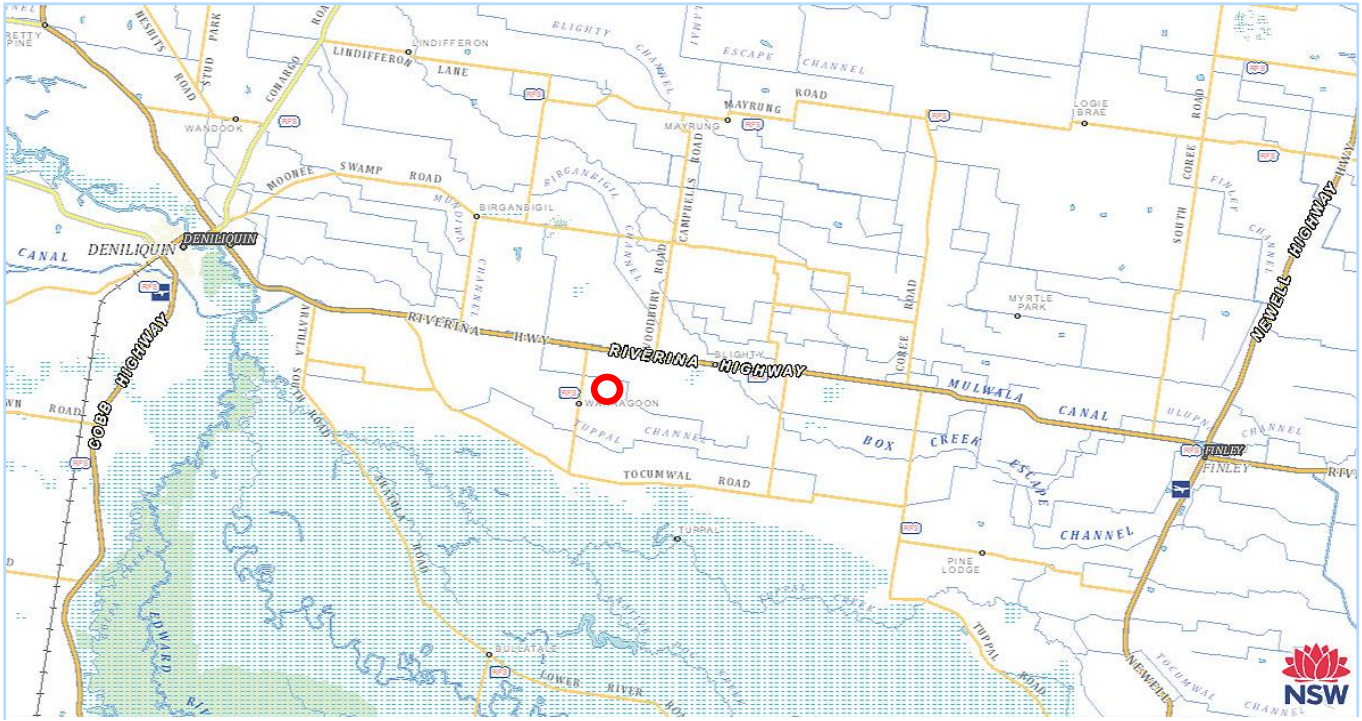
Principal Environmental Planner

+61 (0)2 8202 8333

NGH Environmental

# TARLEIGH SOLAR FARM LOCATION

**Tarleigh Park Solar Farm**




# Tarleigh Park Solar Farm Project


Date Saved: 22/05/2017 11:53:04 AM

0 0.5 1 2 3

Kilometres

N
W E
S

## Legend

- Tarleigh Park Solar Farm Project
- Construction Material Quarry (approx. location)
- Highway
- Electricity Transmission Line
- Cadastral Parcels



NSW GOVERNMENT | Planning & Environment
Resources & Geoscience