Annexure D

Oxley Solar Farm

SCOPING REPORT

OXLEY SOLAR FARM

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ACRONYMS AND ABBREVIATIONS

ABS	Australian Bureau of Statistics
ACHA	Aboriginal Cultural Heritage Assessment
AHIMS	Aboriginal heritage information management system
BC Act	*Biodiversity Conservation Act 2016*
BDAR	Biodiversity Development Assessment Report
CEC	Clean Energy Council
Cwth	Commonwealth
DP&E	Department of Planning and Environment (NSW)
DPI	Department of Primary Industries
EIS	Environmental Impact Statement
EMF	Electric and Magnetic Fields
EP&A Act	*Environmental Planning and Assessment Act 1979* (NSW)
EPA	Environment Protection Authority (NSW)
EPBC Act	*Environmental Protection and Biodiversity Conservation Act 1999* (Cwth)
ESD	Ecologically Sustainable Development
Ha	hectares
Heritage Act	*Heritage Act 1977* (NSW)
IPCN	Independent Planning Commission NSW
ISEPP	*State Environmental Planning Policy (Infrastructure) 2007* (NSW)
Km	kilometres
kV	kilovolts
LEP	Local Environment Plan
LGA	Local Government Area
M	Metres
MNES	Matters of National Environmental Significance under the EPBC Act (*c.f.*)
MW	Megawatt
NSW	New South Wales
OEH	Office of Environment and Heritage (NSW)
OSD	Oxley Solar Development
PCT	Plant Community Type
PV	Photovoltaic
RET	Renewable Energy Target
RMS	Roads and Maritime Services
SEARs	Secretary's Environmental Assessment Requirements

SEPP	State Environmental Planning Policy (NSW)
TEC	Threatened Ecological Community
VIA	Visual Impact Assessment

1 INTRODUCTION

1.1 PURPOSE OF THIS DOCUMENT

This Scoping Report provides a description of the Oxley Solar Farm proposal, including the site and its surroundings, the statutory framework for approval and identification of key potential environmental issues that may be associated with the solar farm proposal. The report has been prepared to support a request to the Department of Planning and Environment (DP&E) for the Secretary's Environmental Assessment Requirements (SEARs). These would guide the preparation of an Environmental Impact Statement (EIS) for the proposal, pursuant to Part 4 of the *Environmental Planning and Assessment Act 1979* (EP&A Act).

1.2 THE PROPONENT

Oxley Solar Farm is being proposed by proponent, Oxley Solar Development (OSD, ACN 629 954 329); a developer of utility-scale solar generation projects. OSD was founded in 2018 in Australia as a subsidiary of Solar Megawatt Holdings Pty Ltd to specialise in renewable energy developments, particularly solar projects. They take a pro-active, quality controlled and relationship-driven approach to their activities.

The company's dedicated management team is highly experienced in transmission network connection planning, renewable generation development and operation, and renewable project financing. The team has extensive experience in developing and operating utility-scale renewable generations in Australia and internationally.

2 PROPOSAL SITE DESCRIPTION

2.1 SITE CONTEXT

The Oxley Solar Farm proposal site is located on Lot 5 DP253346 and potentially Lot 2 DP1206469 and Lot 6 DP625427. The site is approximately 14km south-east of Armidale. The population of Armidale is 23,352 (ABS, 2016); it is the administrative centre for the northern tablelands region of NSW.

The discovery of gold in the mid-19th century led to the town's establishment and rich history. Town facilities include a university, TAFE, schools, hospitals, airport and it is well known for its cathedral and heritage buildings. The primary employment industries in Armidale are education, agriculture and healthcare. The surrounding land is primarily used for large lot agricultural enterprises (ABS, 2016).

The Armidale Regional LGA is located in northern New South Wales and draws approximately 750,000 visitors annually to experience various events and attractions of the region. These natural attractions include areas of wilderness and wild rivers, granite boulder formations and waterfalls within world heritage listed national parks. The area also holds significant Aboriginal heritage, including rock art sites.

2.2 THE SITE

The proposed Oxley Solar Farm would be located mostly on Lot 5 DP253346, which is approximately 600ha in area. A small portion of the solar farm, could potentially cover parts of Lot 2 DP1206469 and Lot 6 DP625427. The current access to the proposal site is from Gara Road, which is located 3.5km south of Waterfall Way (State Route 78). Gara Road connects Armidale to Metz, approximately 18km to the east (Figure 2-1).

Under the *Armidale Dumaresq Local Environmental Plan 2012*, the proposed solar farm is located on land zoned as RU1 Primary Production (Figure 2-2). Much of the proposal site has been cleared of woody vegetation and highly modified by farming practices. However, small fragments of woodland still occur.

The main waterway (Gara River) runs along the north-eastern boundary and through the centre of the proposal site. During a site visit conducted on in November, 2018, flowing water was observed in the creek. 24 constructed dams can be observed based from aerial imagery within the proposal boundaries.

Two existing transmission lines run parallel to each other, just north of Lot 5 DP253346. Both lines are currently being considered as the connection point for the proposed solar farm to the electricity grid.

Given the proximity of the proposal to the Oxley Wild Rivers National Park, consultation will be undertaken with the Office of Environmental and Heritage, particularly in relation to relevant guidelines including the *Guidelines for Developments Adjoining Land and Water Managed by DECCW* (now Office of Environment and Heritage; OEH).

The proposal site showing affected lot boundaries and land zoning are shown in Figure 2-1, Figure 2-2 and Figure 2-3. Photographs of the proposal area are provided in Appendix A.

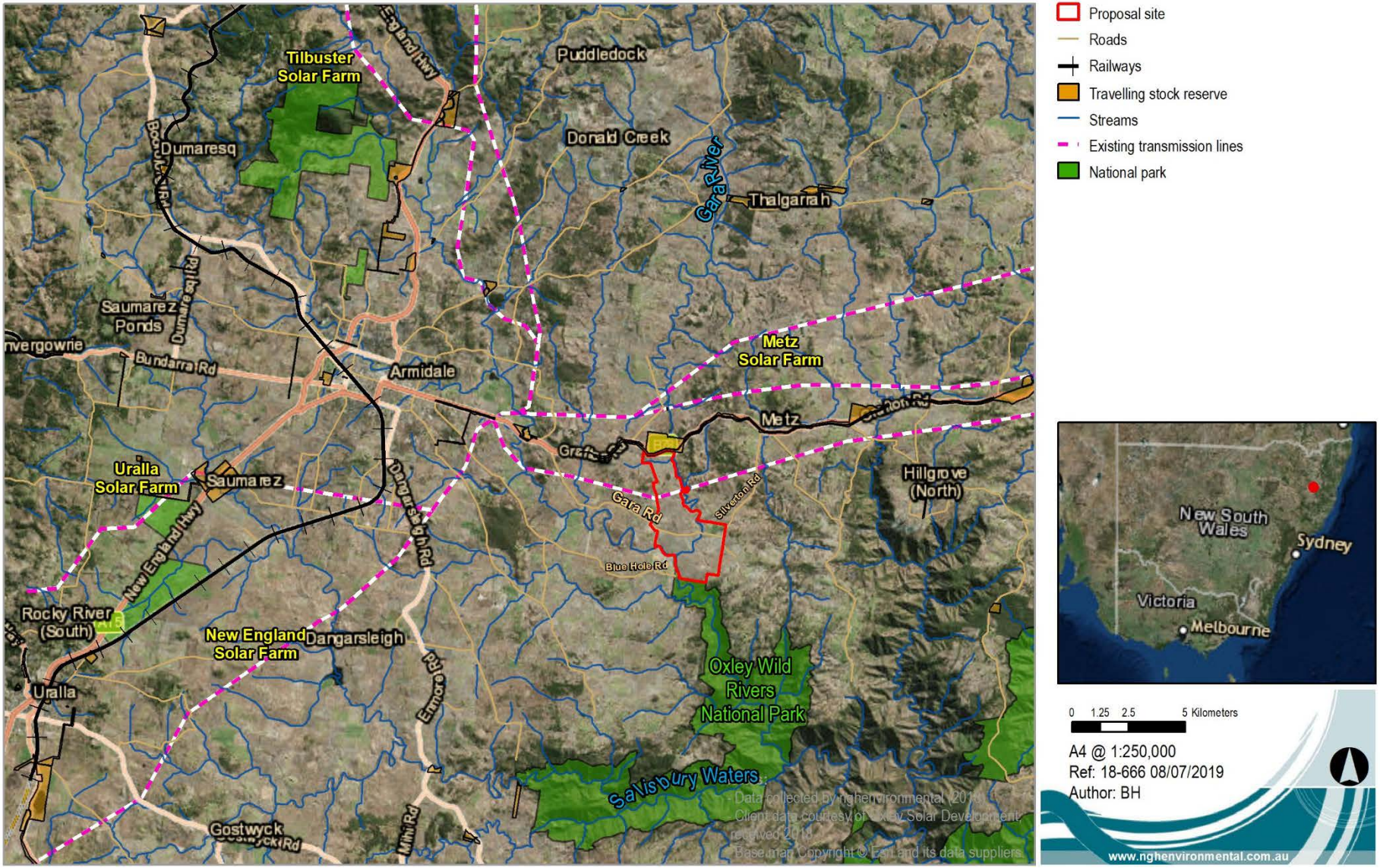

Figure 2-1 Proposal location (and proximity to nearest towns).

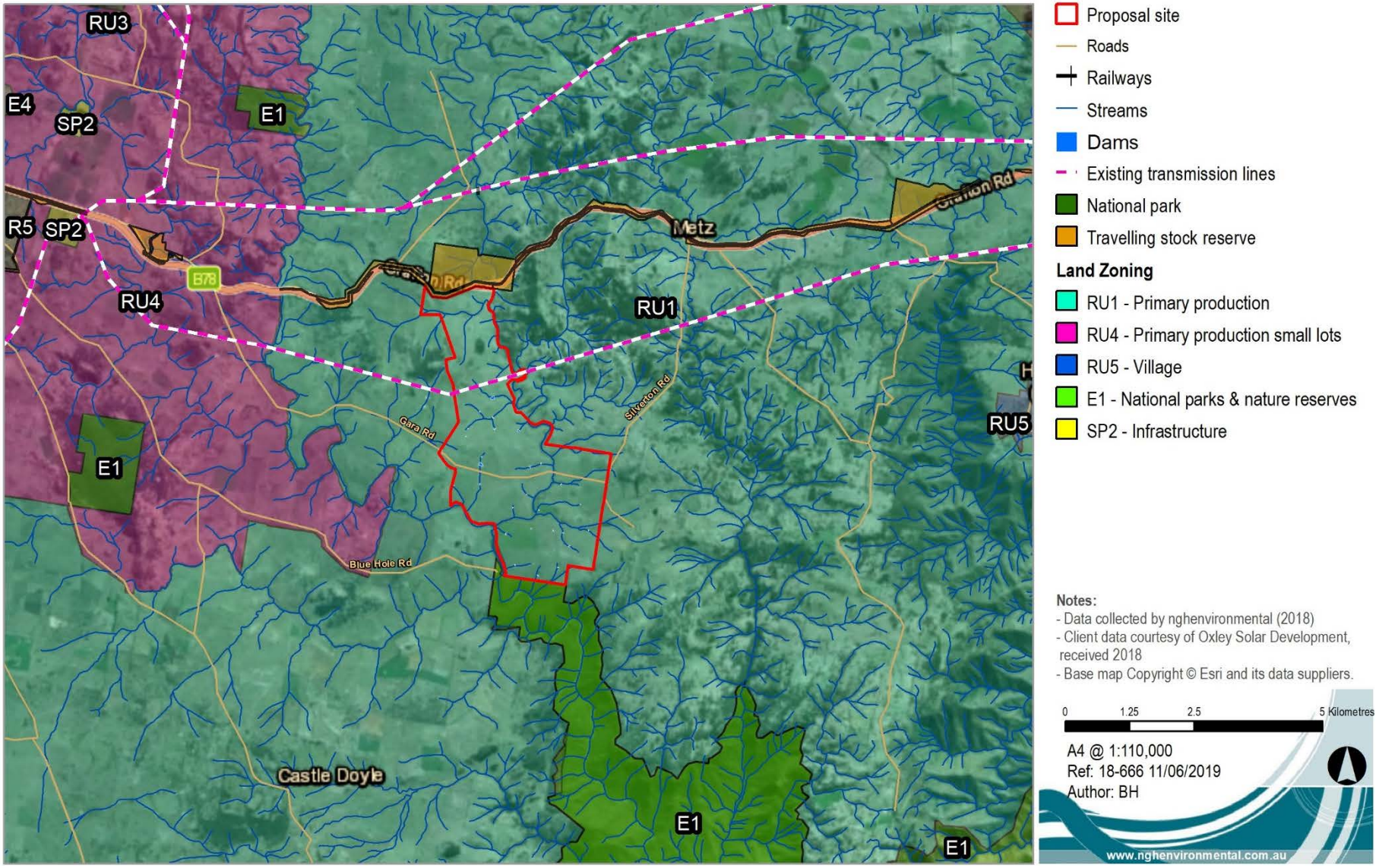

Figure 2-2 Land zoning of Proposal site and adjacent areas.

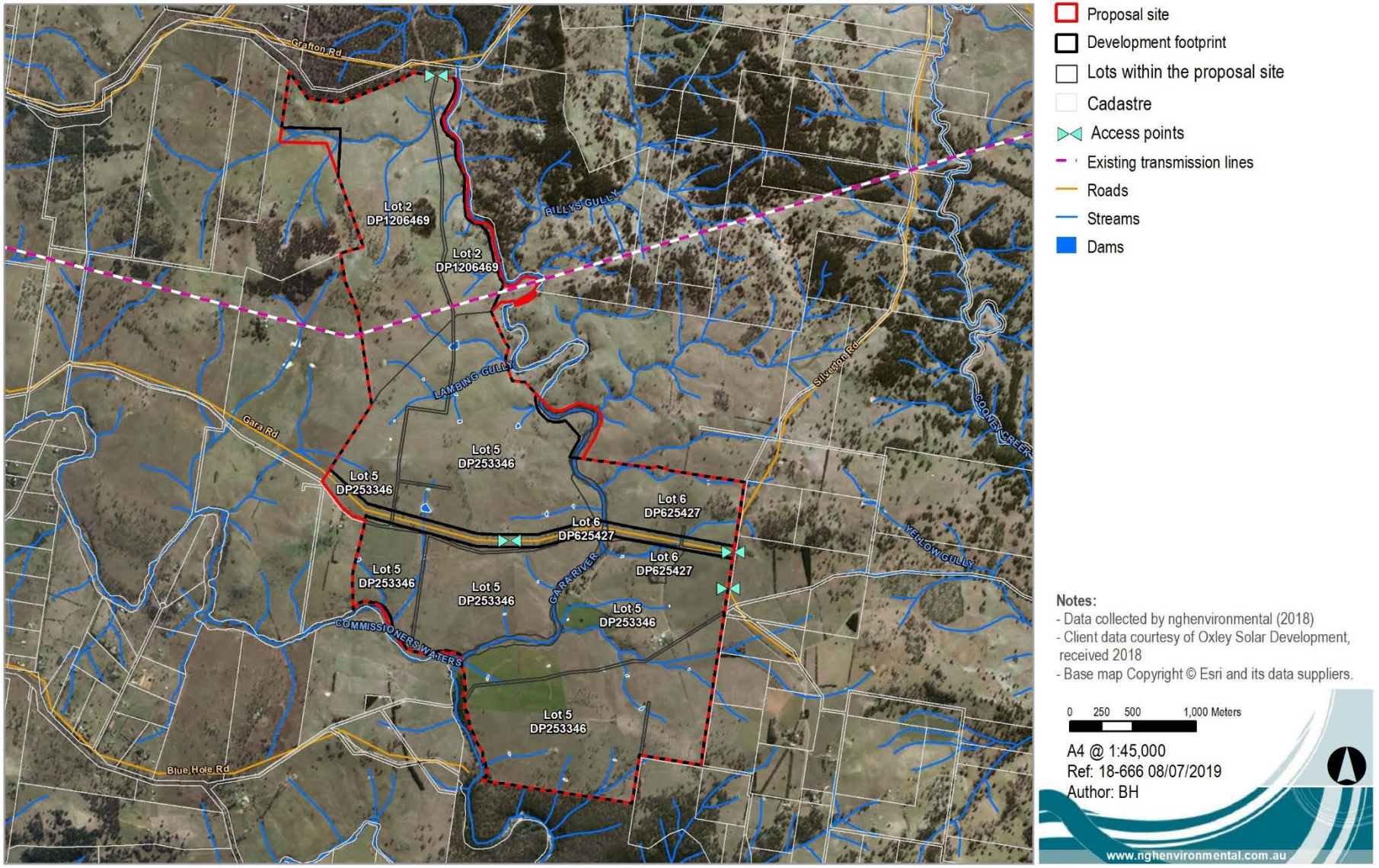

Figure 2-3 Lot and DP's located within the proposal site.

3 THE PROPOSAL

3.1 PROPOSAL DESCRIPTION

The Oxley Solar Farm proposal would involve the construction, operation and decommissioning of a photovoltaic (PV) solar array farm with a capacity of up to 300MW (AC) that would supply electricity to the national electricity grid. The proposed site is a maximum of about 900 ha with the area of PV panels and associated infrastructure likely to occupy around half of this area. This would include a battery storage facility with a proposed storage capacity of 30 MWh (i.e. 30 MW power output for one hour).

A 132 kV substation would be constructed in the vicinity of the existing 132 kV transmission lines. The exact connection method will be subject to further feasibility assessment.

It is anticipated that the proposed solar farm would include development of the following infrastructure:

- Construction laydown and parking areas.
- PV modules.
- Inverter stations.
- An energy storage facility consisting of lithium ion batteries of a storage capacity up to 30 MWh (i.e. 30 MW power output for one hour). This would be housed in a purpose built building or within dedicated containers located in a secure compound close to the substation.
- Site office and maintenance building with associated car park.
- Internal access tracks to allow for site maintenance.
- Approximately 100 to 200 metres (depending on grid connection method) of overhead high voltage transmission lines to connect to the grid.
- Overhead lines and Underground electrical conduits and cabling to connect the arrays.
- Access track intersection treatments and upgrades, as determined by further traffic investigations.
- Water crossings for internal vehicle access tracks, where required, in accordance with the Guidelines for Watercourse Crossings on Waterfront Land.
- Vegetation planting to provide visual screening for specific viewers, if required.

The solar farm's site boundaries are illustrated in Figure 2-2. An indicative layout would be informed by detailed site investigations during the assessment, planning and design stage.

The Oxley Solar Farm would be expected to operate for 30 years. The construction phase of the proposal would take around 12 to 18 months. After the initial 30 year operating period, the solar farm would either be decommissioned, removing all above ground infrastructure and returning the site to its existing land capability, or repurposed with new PV equipment subject to technical and planning consents.

The Oxley Solar Farm would have an estimated capital investment of over $430 million (inclusive of approximately $30 million for the battery storage component). A CIV report would be prepared during the EIS process as part of the proposal which would confirm the capital investment cost.

4 PROPOSAL JUSTIFICATION AND ALTERNATIVES

4.1 PROPOSAL JUSTIFICATION

The renewable energy sector in Australia presently contributes 21% of the country's overall electricity. Currently, there are more than 87 large – scale energy projects are underway or being developed in Australia. Collectively these projects have created more than 13,200 jobs and more than $24.5 billion of investment (CEC, 2019). Large scale solar farm proposals such as the proposed Oxley Solar Farm support long-term and stable policies such as the Renewable Energy Target (RET) and have the potential to benefit average household electricity bills substantially and reduce power disruptions providing alternative generation sources for the energy sector.

The Oxley Solar Farm proposal would provide the following benefits, specific to Australia's commitments:

- Reduction in greenhouse gas emissions required to meet our international climate commitments.
- Assisting the transition towards cleaner electricity generation.
- Direct contribution to help in meeting the Renewable Energy Target (RET).

At a State level, the Oxley Solar Farm proposal is consistent with current goals and targets for renewable energy generation in NSW. These include Goal 22 of the NSW 2021: A plan to Make NSW Number One (NSW Government 2011):

> *Contribute to the national renewable energy target [i.e. 20% renewable energy supply] by promoting energy security through a more diverse energy mix, reducing coal dependence, increasing energy efficiency and moving to lower emission energy sources.*

The proposal is also consistent with the three goals of the NSW Renewable Energy Action Plan (NSW Government 2018c) which include:

1. Attract renewable energy investment and projects.
2. Build community support for renewable energy.
3. Attract and grow expertise in renewable energy.

The Oxley Solar Farm proposal is located within the New England potential priority Energy Zone Figure 4-1.

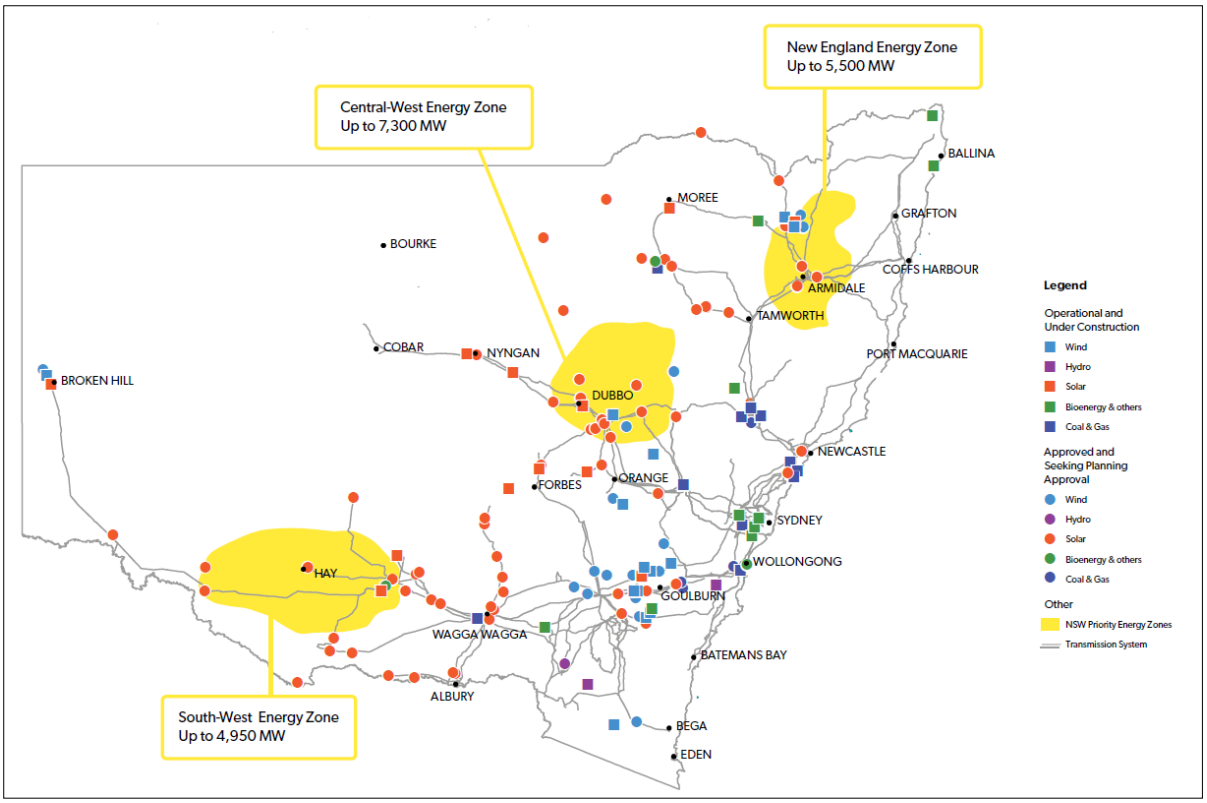

Figure 4-1 NSW renewable energy projects and potential priority energy zones (NSW Government, 2018c).

The COP21, also known as the 2015 Paris Climate Conference, achieved a legally binding and universal agreement on climate, with the aim of keeping global warming below 2°C, chiefly by reducing greenhouse gas emissions. Australia has committed to the following greenhouse gas emission reduction targets:

- 5% below 2000 levels by 2020.
- 26 to 28% below 2005 levels by 2030.
- Net zero emissions in the second half of this century.

The Oxley Solar Farm would form part of the Australian effort to help meet these targets.

During construction, the Oxley Solar Farm proposal would create local employment and economic stimulus in the Armidale and surrounding areas. These areas would provide accommodation, food, fuel and trade equipment and services. Most of these benefits would occur during the construction period. Limited but maintained economic benefits during the approximate 30 year lifetime of the proposal would continue to occur during monitoring and inspections, maintenance, repair and upgrade of infrastructure at the solar farm.

The Large Scale Solar Energy Guideline for State Significant Development (SSD) provides recommendations regarding the selection of suitable solar farm sites and areas of constraint that should be identified. These are addressed in and Table 4-2 below.

Table 4-1 Site selection criteria: preferable site conditions.

Preferable site condition	Applicability to the Oxley Solar Farm proposal
Optimal solar resources	Good solar irradiance observed.
Suitable land	Low relief land, not of high agricultural or environmental value.
Local impacts minimised	Early engagement with the community now underway.
Capacity to rehabilitate	Minimal site disturbance, if using pile driven array.
Proximity to electrical network	Close to existing transmission line connection options.
Connection capacity	Good connection capacity.

Table 4-2 Site selection criteria: Areas of constraint.

Areas of constraint	Applicability to the Oxley Solar Farm proposal
Native vegetation	Much of the site has been extensively cleared of woody vegetation and has been highly modified by historical farming practices. Section 7.1.1 considers biodiversity of the proposal site.
Potential residences	Moderate number of receivers within 2 km, high number of receivers within 7 km. Section 7.1.2 considers visual amenity and landscape character and Section 7.1.3 considers noise.
Waterways	Few permanent waterways onsite. Gara River and Commissioners Waters traverse the site. Section 7.1.4 considers watercourses and hydrology.
Aboriginal/Heritage significance	An extensive AHIMS search did not identify any items on the proposal site. Further investigation is required to determine Aboriginal/Heritage significance. Section 7.1.5 considers Aboriginal heritage and Section 7.1.6 considers non-indigenous heritage.
Important agricultural land	The proposal site is not mapped as Biophysical Strategic Agricultural Land (BSAL). Section 7.1.8 considers land use.
Residential zones	No residential zones are associated with the site. The closest residential zone is located within Armidale, approximately 10 km west of the proposal site. Land zoning is provided in Figure 2-2.
Resource developments	No current mineral or petroleum leases are associated with the proposal site.

5 CONSULTATION

5.1 COMMUNITY CONSULTATION PLAN

A Community Consultation Plan (CCP) has been developed for the proposed Oxley Solar Farm (Appendix B).

The aim of the plan is to:

1. Identify effective methods to inform the community about the Oxley Solar Farm.
2. Facilitate engagement with the community. This includes allowing meaningful contributions from the community into the environmental assessment and project development.
3. Obtain social license to operate from the local community. This will allow for good long-term relationships with community stakeholders.

The CCP identifies:

- Community stakeholders for the project.
- Issues / risks related to the engagement of each stakeholder group.
- A consultation strategy for each issue / risk.
- A set of appropriate consultation activities against the project development time line.

Effective engagement requires an understanding of community stakeholders and prioritisation of perceived issues. It also relies the community understanding the proposal in order for the community to contribute effectively. The focus of the consultation plan will be on providing this understanding and engagement.

This plan has been developed to coincide with the early planning and assessment stages of the Oxley Solar Farm proposal and continue throughout the assessment stage. If the proposal is approved, consultation will also be required to continue into the assessment, construction and operational phases of the project. These phases will require a new or updated consultation plan in order to reflect any changes to consultation objectives but also the increasing knowledge gained about the community. At this stage, only pre approval project stages are addressed.

5.2 CONSULTATION TO DATE

Consultation has so far been undertaken with Council, TransGrid, near neighbours and local community groups. This has included face to face consultation with the immediately adjacent landowners and some potentially visually impacted residents. In addition, around 274 newsletters were distributed by post to residents residing within the Castledoyle and Metz localities (Appendix C).

The newsletter included contacts where feedback could be lodged and further information requested. There were fewer than ten enquiries initiated by the newsletter release.

Key issues raised during consultation activities undertaken to date are identified below. Generally, stakeholders wished to be kept informed about the proposal as it develops. Some were interested in the proposed layout of panels and the associated visual impacts that may result.

Community consultation will actively continue during the Scoping Report exhibition period.

The above matters will be addressed within the coming months as the detailed proposal description is refined in response to further community feedback and environmental investigations.

Table 5-1 Consultation to date (all of which will be ongoing)

Key stakeholder	Date	Consultation undertaken (and responses where raised)
Armidale Regional Council	24 October 2018 and 17 January 2019	Informed Council of proposed scope, extent and timing of proposal. Council keen to be kept informed of development progress.
	14 May 2019	Proposal information newsletter emailed to Armidale Regional Council.
Trans Grid	19 December 2018 and 18 March 2019	Connection enquiries relating to electrical connection and technical details.
Nearby landowners	17 January 2019 and 25 March 2019	Informed nearby landowners in person of Proposal concept. Visual impact raised as a concern and discussed.
	13 May 2019	Letter box drop of 274 proposal information newsletters to Castledoyle and Metz residences (including those located on Gara Road, Silverton Road, Castledoyle Road, Milne Road, Blue Hole Road, Andersons Road and Grafton Road) to provide details of the proposal. Less than 10 responses have been received to date centred on visual impact concerns and being kept informed on Proposal. Responses focused on proposed panel layout locations, associated visual impact concerns and requests to being kept informed on proposal progress and details as they are developed. A number of respondents noted they supported solar power generation in general however were interested in the details of this specific development and how it may affect them.
National Parks Association of NSW	21 April 2019	Proposal information newsletter emailed to National Parks Association of NSW, Armidale Branch.
Sustainable Living Armidale (SLA)	21 April 2019	Proposal information newsletter emailed to Sustainable Living Armidale.

6 PLANNING CONTEXT

6.1 KEY NSW LEGISLATIVE INSTRUMENTS

6.1.1 Environmental Planning and Assessment Act 1979

Development in NSW is subject to the requirements of the *Environmental Planning and Assessment Act 1979* (EP&A Act) and its associated regulations. Environmental planning instruments prepared pursuant to the Act set the framework for approvals under the Act. The Oxley Solar Farm proposal would be assessed under Part 4 of the EP&A Act.

6.1.2 State Environmental Planning Policy (State and Regional Development) 2011

Clause 20 of Schedule 1 of *State Environmental Planning Policy (State and Regional Development) 2011* states that the following is considered a State Significant Development:

Development for the purpose of electricity generating works or heat or their co-generation (using any energy source, including gas, coal, biofuel, distillate, waste, hydro, wave, solar or wind power) that:

> *(a) has a capital investment value of more than $30 million, or*
>
> *(b) has a capital investment value of more than $10 million and is located in an environmentally sensitive area of State significance.'*

The Oxley Solar Farm proposal would have a capital investment cost estimate of more than $30 million. Therefore, the proposal is classified as "State Significant Development" under Part 4 of the EP&A Act.

State Significant Developments are major projects which require approval from the NSW Minister for Planning and Environment. While the Minister for Planning and Environment is the consent authority for State Significant Development, the Minister may delegate the consent authority function to the Independent Planning Commission of NSW (IPCN), the Secretary or to any other public authority.

An EIS is required to be prepared in accordance with the requirements of the Secretary's Environmental Assessment Requirements (SEARs) of Department of Planning and Environment. In determining the SEARs, the Secretary must consult with relevant public authorities and would have regard to the need to assess key issues raised by those public authorities.

6.1.3 State Environmental Planning Policy (Infrastructure) 2007

Clause 34(7) of *State Environmental Planning Policy (Infrastructure) 2007* (ISEPP) provides that development for the purpose of a solar energy system may be carried out by any person with consent on any land (except land in a prescribed residential zone). A solar energy system includes a PV electricity generating system.

The proposal, being zoned as RU1 Primary Production is therefore permissible with consent.

6.1.4 Primary Production and Rural Development SEPP 2019

The Rural Lands SEPP 2008 has been repealed and replaced by the Primary Production and Rural Development SEPP 2019. The aims of this new Policy are as follows:

a) to facilitate the orderly economic use and development of lands for primary production,
b) to reduce land use conflict and sterilisation of rural land by balancing primary production, residential development and the protection of native vegetation, biodiversity and water resources,
c) to identify State significant agricultural land for the purpose of ensuring the ongoing viability of agriculture on that land, having regard to social, economic and environmental considerations,
d) to simplify the regulatory process for smaller-scale low risk artificial waterbodies, and routine maintenance of artificial water supply or drainage, in irrigation areas and districts, and for routine and emergency work in irrigation areas and districts,
e) to encourage sustainable agriculture, including sustainable aquaculture,
f) to require consideration of the effects of all proposed development in the State on oyster aquaculture,
g) to identify aquaculture that is to be treated as designated development using a well-defined and concise development assessment regime based on environment risks associated with site and operational factors.

Note: *Clause 9 Savings provision relating to development applications* of the SEPP does not apply to SSD.

Specific to this proposal, it is anticipated that:

- No high value agricultural land (BSAL) would be impacted by the proposal.
- The land capability of the site would be retained, with reference to base line soil testing and rehabilitation commitments post decommissioning.
- For the operational life of the solar farm, the resting / shading impacts of the solar farm may actually improve soil capability, in comparison to current agricultural activities, particularly in drought conditions.
- The site is sufficiently small that it does not represent a significant proportion of the local agricultural economy and would therefore not affect harvest logistics in the locality.
- The economic benefits of the proposal will out weight the current agricultural activities, in terms of employment during operation and other economic stimulus, occurring mostly during construction.

The proposal is considered compatible with the relevant aims of this policy.

6.1.5 Roads Act 1993

The *Roads Act 1993* (Roads Act) provides for the classification of roads and for the declaration of the Roads and Maritime Services (RMS) and other public authorities as road authorities for both classified and unclassified roads. It also regulates the carrying out of various activities in, on and over public roads.

Intersection treatments and road upgrades between Gara Road (Figure 2-1) and Waterfall Way may be required to obtain site access. Final access will be determined by further traffic investigations. Additional approval from the roads authority (RMS and/or Armidale Regional Council; Section 138 permit) is expected to be required to carry out road upgrades.

6.1.6 Biodiversity Conservation Act 2016

The *Biodiversity Conservation Act 2016* relates to the conservation of biodiversity. The Act repeals the *Threatened Species Conservation Act 1995*, the *Nature Conservation Trust Act 2001* and the animal and plant provisions of the *National Parks and Wildlife Act 1974*.

The purpose of this Act is to maintain a healthy, productive and resilient environment for the greatest well-being of the community consistent with the principles of the ecological sustainable development (ESD).

The new act brings in changes to biodiversity survey and assessment and offset methodologies. It also requires specific consideration of irreversible impacts. The proposal would likely impact on native vegetation and biodiversity values. Given the newness of this act, consultation with OEH would be undertaken as required during the assessment of the project.

6.1.7 National Parks and Wildlife Act 1974

The NPW Act establishes the fundamental functions of the NSW National Parks and Wildlife Service. These include the conservation of nature, objects, features, places and management of land reserved under the Act. Specifically, the conservation of nature includes:

- Landforms of significance, including geological features and processes, and
- Landscapes and natural features of significance including wilderness and wild rivers.

Animal and plant provisions of the *National Parks and Wildlife Act 1974* have been repealed and replaced by the *Biodiversity Conservation Act 2016* that commenced on the 25th of August 2017.

The NPW Act regulates access to National Parks.

The NPW Act also sets out to protect and preserve Aboriginal heritage values. Part 6 of this Act refers to Aboriginal objects and places and prevents persons from impacting on an Aboriginal place or relic, without consent or a permit.

Additional to the NPW Act, OEH codes set out required assessment and consultation protocols for Aboriginal heritage impact assessments.

6.1.8 Heritage Act 1977

This Act aims to conserve heritage values. The Act defines 'environmental heritage' as those places, buildings, works, relics, moveable objects and precincts listed in the Local or State Heritage Significance. A property is a heritage item if it is listed in the heritage schedule of the local Council's Local Environmental Plan or listed on the State Heritage Register, a register of places and items of particular importance to the people of NSW. Under Section 4.41 of the EP&A Act, an approval under Part 4 or a permit under Section 139 of the *Heritage Act 1977* would not be required for a State Significant Development.

The potential to impact environmental heritage is discussed in Section 7.1.6 of this report. Consultation would be undertaken with Armidale Regional Council and the assessment would be undertaken in accordance with OEH guidelines for *Assessing Heritage Significance (Heritage Office* (former), 2001).

6.2 LOCAL INSTRUMENTS

6.2.1 Armidale Dumaresq Local Environmental Plan 2012 (Argyle)

The proposal area is located within the Armidale Regional LGA. Environmental provisions of the Former LGA (Armidale Dumaresq) are still applied under the *Armidale Dumaresq Local Environmental Plan 2012*. The proposed solar farm site and transmission line routes are zoned RU1 Primary Production.

Electricity generation is prohibited within this land zoning, however the ISEPP allows the development for the purpose of a solar energy system on any land with consent, which overrides the local provisions.

6.3 COMMONWEALTH LEGISLATION

6.3.1 Environment Protection and Biodiversity Conservation Act 1999

The *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) is administered by the Commonwealth Department of the Environment and Energy (DoEE). Under the EPBC Act, if the Minister determines that an action is a 'controlled action' which would have or is likely to have a significant impact on a Matter of National Environmental Significance (MNES) or Commonwealth land, then the action may not be undertaken without prior approval of the Minster.

The EPBC Act identifies the following nine MNES:

- World Heritage properties.
- National heritage places.
- Ramsar wetlands of international significance.
- Threatened species and ecological communities.
- Migratory species.
- Commonwealth marine areas.
- The Great Barrier Reef Marine Park.
- Nuclear actions (including uranium mining).
- Water resources (in relation to coal seam gas development and large coal mining development).

Actions that adversely affect these matters may be deemed to be a 'controlled action' under the Act.

A search of the Commonwealth Protected Matters Search Tool (undertaken on 20/11/2018) returned no wetlands of international importance.

Search results identified one World Heritage Property and National Heritage Place, the Gondwana Rainforests of Australia (including the Oxley Wild Rivers National Park which borders the southern boundary of the site).

Three threatened ecological communities were identified from the desktop searches; Lowland Rainforest of Subtropical Australia (Critically Endangered), New England Peppermint *(Eucalyptus nova-anglica)* Grassy woodlands (Critically Endangered), and, and White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland (Critically Endangered).

Thirty-two threatened species and fourteen migratory species were returned from the Protected Matters Search. Due to extensive clearing at the proposal site, threatened flora is likely limited to Bluegrass; Threatened fauna habitat is limited to hollow bearing tree dependent species.

The potential for these entities to occur will be investigated as part of the Scoping Report. At this stage a significant impact on an MNES and the requirement to refer the proposal under the EPBC Act is not considered likely.

7 PRELIMINARY ENVIRONMENTAL ASSESSMENT

7.1 ASSESSMENT OF KEY ISSUES

Based on preliminary site assessment and desktop review, a summary of the key environmental issues of relevance to the site and its development is provided below. These include:

- Biodiversity
- Visual amenity and landscape character
- Noise
- Watercourses and hydrology
- Aboriginal heritage
- Non-indigenous heritage
- Community and socio-economic impacts
- Land use
- Soils

7.1.1 Biodiversity

Approach

Ecological values of the proposal site were investigated at a high level. This has included the following information sources:

- Existing threatened species listings under the BC Act and EPBC Act.
- Existing records of threatened species sightings in the proposal site, as recorded in the BioNet Database (OEH).
- Department of Environment Protected Matters Search Tool (nationally threatened species listed under the EPBC Act).
- Threatened species and communities identified as potentially occurring through the Biodiversity Assessment Methodology Calculator (OEH).
- Areas of outstanding biodiversity value declared under the BC Act 2016.
- A site walk over, undertaken on 26 November 2018 by two NGH Environmental ecologists.

Existing threatened species listings

The EPBC search (undertaken on 20 November 2018 with a 10km buffer of the site) identified three threatened ecological communities, 32 threatened species and 14 migratory species of relevance to the site. Threatened species either known to occur or with the potential to occur include:

- 7 bird species
  - Regent Honeyeater *(Anthochaera Phrygia)*
  - Curlew Sandpiper *(Calidris ferruginea)*
  - Red goshawk *(Erthrotriorchis radiatus)*
  - Painted Honeyeater *(Grantiella picta)*
  - Swift Parrot *(Lathamus Discolor)*
  - Australian Painted Snipe *(Rostratula australis)*
  - Black-breasted Button-quail (*turnix melanogaster*)
- 2 amphibians

  - Yellow-spotted Tree Frog, Yellow-spotted Bell Frog *(Litoria castanea)*
  - Peppered Tree frog (*Litoria piperata*)
- 8 mammals
  - Large-eared Pied Bat, Large Pied Bat (*Chalinolobus dwyeri*)
  - Spot-tailed Quoll, Spotted-tail Quoll, Tiger Quoll (*Dasyurus maculatus maculatus*)
  - Greater Glider (*Petauroides volans*)
  - Brush-tailed Rock-wallaby (*Petrogale penicillata*)
  - Koala (*Phascolarctos cinereus*)
  - Long-nosed Potoroo *(Potorous tridactylus tridactylus)*
  - New Holland Mouse, Pookila (*Pseudomys novaehollandiae)*
  - Grey-headed Flying fox *(Pteropus poliocephalus)*
- 13 plants
  - *Callistemon pungens*
  - White-flowered Wax Plant (*Cynanchum elegans*)
  - Bluegrass *(Dichanthium setosum)*
  - Small Snake Orchid, Two-leaved Golden moths, Golden Moths, Cowslip Orchid, Snake Orchid *(Diuris pedunculata)*
  - Narrow-leaved Peppermint, Narrow-leaved Black Peppermint *(Eucalyptus Nicholii)*
  - *Euphrasia arguta*
  - Beadle's Grevillea (*Grevillea beadleana*)
  - Gnarled Corkbark, Fraser's Hakea (*Hakea fraseri*)
  - Tall Velvet Sea-berry *(Haloragis exalata subsp. Velutina)*
  - Macadamia Nut, Queensland Nut Tree, Smooth-shelled Macadamia, Bush Nut, Nut Oak (*Macadamia integrifolia*)
  - Hawkweed (*Picris evae*)
  - Austral Toadflax, Toadflax *(Thesium australe)*
- 2 reptiles
  - Border Thick-tailed Gecko, Granite Belt Thick-tailed Gecko *(Uvidicolus sphyrurus)*
  - Bell's Turtle, Western Sawshelled Turtle, Namoi River Turtle, Bell's Saw-shelled Turtle *(Wollumbinia belli)*

A search of the OEH Wildlife Atlas database for the coordinates North: -30.53 West: 151.75 East: 151.85 South: -30.63, identified 15 threatened fauna species and three threatened flora species that have been recorded within 10 km of the site:

- Peppered Tree Frog (*Litoria piperata*)
- Little Eagle (*Hieraaetus morphnoides*)
- Turquoise Parrot (*Neophema pulchella)*
- Brown Treecreeper (eastern subspecies) (*Climacteris picumnus victoriae*)
- Speckled Warbler (*Chthonicola sagittata*)
- Regent Honeyeater (*Anthochaera Phrygia)*
- Varied Sitella *(Daphoenositta chrysoptera)*
- Dusky Woodswallow (*Artamus cyanopterus cyanopterus)*
- Hooded Robin (south-eastern form) (*Melanodryas cucullata cucullate)*
- Scarlet Robin *(Petroica boodang)*
- Diamond Firetail (*Stagonopleura guttate)*
- Spotted-Tailed Quoll *(Dasyurus maculatus)*

- Koala (*Phascolarctos cinereus*)
- Brush-tailed Rock-wallaby (Petrogale penicillate)
- Eastern Bentwing-bat *(Miniopterus schreibersii oceanensis)*
- Narrow-leaved Bertya (*Bertya ingramii)*
- Tall Velvet Sea-berry (*Haloragis exalata subsp. Velutina)*
- Narrow-leaved Black Peppermint (*Eucalyptus nicholii)*

There is potential that Narrow-leaved Black Peppermint may be present within the proposal site.

Site inspection

A site inspection of the proposal site was undertaken by two ecologists on the 26 November 2018. The site inspection included the identification of preliminary biodiversity constraints and vegetation mapping within the proposal site. Plant community types (PCTs) were determined based on the presence of diagnostic species via rapid assessment and recording of dominant species within each stratum. No floristic plots were undertaken.

Vegetation and fauna habitat

The proposal site occurs on the Armidale plateau and contains a combination of scattered trees and small remnant clumps of Box-Gum Grassy woodland. Much of the proposal site has been extensively cleared of woody vegetation and has been highly modified by historical farming practices. Remnant vegetation within the site are restricted to fragmented areas of woodland and isolated paddock trees that occur within the proposal site as well small patches of derived native grassland where native species appear more abundant. The majority of the woodland patches have been subject to high and regular grazing pressure and additionally, are showing evidence of dieback impacting on their long term viability.

Dominant species throughout the site include New England Stringybark (*Eucalyptus caliginosa*) and Blakey's Red Gum (*Eucalyptus blakeyi*). Occasional Yellow Box (*Eucalyptus melliodora*), Mountain Gum (*Eucalyptus dalrympleana*) Bendemeer White Gum (*Eucalyptus elliptica*) and Ribbon Gum *(Eucalyptus vimanalis*) occurring along the roadsides, boarding the southern portion of the site and Oxley Wild Rivers National Park and to the north of the proposal site bordering Gara Travelling Stock Route (TSR). There is also potential that New England Peppermint (*Eucalyptus nova-anglica*) and Narrow-Leaved Black Peppermint (*Eucalyptus nicholli*) may be present to the north of the proposal site. Important diagnostic floristic features of eucalypt species were not readily present at the time of the surveys in part due to the poor condition of many of individuals within the proposal area making the identification difficult in some instances. Midstorey species are largely absent and restricted to sporadic occurrence of Blackthorn (*Bursaria spinosa*) and the exotic species Hawthorn (*Crataegus monogyna*) and Sweet Briar (*Rosa rubiginosa*). The majority of the flat cleared areas comprise a groundcover mix of native and exotic pasture species and generally having a higher exotic component from regular fertilising and introduction of improved pasture species including *Avena sp*, *Festuca sp*, Rye grass (*Lolium perenne),* Pale Pigeon Grass *(Setaria pumila)* and Sweet vernal grass (*Anthoxanthum odoratum*). Paddock trees are scattered throughout the proposal site that are indicative of the surrounding vegetation types. Planted vegetation containing species of local provenance occur as linear windbreaks throughout the site.

The southern boundary of the proposal site borders Oxley Wild Rivers National Park. Vegetation within this area consists of the better condition vegetation within the proposal site evident by a higher abundance of native species and less evidence of dieback. Additionally, throughout the proposal site, the hiller and rocky portions of the proposal site that have had a lower intensity of sustained grazing pressure and farming have a more abundant native component containing Slender Rats Tail Grass (*Sporobolus creber*), Wild

Sorghum (*Sorghum leiocladum*), Kangaroo Grass (*Themada triandra*), Paddock Lovegrass (*Eragrostis leptostachya*) and Blown Grass (*Lachnagrostis avenaceus*),. There is also a small section of high-quality condition derived native grassland that appears to have had limited disturbance and contains a high abundance and cover of native species including snow grass (*Poa sieberiana*), Wild Sorghum (*Sorghum leiocladum*), Kangaroo Grass (*Themada triandra*), *Goodenia sp*, *Wahlenbergia sp* and Yellow Buttons (*Chrysophyllum apiculatum*).

No threatened fauna was observed during the initial site inspection, however most woodland areas contain hollow- bearing trees that would provide breeding and roosting habitat for hollow dependent species. Gara River, which runs between the northern and southern sections of the proposal site appears in moderate condition with good water quality evident and provides important habitat for a number of potential threatened species. Numerous dams are also present however contain limited aquatic vegetation and therefore provide limited habitat.

Low-lying shallow drainage lines that have been heavily grazed occur throughout the proposal site, particularly to the north, and contain areas dominated by a range of sedges and rushes including Tall Sedge (*Carex appressa*) and Common Rush (*Juncus usitatus*).

Table 7-1 Summary of vegetation and habitat across the proposal site

Site	Easting	Northing	Description	Image
Exotic cropping /modified pasture	385309	6615172	Cleared area. Degraded paddock that has been consistently grazed and where groundcover has been highly modified through the application of herbicides, fertilisers and in some paddocks, has been seeded with exotic pasture species	
Native Pasture	385553	6615677	Native pasture. Subjected to modification historically through the application of herbicides and fertilisers. High cover but low diversity of native species. Small areas of rocky outcrop occur on occasion	

Site	Easting	Northing	Description	Image
New England Stringybark dominated woodland	385771	6615302	Remnant native woodland patch containing *Eucalyptus caliginosa* with low abundance and cover of native groundcover. It is **unlikely** patches of woodland dominated by *E.caliginosa* would meet the scientific determination of the *White Box - Yellow Box - Blakely's Red Gum Grassy Woodlands and Derived Native Grasslands* TEC. (PCT 567)	
Blakey's Red Gum dominated woodland	384691	6617336	Remnant native woodland patch containing *Eucalyptus blakelyi* on upper slopes with moderate abundance and cover of native groundcover. It is **likely** patches of woodland dominated by *E.blakelyi* would meet the scientific determination of the *White Box - Yellow Box - Blakely's Red Gum Grassy Woodlands and Derived Native Grasslands* TEC (PCT 510/704)	
Planted native vegetation	385216	6615647	Planted vegetation containing species of local provenance and non-NSW species for wind breaks	

Site	Easting	Northing	Description	Image
Box-gum Grassy Woodland	386584	6615800	Box-gum grassy woodland and Derived Native Grassland within a laneway. This would be classified **Threatened Ecological Community** (TEC) at both State and Commonwealth criteria (PCT 510/704)	
Riparian area – Gara River	384967	6615803	Gara River traversing the site.	
Habitat Feature	384625	6616117	Scattered hollow-bearing trees occurring as stags or living trees occur consistently across the proposal site.	

Plant community types and threatened ecological communities

Based on existing vegetation mapping and the initial site inspection, vegetation within the proposal area were assigned to Plant Community Types (PCTs) in accordance with the Vegetation Information System Classification Database (OEH). PCTs were determined based on the presence of diagnostic species identified within the site survey. The results are preliminary in nature and will be refined following detailed vegetation survey of the site, and with reference to Floristic Plots in accordance with the Biodiversity Assessment Methodology (OEH, 2017).

PCTs, based on the preliminary inspection, include:

- PCT 567 – Broad-leaved Stringybark - Yellow Box shrub/grass open forest of the New England Tableland Bioregion
- PCT 568 – Broad-leaved Stringybark shrub/grass open forest of the New England Tableland Bioregion
- PCT 510 – Blakely's Red Gum - Yellow Box grassy woodland of the New England Tableland Bioregion
- PCT 704 – Blakely's Red Gum - Yellow Box grassy open forest or woodland of the New England Tableland Bioregion

Subject to further assessment, the vegetation communities may be consistent with the following threatened ecological communities (TEC):

- White Box – Yellow Box – Blakely's Red Gum Woodland (NSW BC Act, Endangered Ecological Community).
- White Box – Yellow Box– Blakely's Rd Gum Grassy Woodland and Derived native grassland (EPBC Act, Endangered).
- New England Peppermint (*Eucalyptus nova-anglica*) Woodland on Basalts and Sediments in the New England Tableland Bioregion (NSW BC Act, Critically Endangered Ecological Community)
- New England Peppermint (*Eucalyptus nova-anglica*) Woodland on Basalts and Sediments in the New England Tableland Bioregion (EPBC Act, Critically Endangered)

It is possible that areas identified as a low constraint currently due to dominance of improved pasture and annual weed species may have a higher abundance of perennial native cover that may be identified via more detailed survey. Further investigation is required to determine TEC extent onsite.

The preliminary vegetation mapping is provided below (Figure 7-1).

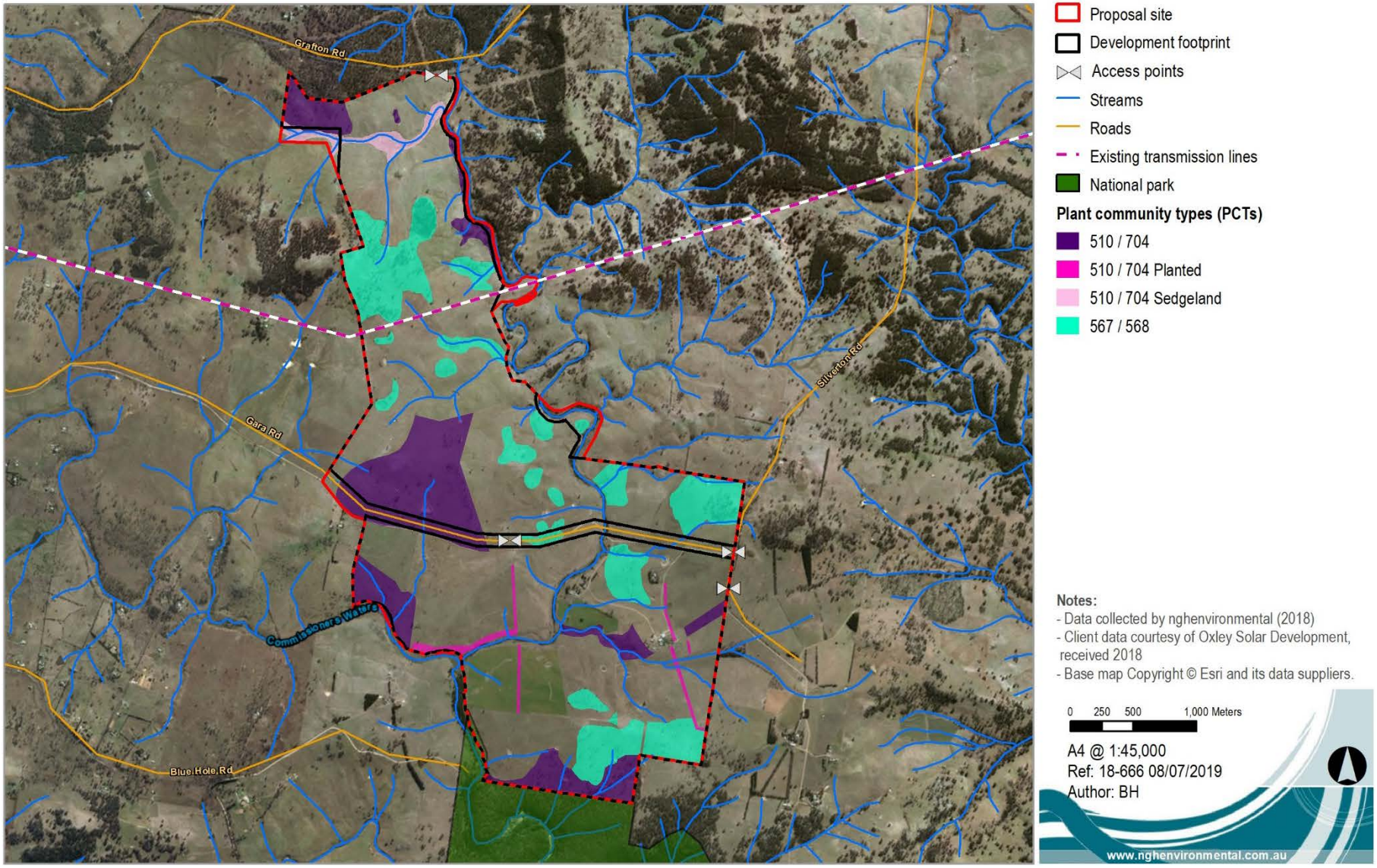

Figure 7-1 Preliminary mapping of Plant Community Types (PCTs).

Constraints and need for further assessment

To inform the early proposal planning process and investigation strategies, biodiversity features within the proposal site have been mapped to areas of High, Moderate, or Low constraints (Figure 7-1 and Figure 8-1) or detailed constraints analysis, refer to the constraints assessment in Section 8.

As part of the EIS, the detailed ecological surveys and further investigation and assessment will be undertaken in the format of the Biodiversity Development Assessment Report (BDAR) in consultation with OEH. If calculations determine that offset credits are required to offset impacts, then an offset strategy may be required to be developed.

7.1.2 Visual amenity and landscape character

The town of Armidale is approximately 14km north-west of the proposal site. Two dwellings are located within the proposal site, 32 potential residences are located within 2km of the site and 165 potential residences are located within 7km. The closest non-involved residence is located immediately adjacent to the site, south of Gara Road approximately 112 m from the site. Some screening is provided to the west, south-west, south, and south-east by the existing trees surrounding the residence. The existing trees do not provide screening to traffic on Gara Road to the north, and may provide some screening to Silverton Road to the east (Figure 7-2). Table 7-2 provides a list of receivers within 2 km of the proposed solar farm and their distance from the proposal.

Table 7-2 Distance between proposal site and sensitive receiver within 2 km.

Receiver ID	Distance from proposal site (m)
Involved landowners	
R1	0
R2	0
Non – involved landowners	
R3	112
R4	242
R5	324
R6	437
R7	448
R8	550
R9	642
R10	721
R11	725
R12	774
R13	942
R14	943
R15	1001
R16	1063
R17	1063
R18	1118
R19	1129
R20	1139
R21	1305

Receiver ID	Distance from proposal site (m)
R22	1376
R23	1457
R24	1457
R25	1472
R26	1559
R27	1566
R28	1722
R29	1821
R30	1839
R31	1922
R32	1957
R33	1959
R34	1985

An assessment of the level of visual impact would be undertaken as part of the EIS process. The EIS would also consider the potential for the solar farm to affect local landscape character. Consultation will be undertaken broadly to understand the local values of the area, including visual characteristics valued by the community. Additional consultation with specific affected residences would be undertaken to identify the nature and significance of impacts and the need for mitigation measures.

Glare and reflections from solar farm infrastructure would be investigated. It is noted that solar panels are designed to absorb as much sunlight as possible. They therefore reflect a very low percentage of light and are generally not considered likely to result in glare or reflections that would affect traffic or nearby receivers. However, it is understood that this has been raised for other solar proposal as an issue of interest to neighbours. Other infrastructure, such as sheds and panel mounts have greater potential for glare and generating reflections.

Constraints and need for further assessment

The location of nearby receivers have been mapped in Figure 7-1. Aerial imagery and desktop analysis indicates a number of uninvolved residences are expected to have a direct view of solar farm infrastructure (this will be subject to further investigation). Assessment on landscape character and public vantage points would be the focus of a Visual Impact Assessment (VIA) in the EIS.

The VIA would also include view shed analysis and community consultation, would be prepared as part of the EIS to investigate visual impacts and mitigation options. Mitigation measures would become part of the proposal description, as required, i.e. vegetation screens if required.

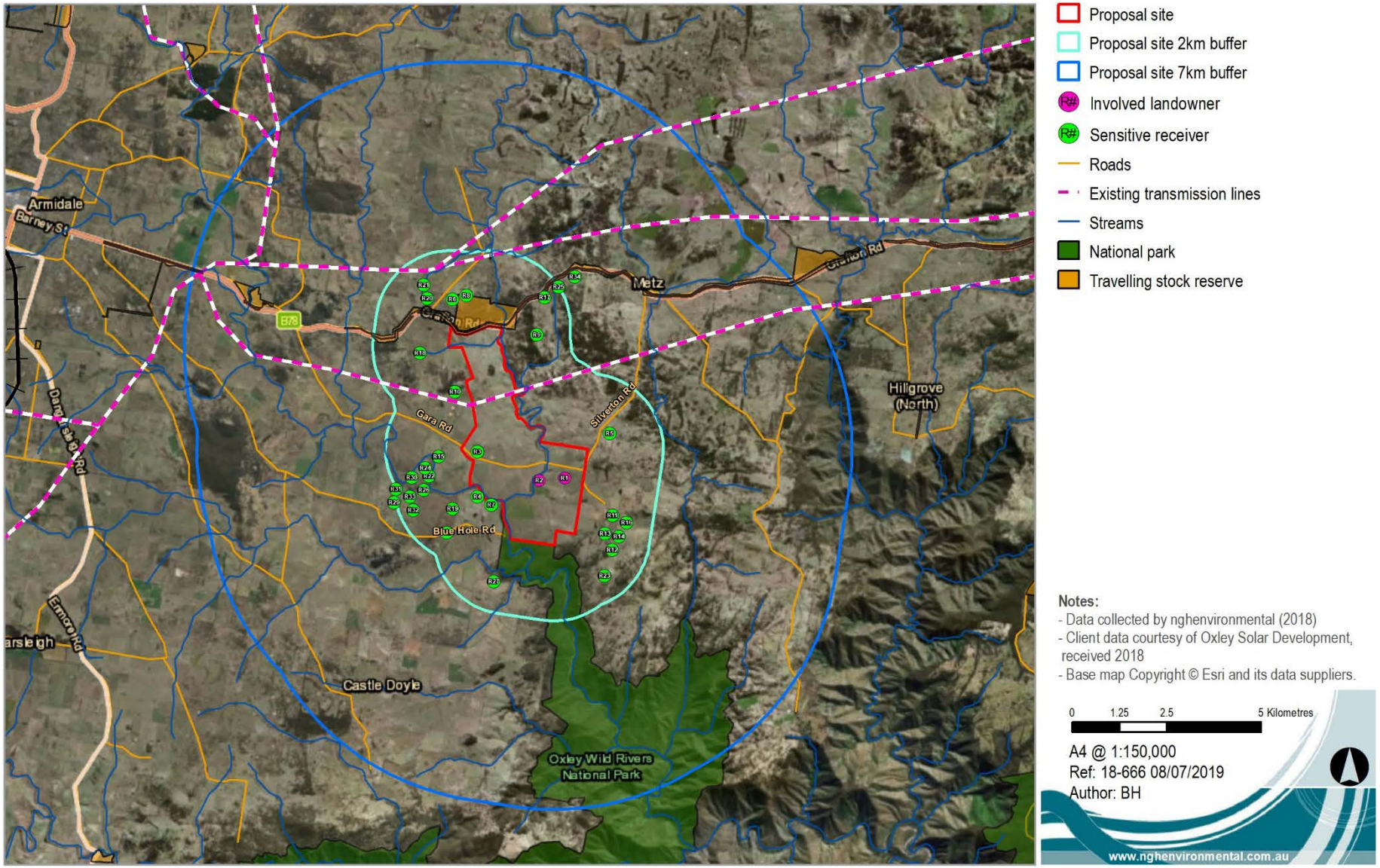

Figure 7-2 Mapping of involved and non-involved sensitive receivers within 2km of the proposal site.

7.1.3 Noise

Aerial imagery identifies two dwelling on the site, as well as 31 potential residences within 2km of the site (Figure 7-2), introducing the potential for noise impacts.

Noise impacts would be most relevant during construction (generated by construction vehicles and machinery). During the operation of the solar farm, noise levels would be much less. Noise would be generated from the solar tracking system (if a tracking system is decided upon), the substation and switchgear and any maintenance works undertaken at the site.

Existing background noise would include traffic noise from Gara Road and Waterfall Way and routine agricultural machinery operation. These will likely increase existing noise background levels which may reduce the relative impact of the proposal.

Constraints and need for further assessment

A construction and operational noise and vibration assessment will be undertaken as part of the EIS to assess potential noise impacts for affected residents. The assessment will be undertaken in accordance with the *Interim Construction Noise Guideline* (DECC, 2009), *NSW Noise Policy for Industry* (EPA, 2017), *Assessing Vibration: A Technical Guideline* (DECC, 2006) and *NSW 'Road Noise Policy'* (DECCW, 2011). Given the low number of nearby receivers, mitigation strategies to manage noise impacts acceptably are considered highly feasible. Refer to the constraints assessment in Section 8.

7.1.4 Watercourses and hydrology

Twenty-four dams occur within the proposal site, mostly fed by watercourses within the site. Twenty-two watercourses occur within the proposal site eighteen of which are tributaries of the Gara River and four of which are tributaries of Commissioners Waters.

The Gara River is the most prominent watercourse within the proposal site. It is a tributary of Salisbury Waters, which is located approximately 10km south of the proposal site within the Oxley Wild Rivers National Park. The Gara River originates at Ryanda Creek, located approximately 70km north of the site in the Northern Tablelands and flows through Malpas Reservoir, approximately 36km north-west of site. The Gara River is fed by several tributaries before it reaches the site and runs north to south along the north-eastern boundary before transecting the site, running north-east to south-west through the centre of the site. At the south-western boundary, the Gara River intersects with Commissioners Waters, which runs west to east along the south-western boundary of the site. The Gara river continues flowing south through the Oxley Wild Rivers National Park.

Dams and water courses are shown in Figure 7-3.

The proposal would avoid waterway crossings where possible by using short sections of overhead powerline rather than underground cabling, where required. Four vehicular access points are proposed and have been sited With the aim of avoiding watercourse crossings, with the exception of the Grafton Road access point.

A coordinate search of the EPBC Protected Matters Search Tool (PMST) was undertaken on 20 November 2018 with a 10km buffer of the site. It returned no Wetlands of International Importance and one World and National Heritage place, the Gondwana Rainforests of Australia.

Although site specific flooding information is not available for this site, the Armidale-Dumaresq Flood Plan (SES, 2013) states the following: *'Floods do not significantly affect the rural community of the Armidale Dumaresq Council'.*

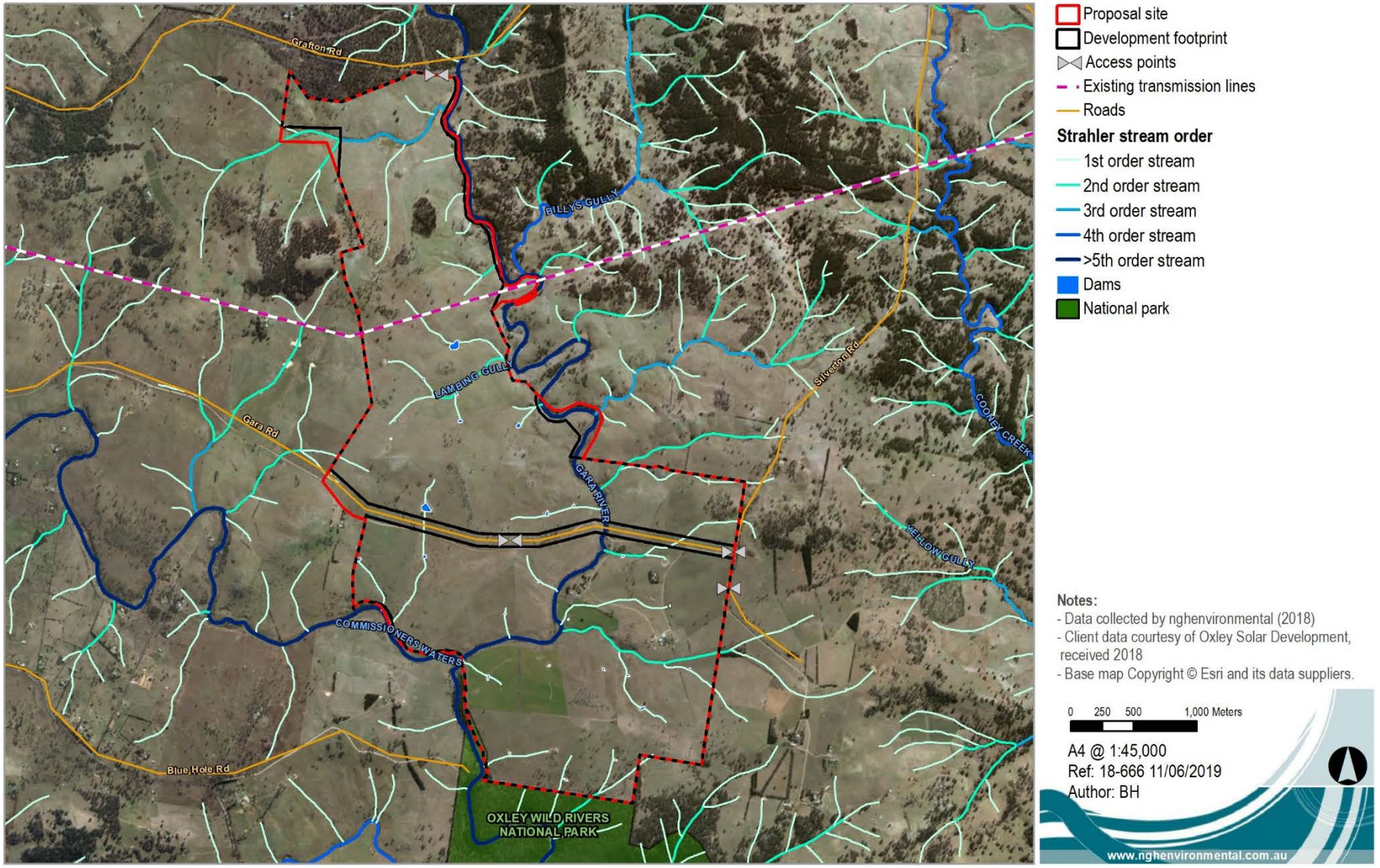

Figure 7-3 Dams and watercourses (including Strahler stream order) present on the proposal site.

Constraints and need for further assessment

Under section 4.41 of the EP&A Act, SSD developments do not require a controlled activity approval (other than an aquifer interference approval) under Section 91 of the *Water Management Act 2000*. However, best practice measures are being used to inform site development in accordance with this Act. The WM Act defines waterfront land as the bed of any river, lake or estuary and any land within 10, 20, 30 and 40 metres of the river banks, lake shore or estuary mean high water mark, in accordance with best practice guidelines. In these areas, permanent infrastructure would be avoided or minimised, as informed by further hydrological studies. In overland flow areas, which do not meet the definition of waterfront land under the Water Management Act, permanent infrastructure may be considered.

Confirmation of the hydraulic function and ecological value of the waterways will be undertaken as part of the EIS, including a specialist hydraulic and hydrological analysis to address potential flood risks. Those waterways that qualify as 'water front land' will trigger best practice management with regard to impacts that cannot be avoided (crossings). Those that are more accurately defined as ephemeral waterways with moderate constraint may have PV arrays constructed over provided that potential impacts have been determined and mitigation strategies prepared as part of the EIS.

The EIS would assess the impacts to waterways and include appropriate mitigation measures, such as buffering these areas for avoidance, where possible, and adherence to best practice guidelines (Guidelines for Controlled Activities on Waterfront Land; DPI 2012) where avoidance is not possible[1].

7.1.5 Aboriginal heritage

An extensive search of the Aboriginal Heritage Information Management System (AHIMS) was carried out on 20 November 2018, centred on the proposal site and with a buffer of approximately 1km. Seven Aboriginal sites were identified near the site. There have been no items recorded on the site, however one item has been recorded approximately 1.9km south-south-west of the site. No Aboriginal places were recorded in the search area. Waterways can be important landscape features and indicate greater potential for significant sites. 22 waterways occur at the proposal site from north-east to south-west.

Conclusions and need for further assessment

Risk in relation to Aboriginal and historic heritage would need to be confirmed based on an onsite assessment. Consultation with registered stakeholders in an important part of the assessment process.

An Aboriginal Cultural Heritage Assessment (ACHA) Report and associated stakeholder consultation process would be completed as part of the EIS. This would include consultation with the Armidale Local Aboriginal Land Council. If any Aboriginal Heritage sites are identified that may be potentially affected by the proposal site, mitigation measures would be determined in accordance with the *Guide to Investigating, assessing and reporting on Aboriginal Cultural Heritage in NSW* (OEH 2011).

7.1.6 Non-indigenous heritage

Non-indigenous heritage database searches were conducted on 20 November 2018 and included:

[1] Water front land is defined by the Water Management Act as land within 40m of the bank of incised channels. Works within water front land trigger Control Activity Approval, although SDD is exempt, best practice measures will be to reference the Controlled Activity Guidelines for any works in these areas (DPI 2012).

- A search of the NSW OEH Heritage Register (NSW Government, 2018a) located 357 listed items of significance. Two items of state heritage significance (Cottage and Tattersalls Hotel Brick Outbuildings) are located approximately 5km from the eastern boundary of the site.
- A search of the Australian Heritage Database (Australian Government, 2018) located 95 items of significance, none of which are located on or within 2km of the site.
- A coordinate search of the EPBC PMST was undertaken with a 10km buffer of the site. The search indicates that there are no World Heritage or National Heritage areas or items within the site. Additionally, no areas of Commonwealth land or heritage places were identified.

Constraints and need for further assessment

No impacts are considered likely for listed heritage items. No unlisted items are considered likely to occur onsite. Consideration of potential dust and vibration impacts on items near to the haulage route should be investigated in more detail as part of the environmental assessment. The potential to impact non-listed heritage items would also be investigated by site inspection; old land holdings can contain buildings or structures of significance. Protections for such features would be commitments of the EIS, as required.

7.1.7 Community impacts, social and economic impact

The proposal site is located within the Armidale Regional Local Government Area (LGA), which covers an area of 8,621 km^2. The area was formed in 2016 after the merger of the former Armidale Dumaresq Shire with the surrounding Guyra Shire. The 2016 Census indicates that the Armidale Regional LGA had a population of 29,449, which is a 22% increase since 2011, the median age is 36 (ABS, 2011).

The construction of the Oxley Solar Farm would be expected to generate economic benefits during construction and operation; including local employment opportunities and economic stimulus. The construction period may place strain on local services within the Armidale city centre.

Gara Road is not considered a major transport corridor. Access to the site may require upgrade works and intersection treatments to the proposed access road. Interruptions associated with these works and during construction may be expected at Waterfall Way, where it meets the proposed access road. The amount of traffic generated by the development of the Oxley Solar Farm will likely increase the amount of daily traffic along Waterfall Way and Gara Road. Any increase in traffic will likely be negligible during operation.

Constraints and need for further assessment

The EIS would assess potential social and economic impacts of the proposal, including issues perceived by the community to be of concern and cumulative impacts of other proposed developments in the region. It would investigate ways to spread the benefits of the proposal into operation. Consultation to date is summarised in Section 5 of this report and would continue into the detailed investigation stage.

7.1.8 Land use

Land uses on and surrounding the site are shown in Figure 2-2 and include:

- Small and large lot primary production
- Residential
- Crown land (paper road easements)
- Electricity assets and easements
- National Parks

The proposal site is located in an agricultural area and is used for primarily for grazing with a small amount of feed cropping. Land and soil capability mapping describes the majority of the proposed site as having severe to very severe limitations, with the south-eastern portion is described as having moderate to severe limitations (Class 4, 5 and 6). This indicates the area is limited in its potential use for high impact land management uses, such as cropping, and is not capable of supporting regular cultivation due to limitations including slope, erosion, and soil types. This land classification is generally best used for grazing, in terms of ongoing agricultural use (NSW OEH 2012).

Crown roads traverse the site in a north-south direction in the western portion of the site (Figure 8-1). This would require consultation with DPI – Lands and/or Council. There is potential that a license or option to purchase the paper roads would be required.

Two existing transmission lines are located within the northern section of the proposal site and run west to east (Figure 8-1). Both are 132 kV lines.

The closest airport is the Armidale Regional Airport, located approximately 20km west in Armidale.

A search of the Department of Planning and Environment MinView on 19 July 2018 found the site to have no current mineral titles.

Subdivision is not intended at this stage. Should subdivision be identified as a requirement during the EIS stage, further consultation would be undertaken with TransGrid and Armidale Regional Council.

Conclusions and need for further assessment

It is noted that, where pile driving is used to install array mounts on land of relatively low relief, the soil disturbance and therefore reversibility of the proposal, with regard to future land uses, such as agricultural production is very high. Excavation and footings is generally limited to discrete footings for inverters, switch station and office buildings. Building-in strategies to retain land use options post-decommissioning, will be part of the assessment and mitigation process.

The impact on agricultural production, electricity assets and crown roads in the locality and region would be assessed in detail in the EIS and Land Use Conflict Risk Assessment (LUCRA).

7.1.9 Soils

Soil type and capability

Four soil landscapes occur within the proposal site (NSW OEH 2018b) (Table 7-3).

Table 7-3 Soil landscapes on the proposed solar farm site

Landscape	Limitations
Castledoyle ‘cd’	Rock outcrop, serve gully erosion risk, shallow soils, sheet erosion risk, non-cohesive soils, dieback, dryland salinity, poor moisture availability, low plant available waterholding capacity, sodicity/dispersibility, salinity, slow permeability and high permeability.
Argyle ‘ar’	Rock outcrop, shallow soils, steep slopes, gully erosion risk, sheet erosion risk, low general fertility, dieback, engineering hazard, acidification hazard, high organic matter, high erodibility, sodicity/dispersibility, slow permeability, high permeability, water repellence and low fertility.
Middle Earth ‘me’	Groundwater pollution hazard, low general fertility, severe gully erosion risk; rock outcrop, sheet erosion risk, shallow soils, dieback, low wet bearing strength,

Landscape	Limitations
	hardsetting surfaces, sodicity/dispersibility, high shrink-swell potential, acidity, high organic matter, high erodibility, slow permeability, high permeability, low fertility.
Silverton 'si'	Steep slopes, rock outcrop, sheet erosion risk, gully erosion risk, rockfall hazard, high run-on, shallow soils, low general fertility, strong acidity, hardsetting surfaces, sodicity/dispersibility, high erodibility, slow permeability, high permeability.

Three existing soil profiles have been surveyed on the proposed site (eSPADE, 2018) (Table 7-4).

Table 7-4 Soil profiles on the proposed solar farm site.

Characteristic	Profiles		
	Profile 368, Survey 1001020 (2001)	Profile 369, Survey 1001020 (2001)	Profile 371, Survey 1001020 (2001)
Soil type	Bleached Eutrophic Yellow Chromosol (ASC), Yellow Podzolic Soil (GSG)	Bleached Eutrophic Yellow Chromosol (ASC), Yellow Podzolic Soil (GSG)	Rudosol (ASC), Lithosol (GSG)
Texture	Coarse loamy sand, dry, hard-set. Extreme erosion hazard.	Coarse loamy sand, dry	Clay loam, moist
Acidity	Nil	Nil	Nil
Hydrology	Profile is moderately permeable and imperfectly drained	No data	No data
Slope	10.0% (estimated)	4.0% (estimated)	No data
Usage	Extensive clearing, used for improved pasture.	No data	High levels of sheep grazing

Biophysical strategic agriculture land (BSAL) is land with high quality soil and water resources that can sustain high productivity levels (NSW Government 2018a). The site is not mapped as BSAL, and the closest BSAL is 5.8km from the site.

Contamination

A search of the NSW OEH Contaminated Sites Register (NSW Government, 2017a) on 20 November 2018 located six contamination records for the Armidale Regional LGA. These records are not near the site. The proposal site does not appear on the list of NSW Contaminated Sites notified to the EPA (NSW Government 2017b). It is noted that the site has a history of agricultural land use and as such, agricultural sites may contain buried rubbish including contaminants such as herbicides that may be encountered during excavation.

Constraints and need for further assessment

The EIS would provide thorough consideration of soil and erosion impacts and proposed mitigation measures for construction, operation and decommissioning, as required.

It is considered unlikely that substantive contamination is present at the site and therefore no detailed investigation is likely to be required within the EIS. Management of ground cover during operation and restoration of the site's land capability would be recommended by EIS. Restoration would be with reference to base line soil testing to guide any remedial management actions.

7.2 OTHER ENVIRONMENTAL ISSUES

Issue	Existing environment	Potential Impacts	Investigation strategies
Access and traffic	The site is currently accessed via Gara Road, which is unsealed. It is not considered a major transport corridor and may require intersection upgrades where it meets Waterfall Way. The following have been identified as potential access points: 1. Waterfall Way (Grafton Road) 2. Silverton Road (north of Gara Road) 3. Silverton Road (south of Gara Road) 4. Gara Road The preferred option is – Waterfall Way (Grafton Road) and is shown in Figure 8-1. Intersection works compliant with Council and RMS requirements are likely to be required for access to the site via the existing unsealed access track.	Establishing access to the site may require construction of access tracks, upgrades and intersection treatments. Management of traffic, for safety as well as road pavement conditions will be required. The access option under consideration is Gara road which runs east-west through the site, and joins Waterfall Way. During construction, there may be associated impacts to nearby receivers such as dust, vibration and noise generation.	The access options would be further investigated during the preparation of the EIS. Construction traffic impacts would be considered in the EIS and take into consideration existing traffic volumes and any requirements from the roads authority. The mitigation measures would require a Traffic Management Plan including haulage routes be prepared.
Hazards and risks – Electric and Magnetic Fields (EMF)	Existing powerlines produce EMF within their vicinity. Additional infrastructure which form part of the proposal such as inverters, connecting powerlines and the substation would produce EMF within the site.	The EMF levels associated with solar infrastructure are well below the guideline for public exposure and would not be expected to have any adverse impact on human health. There can, however, be perceived impacts for nearby residents.	The EMF levels of the proposal infrastructure would be assessed as part of the EIS. Standard design provisions are expected to ensure impacts comply with relevant guidelines together with communication of the issue as required.
Hazards and risks – Bushfire	The proposal site has been predominantly cleared for agricultural purposes. The proposal site is not mapped as bushfire prone, however the southern boundary marks the beginning of the Oxley Wild Rivers	Emergency response protocols will however be required in the event of a bushfire. Battery storage has specific risks and mitigation strategies.	The potential to increase risk of bushfire would be assessed in the EIS. Emergency protocols would reflect advice from relevant agencies.

Issue	Existing environment	Potential Impacts	Investigation strategies
	National Park which is mapped as bushfire prone land.		
Hazards and risks – battery storage	The proposal site is not mapped as bushfire prone, however the southern boundary marks the beginning of the Oxley Wild Rivers National Park which is mapped as bushfire prone land.	Battery storage can elevate fire ignition risks. Storage, transport and handling must be considered.	A risk assessment of the hazard proposed by onsite battery storage would be undertaken within the EIS.
Cumulative impacts	Cumulative impacts refer to the combined effect of impacts from several activities on a particular value or receiver. They may occur concurrently or sequentially. Considering the Oxley Solar Farm proposal, the relevant cumulative impacts are those associated with other known or foreseeable developments occurring in proximity to the Proposal. Major projects listed on the Major Projects Register within the Armidale Regional LGA (and their current status) are: • Metz Solar (determined) • New England Solar Farm (Response to Submissions) • Uralla Solar Farm (more information required). • Tilbuster Solar Farm (Prepare EIS) • Salisbury Solar Farm • Armidale High School (Assessment) • University of New England – Wright Block (Prepare EIS)	Specific details in relation to the timing of proposed construction are not available within the documentation available on the Major Projects website. As such, a worst case assumption that construction of the developments could occur at the same time as the proposed Oxley Solar Farm has been made. Potential cumulative impacts of overlapping construction periods are primarily associated with traffic impacts, pressures on local facilities, goods and services and vegetation clearing.	The EIS would consider any cumulative impacts of the proposal. The timing of works associated with the proposed developments would be monitored to ensure appropriate mitigation measures are implemented, particularly in relation to construction traffic on Waterfall Way and pressure on local services and facilities.

8 PRELIMINARY CONSTRAINTS ASSESSMENT

8.1 METHODOLOGY

Preliminary constraints advice has been informed by a desktop review and confirmed by site inspection (ecologist, November 2018). The inspection allowed for full traverses of the site and addition vehicle-based surveys in the locality. As such, they are considered sufficient to provide preliminary constraints advice to inform development of the concept design and investigation strategies.

Low, moderate and high environmental constraints are defined in Table 8-1 and may be viewed in Figure 8-1, with reference to the 'developability' of the site. Where uncertainty exists, a higher constraint rating has been applied. Further investigation may reduce the constraint level. Environmental constraints were mapped for the site and are provided as Figure 8-1 and discussed in Section 8.2.

Table 8-1. Environmental constraints

Constraint	Definition
Low	Minimal impacts anticipated. Most suitable for development. Standard management protocols would be sufficient to manage any impacts. Least cost for assessment and management of constraints.
Moderate	Impacts should be minimised, where possible. These areas may require specific management protocols and may add some cost and time to the assessment and approval process.
High	Avoid if possible. These areas will be difficult, expensive or may not be possible to obtain approval to develop. They may require costly additional surveys to understand and manage impacts. They may be costly to offset. They may impact the ability to obtain a timely approval.

8.2 RESULTS

8.2.1 Low environmental constraints

In low constraint areas, minimal impacts are anticipated. They contain no sensitive features (waterways, high risk soils, receivers, ecological values) and are most suitable for development.

These areas are unlikely to generate biodiversity credits or may have very low biodiversity credit requirements if they do. These include areas of:

- Ephemeral waterways with little if any hydraulic function
- Non-TEC PCTs in low or poor condition, containing few habitat resources
- Non-native vegetation (exotic vegetation).

Regarding cropped and exotic areas, it is noted that even in low constraint areas, these may need to be replaced by a more perennial ground cover prior to construction, to reduce erosion and dust issues once the panels are installed. These issues will require a mitigation strategy and may require specialist input.

8.2.2 Moderate environmental constraints

Moderate constraints include:

- **Waterways**, including rivers and tributaries, that provide habitat value, including connectivity through the landscape. Vegetated riparian areas also provide erosion protection. Works in or that affect waterways may require additional justification and management. Permits may apply for works in waterways and construction practices will be subject to best practice methodologies and rehabilitation requirements to protect their values. Specialist input would inform development in close proximity to mapped waterways.
- **Native vegetation**, comprised of:
    - Degraded TECs
    - Non-TEC PCTs in moderate condition
    - Areas containing limited habitat values.

  These areas do not necessarily need to be avoided but are likely to generate biodiversity credits that require offsetting and require additional surveys.
- **Crown land** and Crown land easements occur within the proposal site. Consultation and approvals would be required if impacts on crown lands are required. These should be sought concurrent with the EIS, in consultation with DPI lands, as required.

8.2.3 High environmental constraints

High constraints include:

- **Native vegetation**, comprised of:
    - TECs that are not degraded
    - Non-TEC Plant Community Types (PCTs) in good condition (good ecosystem credit species habitat)
    - Potential candidate species credits habitat.
    - Areas that contain hollow bearing trees
    - Areas containing rocky outcrops

  If these areas cannot be avoided, they will require intensive survey effort and strong justification for impacts. They will generate high biodiversity credit requirements that require offsetting.
- **Potential residences** in close proximity of the site (requires ground validation). Nearby receivers may be affected by visual impact, traffic noise and vibration and dust. Verification of impacts and consultation will be undertaken to ensure all impacts are acceptably mitigated.
- **National Park** adjacent to the site. Consultation should be undertaken with the OEH, particularly in relation to relevant guidelines including the *Guidelines for Developments Adjoining Land and Water Managed by DECCW* (now Office of Environment and Heritage; OEH).
- **Aboriginal Heritage**: No survey has been undertaken of the site, but an artefact is recorded south of the site. Any Aboriginal heritage sites/items/etc. identified would be a moderate to high constraint; impacts on sites will require approval. Mitigation strategies can range from avoidance, to salvage programs to more intensive survey including test pits. This constraint requires further survey to understand the location of the constraints.

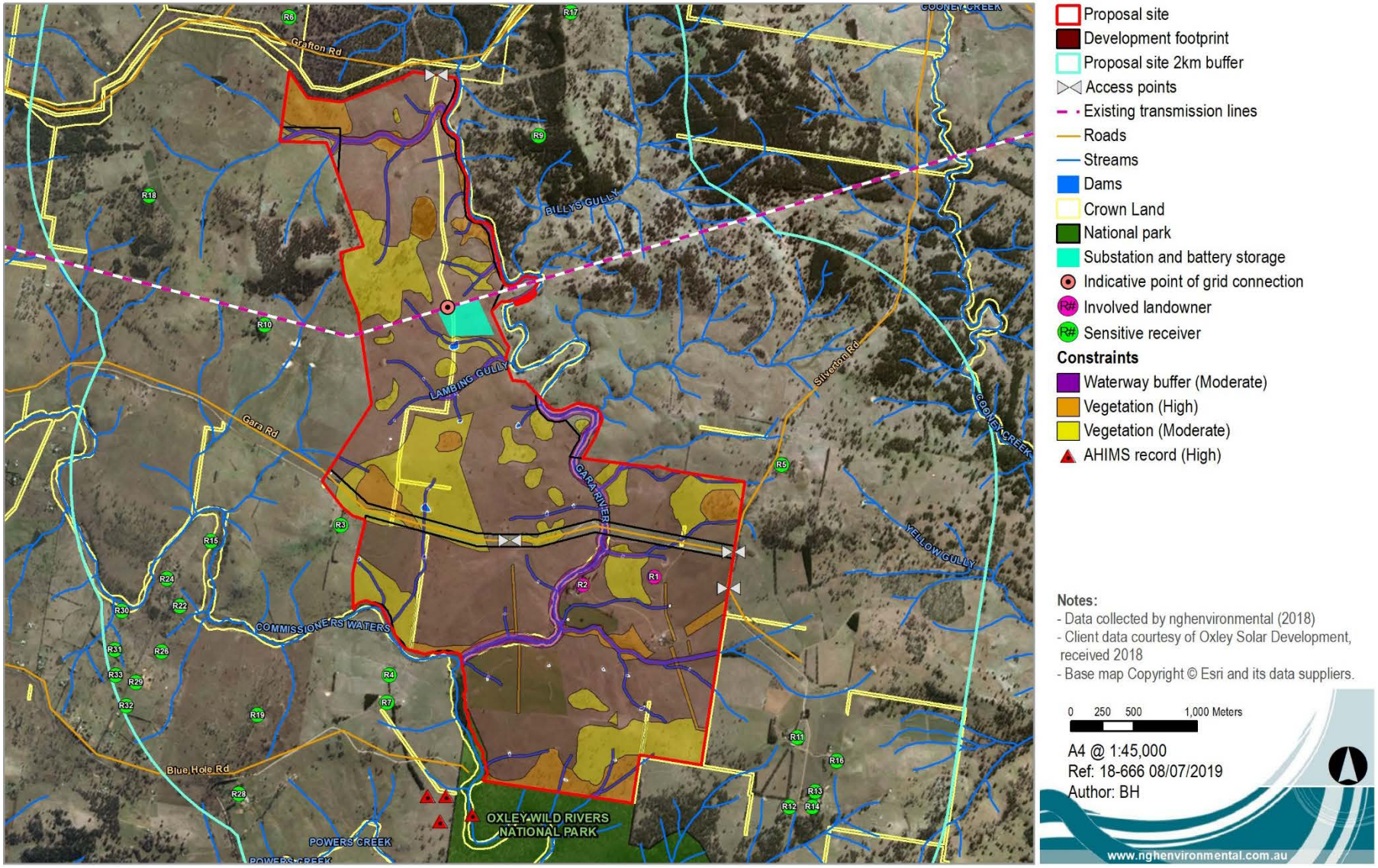

Figure 8-1 Oxley Solar Farm proposal constraints.

9 CONCLUSION

This report has outlined the Oxley Solar Farm proposal and established the planning context of the proposal, currently in the early planning stage. The proposal would be assessed under Part 4 of the EP&A Act and classed as State Significant Development under *State Environmental Planning Policy (State and Regional Development) 2011*.

The proposal has the potential to result in a number of local and broader benefits including:

- Local employment opportunities
- Contribution to state and federal renewable energy targets of 33,000 gigawatt hours by 2020

Preliminary consultation with Armidale Regional Council, involved landowners and local stakeholders has identified a mostly positive outlook for the proposed solar farm.

Based on this Preliminary Environmental Assessment, an indicative scope for the EIS has been developed, focusing on the key issues:

- Biodiversity
- Visual amenity and landscape character
- Noise
- Watercourses and hydrology
- Aboriginal heritage
- Non-indigenous heritage
- Community and socio-economic impacts
- Land use
- Soils

Secondary issues will also be investigated, commensurate with risk, through desktop investigation.

Once received, the EIS would be prepared in accordance with the proposal-specific SEARs. Mitigation measures will be developed for inclusion in the EIS and will address the management of key issues and other issues identified in the assessment process.

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APPENDIX A PHOTOGRAPHS OF THE SITE

APPENDIX B COMMUNITY CONSULTATION PLAN

Oxley Solar Farm

Community Consultation Plan

OXLEY SOLAR FARM

JULY 2019

ngh environmental

Document Verification

Project Title: Oxley Solar Farm

Project Number: 18-666

Project File Name: Oxley Solar Farm CCP_final_v1.1

Revision	Date	Prepared by (name)	Reviewed by (name)	Approved by (name)
Draft v1	4/12/18	Hannah Weiss	Louiza Romane	Brooke Marshall
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TABLES

FIGURES

ACRONYMS AND ABBREVIATIONS

ABS	Australian Bureau of Statistics
ARENA	Australian Renewable Energy Agency
CCP	Community Consultation Plan
CSIRO	Commonwealth Scientific and Industrial Research Organisation
DPE	Department of Planning and Environment
EIS	Environmental Impact Statement
Ha	hectares
Km	kilometres
kV	kilovolts
LGA	Local Government Area
M	Metres
MW	Megawatt
NSW	New South Wales
OSD	Oxley Solar Development
PV	Photovoltaic
SEARs	Secretary's Environmental Assessment Requirements

1 INTRODUCTION

1.1 COMMUNITY CONSULTATION PRINCIPLES

Best practice community consultation involves the community in all decision making stages of a project. The community plays a role from project conception, through the assessment process and on to project development. Effective community consultation has three important functions:

1. It facilitates deeper understanding of issues and decisions required for the project.
2. It enhances the quality of decisions made for the project.
3. It allows people to contribute to decisions that affect their lives.

Important community engagement principles for a project include:

- Openness – combats assumptions and misinformation.
- Inclusiveness - consultation should be diverse and representative, not responding only to the most vocal stakeholders.
- Effective communication – requires trust between parties and tools appropriate to the task.
- A communication plan – clarity about what is being undertaken:
    - Inform: one-way communication to deliver information about the project.
    - Consult: two-way communication to seek input into the project.
    - Collaborate and involve: seek participation in elements of the project design and implementation.
- Early rather than late communication - to maximise engagement opportunities.
- Accountability – monitoring and evaluation to ensure consultation aims are being achieved.

1.2 AIM OF THIS PLAN

This Community Consultation Plan (CCP) has been developed for the Oxley Solar Farm proposal.

The aim of the plan is to:

1. Identify effective methods to inform the community about the Oxley Solar Farm.
2. Facilitate engagement with the community. This includes allowing meaningful contributions from the community into the environmental assessment and project development.
3. Obtain social license to operate from the local community. This will allow for good long-term relationships with community stakeholders

The plan identifies:

- Community stakeholders for the project.
- Issues/risks related to the engagement of each stakeholder group.
- A consultation plan for each stakeholder group.
- A set of consultation activities against the project development time line.

Effective engagement requires an understanding of community stakeholders and prioritisation of potential impacts. It also relies on an understanding within the community of the project and specific issues of interest to them, in order for the community to contribute effectively. The focus of the consultation plan will be on providing this understanding and engagement.

1.3 STRUCTURE

The structure of this plan is:

1. Proposal overview.
2. Identification of community stakeholders for the project.
3. Issue management – specific issues that require consideration.
4. Project based activities –activities that will be undertaken to achieve the goals of this CCP.

1.4 IMPLEMENTATION AND REVISION OF THIS DOCUMENT

This plan has been developed to coincide with the early planning and assessment stages of the Oxley Solar Farm proposal.

If the proposal is approved, consultation will also be required to continue into the assessment, construction and operational phases of the project. These phases will require a new or updated consultation plan in order to reflect any changes to consultation objectives but also the increasing knowledge gained about the community. At this stage, only pre approval project stages are addressed.

1.5 RELEVANT GUIDELINES

This CCP has been prepared with reference to the following guidelines / references:

- *Establishing the social licence to operate large scale solar facilities in Australia: Insights from social research for industry,* Australian Renewable Energy Agency (ARENA).
- *Beyond Public Meetings: Connecting community engagement with decision making,* Twyford Consulting 2007.
- *Large-scale solar energy guideline for state significant development 2018,* NSW Government.

2 PROPOSAL OVERVIEW

2.1 OXLEY SOLAR FARM

The Oxley Solar Farm proposal site is located on Lot 5 DP253346 and potentially Lot 2 DP1206469 and Lot 6 DP625427. The site is 14km southeast of Armidale, the closest regional centre. The proposal area would be located within the Armidale Regional Local Government Area (LGA). The proposed solar farm would connect to a 132 kV substation, to be constructed on-site.

The proposed Oxley Solar farm will generate up to 300 MW of renewable energy that would supply electricity to the national grid.

The current access to the proposal site is via Gara Road. It is located 3.5km south of Waterfall Way which connects Armidale to Argyle, approximately 18km to the east

Two existing transmission lines run parallel to each other just north of Lot 5 DP253346. Both lines are 132kV and run generally east – west. Both lines are currently being considered for the connection for the proposed solar farm to the grid.

2.2 CONSTRUCTION

The Oxley Solar Farm would be expected to operate for 30 years. After the initial 30-year operating period, the solar farm would either be decommissioned, removing all above ground infrastructure and returning the proposal area to its existing land capability, or repowered with new PV (photo voltaic) equipment subject to landowner and planning consents.

It is anticipated that the proposed solar farm would include development of the following infrastructure:

- Construction laydown and parking areas.
- PV modules.
- Inverter stations.
- An energy storage facility consisting of lithium ion batteries of a capacity up to 30 Mwh These would be housed in a purpose built building or within dedicated containers located in a secure compound close to the substation.
- Site office and maintenance building with associated car park.
- Internal access tracks to allow for site maintenance.
- Approximately 100 to 200 metres (depending on grid connection method) of overhead high voltage transmission lines to connect to the grid.
- Overhead lines and Underground electrical conduits and cabling to connect the arrays.
- Access track intersection treatments and upgrades, as determined by further traffic investigations.
- Native vegetation planting to provide visual screening for specific viewers, if required.

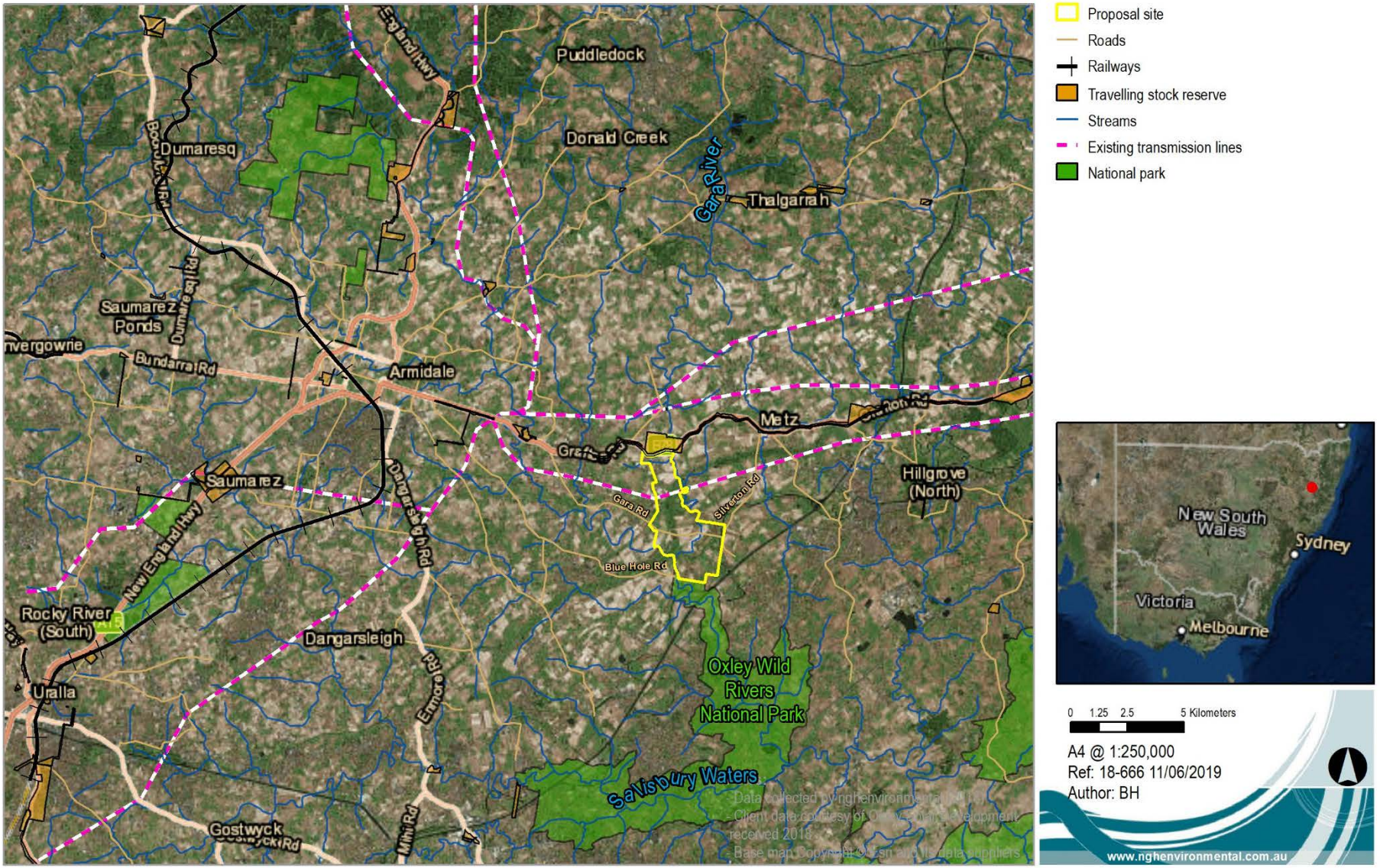

Figure 2-1 Site location

3 COMMUNITY PROFILE

Understanding the makeup and values of a community is essential to finding effective ways to reach the community. It is also important to understand ways the project may impact the community. This may not be limited to the construction and operational stages of a project but may also include the pre-lodgment assessment phase, as the project is being shaped. This section provides a broad overview of the community demographics in the Armidale Regional Local Government Area (LGA) and the local township of Armidale.

3.1 ARMIDALE REGIONAL LOCAL GOVERNMENT AREA

The proposal site is located within the Armidale Regional LGA, which covers an area of 8,621 km^2 in an area known as Big Sky Country. The area was formed in 2016 after the former Armidale Dumaresq Shire merged with the surrounding Guyra Shire. The 2016 Census indicates that the Armidale Regional LGA has a population of 29,449, which is a 22% increase since 2011. The median age is 36 (ABS, 2011) and Aboriginal and Torres Strait Islanders make up 7.9% of the population.

There were 7,128 people employed in the Armidale Regional LGA labour force in 2016. The median age of those working full time was 45 – 54, with a gender split of 39% female and 61% male. The highest percentage of workers (19.4%) were employed in education and training (ABS, 2016), likely due to the University of New England Armidale campus. Other major industries were healthcare and social assistance, retail, agriculture, forestry and fishing.

Socio Economic Indexes for Areas (SEIFA) is a suite of indexes created by the ABS. The Index of Relative Socio-economic Advantage and Disadvantage (IRSDAD) summarises data about economic and social conditions of people and households in an area. Ranking of NSW suburb's and LGA's are used in this report with 1 being most disadvantaged (1st decile) to 2643 being most advantaged (10th decile). The SEIFA score for the Armidale Regional LGA was 980 in 2016 (ABS, 2011). These indices of wellbeing indicate that the Armidale Regional LGA have a relatively high standard of living without many social or economic disadvantages (ABS 2016).

The Armidale Regional LGA is located in northern New South Wales (NSW) and brings approximately 750,000 visitors annually to experience various events and attractions. The region's natural attractions include areas of wilderness and wild rivers, granite boulder formations and waterfalls within world heritage listed national parks. The area also holds significant Aboriginal heritage, including rock art sites. Some of the main community and economic features for the Armidale Regional LGA are:

- Education and research facilities
    - Including the University of New England, 11 public primary schools, two public high schools, and five private schools.
    - Commonwealth Scientific and Industrial Research Organisation (CSIRO) in Armidale.
- Health facilities
    - Including a major public and private hospital in the Armidale city centre.
    - Hunter New England Area Health Service in Armidale.
- Transport services
    - Including the Armidale airport, coach and bus services, and a Country Link train service.
- Recreational and sporting facilities

- Including the Armidale City Gymnastics Club and Armidale Sport and Recreation Centre.
- Oxley Wild Rivers National Park.
- Waterfall Way Tourist Drive.

- Community facilities
  - Including showgrounds, parks, saleyards, halls and libraries.

3.2 ARMIDALE

The closest township to Oxley Solar Farm is Armidale, located approximately 14km north-west of the proposed Oxley Solar Farm. In 2016, Armidale had a population of 23,352 people, a workforce of 10,520 people and a median age of 34. The discovery of gold in the mid-19th century led to the towns establishment and rich history. Town facilities included a university, TAFE, schools, hospitals, and airport. Armidale was well known for its cathedral and heritage buildings. The primary employment industries in Armidale were education, agriculture and healthcare. The surrounding land was primarily used for large lot agricultural enterprises (ABS, 2016). The Metz Solar Farm, a 115 MWac solar photovoltaic project, is located 20km east of Armidale and is planning construction early 2019 (Clenergy 2018).

3.3 HILLGROVE

The closest town to Oxley solar farm is the town of Hillgrove is located approximately 9km east of the proposed Oxley Solar Farm. In 2016 Hillgrove had a population of 176 people with a median age of 45. The primary employment industry in Hillgrove was specialised beef cattle farming, and other major industries of employment included sheep-beef cattle farming, higher education, meat processing and landscape construction services (ABS, 2016).

4 STAKEHOLDER GROUPS AND CONSULTATION STRATEGIES

It is important to identify key stakeholder groups and relevant characteristics of each of the groups so that engagement strategies can be tailored in order to best suit them. Different levels of engagement will be appropriate for different groups, depending on the potential interest or impacts on the groups:

- Where impacts are minor, the International Association for Public Participation (IAP2) consultation spectrum suggests approaches such as 'Inform' and 'Consult'.
- Greater impacts on communities require approaches such as 'Involve', 'Collaborate' and 'Empower'.

Proposed strategies are set out below for each stakeholder group. Levels of engagement may change, depending on issues identified during the consultation process.

Table 4-1 Stakeholder group consultation strategies

Stakeholder group	Defining characteristics	Consultation strategies
1. Adjacent neighbours	Neighbours on land adjacent to the project site, for example: those with a view of infrastructure, or with potential for noise or vibration from the haulage route or construction activities. 2 residence located adjacent of the site. These residences are owned by the land owner and are therefore project-involved.	**Inform, consult, involve, collaborate** As a project-involved landowner, extensive consultation will be undertaken as part of the project's development. Impact on this landowner do not require assessment however, given their involvement in the project.
2. Near neighbours and residents of Oxley Solar Farm	Impacts for this group would be less than adjacent neighbours but being a major development close to a small settlement, direct impacts may be of great interest to residents. This is a large development with potential to define the locality in some ways. There are 32 residences within 2km of the proposal area. A number are expected to have a view of the proposed solar farm.	**Inform, consult, involve** Understanding the values and potential impacts to this group is highly important. It will assist the assessment process and development of appropriate mitigation strategies and in gaining social license to operate from the local community. The opportunity for face to face consultation and direct feedback should be provided upon request. All consultation should be documented.

Stakeholder group	Defining characteristics	Consultation strategies
3. Small Local Businesses	Local businesses in the regional city centre of Armidale may be impacted by the influx of workers during construction. This development may be of particular interest to business owners in the area. Opportunities and potential impacts will need to be considered. Local business can benefit the project by distributing information about the project and may play a large part in influencing community opinions.	**Inform and consult** Understanding the values and potential impacts to this group is highly important. It will assist the assessment process and development of appropriate mitigation strategies and in gaining social license to operate from the local community. The opportunity for face to face consultation and direct feedback should be provided upon request. Potential opportunity to distribute project information and understand community sentiment. These stakeholders should have access to the latest project information (such as by newsletter and website). All consultation should be documented.
4. Representative bodies	Representatives of groups such as: • Armidale Regional Council • Armidale Chamber of Commerce • Armidale Local Aboriginal Land Council	**Inform** Specific information may be required for these groups. An avenue to receive information and provide specific feedback or ask questions should be provided. The opportunity for face to face consultation and direct feedback should be provided upon request.
5. Agencies	Roads and Maritime Services Rural Fire Service Office of Environment and Heritage National Parks and Wildlife Service Environment Protection Authority Department of Industry – Water Department of Industry – Crown Land	**Inform** Specific information may be required for these groups. It will assist the assessment process and development of appropriate mitigation strategies.

Stakeholder group	Defining characteristics	Consultation strategies
6. Special interest groups	There may be benefit in contacting special interest groups, to ensure that any special areas of interest will be addressed in the assessment of the project. Local information can be important for the assessment stage. Some that have been identified specific to this proposal include: • Sustainable Living Armidale • The Tourism Group Armidale • National Parks Association of NSW (Armidale branch)	**Inform** The group should be specifically contacted. Specific information or assessment may be required to understand and mitigate impacts for these groups. These stakeholders should have access to the latest project information (such as by newsletter and website). An avenue to provide feedback or ask questions should be provided.
7. Broader community	It is important to ensure a clear and consistent message is delivered to the broader community. There may be opportunities and impacts to the broader community that are important to understand during the assessment of the project. Accommodation and services for project construction staff and other economic matters may be of interest.	**Inform** Newsletters, advertisements, website information used to relay information about the project. A contact should be provided to this group, for further information / provision of feedback.

5 ISSUE MANAGEMENT

A set of project-specific issues and risks to maximising community engagement in the project have been identified below. These issues pose potential risks to the effective identification and mitigation of impacts important to the community and ultimately, to achieving social license to operate from the community. Strategies have been developed below, specific to the identified issues. These have been incorporated into the Project-based Activities, in Section 6.

Table 5-1 Risks and strategies

Issue	Risks	Strategies
The project may define / overwhelm the locality / Township of Armidale / Town of Hillgrove	This may polarise the community. They may not feel that the project reflects their values. The scale of the project may overwhelm the existing local character.	Early and easily accessible distribution of information about the project and its specific justification and benefits, particularly with reference to developing new income streams on agricultural land and the ability to restore the land capability after decommissioning. This may include material about the role of solar energy in the country's energy mix, the technology and its impacts. Particularly, visualisations (representative montages) can assist to understand the actual versus perceived impacts. Seek direct input into how the project may reflect the communities 'personality' and values. How the benefits of the project may be spread to the local community. Clear communication of key environmental impacts and mitigation strategies of the project. Offer direct contact with project manager.
Spread of misinformation / feel left out of engagement	Rural residences can be difficult to contact and word of mouth travels very fast in small communities. Feel left out, disengaged, misinformed.	Direct communication early to local community – adjacent landowners first, near neighbours second, then the wider community. Multiple means to identify all relevant residences undertaken – mapping, Council, engagement with other members of the community. It can be difficult to locate all residences and contact all landowners.
Lack of support for project	Lack of interest, leading to low levels of public support. Unaddressed concerns may generate opponents of this project.	Early and easily accessible distribution of information about the project and its justification and benefits. Clear communication of key environmental impacts and mitigation strategies. Make participation easy to ensure all concerns are addressed. Be creative – seek support for renewable energy by demonstrating how benefits can be contributed at the local level Look for opportunities such as ways the project could benefit local businesses.

Issue	Risks	Strategies
The approvals process can be long and complex.	Perception that the process is too difficult to become involved in. Suspicion that input will not be valued. Overly technical information provided, use of jargon.	Clearly illustrate approvals process. Clearly define opportunities for community input including what is required and when it is required. Communicate back, identifying where input has been used. Reinforce this at each relevant stage for community input – pre lodgement, during public exhibition etc. Milestone events should be identified early and celebrated.
Distrust in environmental assessment process.	Distrust of impact identification and mitigation strategies.	Establish credentials of assessment team and Oxley Solar Development. Present these in the EIS and in newsletters etc. Make participation easy – create opportunities to discuss issues with the team.
Representative	Risk of biased consultation, serving only the 'squeaky wheel'. Sections of the community may be "overpowered" and may be marginalised.	Ensure community is engaged in a forum that minimises risk of debate being side tracked. Follow up with smaller groups where required. Use established social (and media) channels in distribution of materials, i.e. sport clubs.
Unified message	Differing messages may create confusion and mistrust.	Limit points of contact. Have message clearly set out for use, rather than reinventing it for each consultation activity.
Unequal distribution of benefits	Residents close to the development are likely to feel more strongly.	Identification of stakeholder groups should reflect differences in impacts.

6 PROJECT BASED ACTIVITIES

The following table outlines the different project stages and associated community consultation objectives and activities, in chronological order. The stages include:

- Decision to proceed with early investigations and proposal development.
- Receipt of EIS format and content requirements from Department of Planning and Environment (DPE).
- Detailed assessment and proposal development.
- EIS on public exhibition and response to submissions.

Further stages will apply pending project approval.

During this progression, milestone events should be celebrated, and used as an opportunity to keep the community on board. Milestones can include:

1. Announce project – notify near residents first, follow up with consistent information.
2. Early studies update – meet the community face to face.
3. EIS submitted – explain avenues for input.
4. Approval – celebrate in a way that involves the community.

Table 6-1 Proposed engagement activities

Stakeholder group	Issue	Consultation objective	Community engagement targets	Format
Decision to proceed with early investigations, proposal development, and receipt of SEARs				
Adjacent landowners	Misinformation / left out of engagement Lack of support for project	Inform, consult, involve, collaborate	Early distribution of information about solar development generally. Early distribution of information about the proposal and its justification and benefits. Seek direct input to include in assessment approach and development of proposal.	Face to face meetings with Project Manager. Encourage ongoing direct contact with Project Manager during project development.
Near neighbours, Armidale local community and Hillgrove local community	Misinformation / left out of engagement May define locality Lack of support Unequal distribution of benefits	Inform and consult	Early distribution of information about solar development generally. Early distribution of information about the project and its justification and benefits. General feeling toward solar development.	Request to meet face to face or by phone with the Project Manager. Follow up with newsletter introduction to the project, contact number provided for feedback and follow up, supplementary information on website. Touch base at milestones to seek feedback.
Local small business owners	Misinformation / left out of engagement Lack of support for project	Inform and consult	Build relationship with these owners and staff as they may assist to 'get the word out'. Discuss specific impacts and opportunities.	Face to face meeting / direct contact with Project Manager. Encourage ongoing direct contact with Project Manager.
Broader community	Distrust in environmental assessment process. The approvals process can be complex.	Inform	Make information on the project team and assessment team available.	Newsletter to include graphic showing stages of the process and opportunities for input. Show also project location and provide project justification

Stakeholder group	Issue	Consultation objective	Community engagement targets	Format
Agencies	May hold site specific Information that is required to be considered early in the design process	Inform and consult	Discuss specific impacts and opportunities.	Phone call/seek initial feedback
Detailed assessment and proposal development				
Adjacent landowners	Lack of support	Inform, consult, involve, collaborate	Discuss and understand specific impacts on these receivers. Feed information into the final assessment to ensure all their issues have been identified and addressed by the project.	Face to face meeting / Phone call.
Near neighbours	May define locality Lack of support	Inform, consult, involve, collaborate	Identify ways the community can participate in the project and seek input on these: Vegetation screen planting, adopt a tree (one for project, one for landowner?) Signage / logo for solar farm (will be prominent part of the village? Other renewable or energy saving programs that the proponent could support?	Touch base at milestones to seek feedback.
Armidale local community	Distrust in environmental assessment process. Unequal distribution of benefits Risk of biased consultation, serving only the 'squeaky wheel'.	Inform and consult	Update community on detailed project, its impacts Seek input – any additional concerns, input into visual assessment if required. Meet assessment specialists. Feed information into the final assessment to ensure all community issues have been identified and addressed by the project, differentiating between stakeholder groups.	Open house information day (provide links to relevant information, provision of feedback forms - also now on website).

Stakeholder group	Issue	Consultation objective	Community engagement targets	Format
Broader community	Representative	Inform and consult	Outline ways they can continue to have input into project Seek broad feedback on how the community feels about solar farms generally and this project specifically.	Media release, link to website (including feedback form).
Agencies	Statutory obligations	Inform and consult	Address Agency comments from SEARs and consult as necessary	Phone call.
EIS on public exhibition, submissions reporting				
Adjacent landowners	Relationship with landowners and community	Inform, consult, involve, collaborate	Update on project status.	Phone call update.
Near neighbours	Relationship with community	Inform and consult	Update on project status. Outline ways they can continue to have input into project.	Phone call update.
Armidale local community	Relationship with community	Inform and consult	Update on project status. Outline ways they can continue to have input into project.	Newsletter update.
Broader community	The approvals process can be long and complex.	Inform	Update on project status. Outline ways they can continue to have input into project.	Media release.
Approval determination				
Adjacent landowners	Relationship with landowners and community	Inform, consult, involve, collaborate	Update on project status.	Phone call update.
Near neighbours and Armidale local community	Relationship with community	Inform	Update on project status. Thank the community for their involvement.	Phone call update.
Broader community	Relationship with community	Inform	Update on project status. Thank the community for their involvement.	Media release.

7 MONITORING AND EVALUATION

To ensure this plan is effective during the implementation of activities, and adapts as required to new information, the following review actions will be undertaken alongside implementation activities:

- Appoint and maintain a consultation manager for the project to implement activities and review this plan regularly.
- Keep an accurate record of all feedback from consultation activities and all correspondence with the community.
- Monitor regularly and respond promptly to email and phone queries.
- Monitor if the activities are reaching a diverse and representative section of the community; do new activities need to be implemented?
- Has relevant information been passed back to:
    - Those developing the detailed project description
    - Assessment staff.

APPENDIX C NEWSLETTER – APRIL PROPOSAL UPDATE

OXLEY SOLAR FARM

Project Update APRIL 2019

Oxley Solar Farm

About the Developer

Oxley Solar Development Pty Ltd (the Company) is an Australian developer of utility-scale solar generation projects. The Company's dedicated management team is highly proficient in transmission network connection planning, renewable generation development and operation, and renewable project financing. This team has extensive experience in developing and operating large scale projects in Australia and internationally.

Oxley Solar Development Pty Ltd was established in Australia in 2018 to specialise in renewable energy developments and in particular utility scale solar projects. We take a pro-active, quality - controlled and relationship-driven approach to our activities.

About Oxley Solar Farm

The overall site for Oxley Solar Farm (the Project) is approximately 916 hectares. The Solar Farm will have up to 300 megawatts of generating capacity. This would power approximately 109,000 average homes and therefore displace approximately 534,000 tons of carbon dioxide emissions per annum. This State Significant Development will include a battery storage facility with a proposed storage capacity of 30-megawatt hours. This will enable on-demand energy production day and night.

The Oxley Solar Farm will consist of approximately 940,000 solar panels mounted on either a fixed or single axis tracking system. Our solar panels will be industry leading and incorporate the latest technologies.

Tier-one professional consultants have been engaged to oversee and manage the Project. Our Project will be a state-of-the-art facility, compliant with all Australian industrial standards. The community can be proud of this development.

During construction, Oxley Solar Farm will create approximately 300 local jobs with around five full-time employees being required once the Project is in operation.

To receive regular project updates please register your interest on our website

CONTACT US:

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OXLEY SOLAR FARM

Project Update APRIL 2019

Proposed Site

The Solar Farm would be located approximately 17km south-east of Armidale on Lot 5 DP253346 which has an area of approximately 660ha. Additional areas north and east of the site are under consideration and are included in the outline boundary of the proposal in Figure 1. The total area of the site could be up to 920ha. The Solar Farm site is located north and south of Gara Road, just west of the intersection with Silverton Road. Silverton Road runs south from Waterfall Way which connects Armidale to the coast.

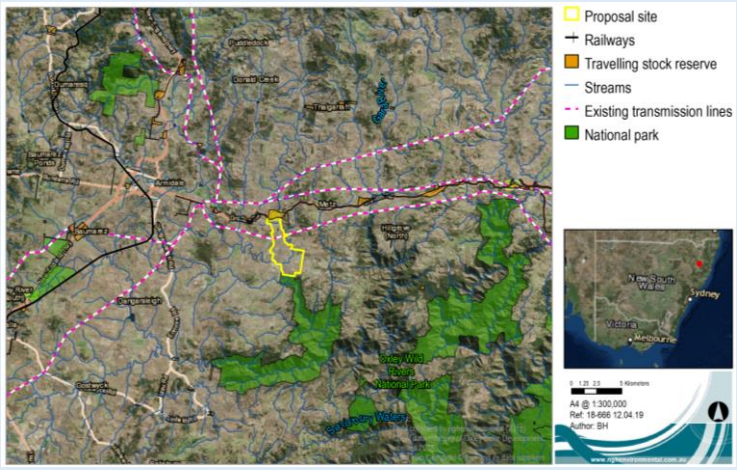

Figure 1. Location of proposal.

Timeline and Lifespan

It is planned for construction to commence in mid 2020 and would be completed during 2021 subject to the appropriate approvals. Construction of solar power farms is a fairly quick process, with minimal excavation and noisy work involved. For this Solar Farm, we will need to excavate cable trenches and secure the mounting system into the ground. Once this is completed, panels are placed onto the mounting systems and are connected.

Although this Project has been designed with a lifespan of 30 years, it is expected the Solar Farm can produce energy for several more decades. We intend to operate the Oxley Solar Farm for at least 30 years. Once this Project life has been reached, we may explore replacing the equipment with newer technologies.

Our Community

We are keen to establish regular, open two-way communication with all stakeholders. To help us engage with the local community we have developed a Community Consultation Plan. It is our priority to keep the community informed about the Project and solar energy in general, particularly with any areas of concern such as visual amenity.

We encourage you to visit our website www.oxleysolarfarm.com.au, write to us at info@oxleysolarfarm.com.au or call us on 1300 708 818.

We are always available to listen and respond to your questions and feedback.

About Renewable Energy

The renewable energy sector in Australia contributes approximately 14.3 per cent of the country's overall electricity. Currently there are more than 50 large-scale energy projects underway or being developed. Collectively these projects have created up to 5,500 jobs and more than $9.3 billion of investment (CEC, 2018). Projects like Oxley Solar Farm support long-term and sustainable policies such as the Renewable Energy Target. They have the potential to benefit household electricity bills substantially and reduce power disruptions by providing alternative generation sources for the energy sector.

To receive regular project updates please register your interest on our website

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