

A stylized topographic map with green contour lines is positioned on the left side of the page, extending from the top left towards the bottom left. The lines represent elevation changes across a landscape.

Clarence Valley Solar Farm Scoping Report

DOCUMENT TRACKING

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Abbreviations

Abbreviation	Description
°C	degrees Celsius
ACHA	Aboriginal Cultural Heritage Assessment
AHIMS	Aboriginal Heritage Information Management System
AHIP	Aboriginal Heritage Impact Permit
APZ	Asset Protection Zone
BAM	Biodiversity Assessment Methodology
BC Act	<i>Biodiversity Conservation Act 2016</i>
BCD	Biodiversity Conservation Division
BDAR	Biodiversity Development Assessment Report
BESS	Battery Energy Storage System
Biosecurity Act	<i>Biosecurity Act 2015</i>
BSAL	Biophysical Strategic Agricultural Land
CEEC	Critically Endangered Ecological Community
CEMP	Construction Environmental Management Plan
DAWE	Commonwealth Department of Agriculture, Water and Environment
DPE	Department of Planning and Environment
DPIE	Department of Planning, Industry and Environment
DRE	DPIE- Division of Resources and Energy
EEC	Endangered Ecological Community
EIS	Environmental Impact Statement
ELA	Eco Logical Australia
EMF	Electromagnetic Field
EPA	Environment Protection Authority
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999</i>
EP&A Act	<i>Environmental Planning & Assessment Act 1979</i>
EPIs	Environmental Planning Instruments
EPL	Environmental Protection Licence
ESD	Ecologically Sustainable Development
FM Act	<i>Fisheries Management Act 1994</i>
GWh	Gigawatt hours
Hazardous Waste Act	<i>Hazardous Waste (Regulation of Exports and Imports) Act 1989</i>
Heritage Act	<i>Heritage Act 1977</i>

Abbreviation	Description
ICNIRP	International Commission on Non-Ionizing Radiation Protection
Infinergy	Infinergy Pacific Ltd
IPC	Independent Planning Commission
IPCC	Intergovernmental Panel on Climate Change
IRENA	International Renewable Energy Agency
ISEPP	<i>State Environmental Planning Policy (Infrastructure) 2007</i>
LEP	Local Environmental Plan
LGA	Local Government Areas
LLS	Local Land Services
LSPS	Local Strategic Planning Statement
LUCRA	Land Use Conflict Risk Assessment
LULUCF	Land Use, Land Use Change and Forestry
Mining Act	<i>Mining Act 1992</i>
MNES	Matters of National Environmental Significance
MW	megawatts
MWh	megawatt hours
NCR Plan	<i>North Coast Regional Plan 2036</i>
NP	National Park
NPW Act	<i>National Parks and Wildlife Act 1974</i>
NR	Nature Reserve
NSW	New South Wales
OEMP	Operational Environmental Management Plan
OWID	Our World in Data
PBP	<i>Planning for Bush Fire Protection</i>
PCT	Plant Community Types
PHA	Preliminary Hazard Assessment
PLVIA	Preliminary Landscape and Visual Impact Assessment
POEO Act	<i>Protection of the Environment Operations Act 1997</i>
Project	Clarence Valley Solar Farm
PV	photovoltaic
RE Act	<i>Renewable Energy Act 2000</i>
RET	Renewable Energy Target
RF Act	<i>Rural Fires Act 1997</i>
RFS	NSW Rural Fire Service
Roads Act	<i>Roads Act 1993</i>

Abbreviation	Description
SCA	State Conservation Area
SDGs	Sustainable Development Goals
SEARs	Secretary's Environmental Assessment Requirements
SEPP 33	<i>State Environmental Planning Policy No. 33 – Hazardous and Offensive Development</i>
SF	State Forest
SHR	NSW State Heritage Register
SIA	Social Impact Assessment
SRD SEPP	<i>State Environmental Planning Policy (State and Regional Development) 2011</i>
SoHI	Statement of Heritage Impact
SSD	State Significant Development
TEC	Threatened Ecological Communities
the 'Roadmap'	Electricity Infrastructure Roadmap
TMP	Traffic Management Plan
UNDP	degrees Celsius
UNFCCC	United Nations Framework Convention on Climate Change
VIS	Vegetation Information System
WARR Act	<i>Waste Avoidance and Resource Recovery Act 2001</i>
WM Act	<i>Water Management Act 2000</i>
ZVI	Zone of Visual Influence

1. Introduction

1.1 Background

The Clarence Valley Solar Farm (herein referred to as the 'Project'), is proposed to be a grid-connected solar farm in the Grafton region of New South Wales (NSW), approximately 13km north east of Grafton within the Clarence Valley Council Local Government Area (Clarence Valley LGA) (Figure 1-1).

The Project will involve the construction of ground-mounted photovoltaic (PV) solar panels with an approximate generating capacity of 85 megawatts (MW) (85 MW_{AC} and 110.5 MW_{DC}), and an approximate 85 MW (85 MW hour (MWh)) Battery Energy Storage System (BESS) (Figure 1-2). The preliminary Project development footprint covers an area of approximately 280 ha, and will be located within the Project Site which is approximately 340 ha.

The capital value of the Project is valued at over \$30 million. The Project is therefore considered a State Significant Development (SSD) under Part 4 of the *Environmental Planning and Assessment Act 1979* (EP&A Act) and the *State Environmental Planning Policy (State and Regional Development) 2011* (SRD SEPP) (threshold is \$30 million). The value of the Project will be refined over the assessment and design process.

The Project will include the construction, operation and decommissioning of the solar farm and BESS as well as ancillary infrastructure, such as inverters, transformers and cabling, a switchyard, and the substation for grid connection to the transmission network, operations and maintenance facilities. At this stage, the main access to the Project will be via either Lawrence Road or Summerland Way, with both options to be investigated further during the preparation of the Environmental Impact Statement (EIS).

The Project will connect to the National Grid via an onsite substation connecting to the existing transmission lines that traverse the Project Site. The final location of the substation will be dependent upon the outcomes of the environmental assessment to be undertaken for the Project.

The location and number of solar arrays proposed is subject to change based on the final design and associated site restrictions. The Project Site covers the following lots and DP addresses:

- Lot 1, DP 168046
- Lot 2, DP 168046
- Lot 165, DP 751386
- Lot 1, DP 1223279
- Lot 2, DP1223279
- Lot 192, DP 1053568
- Lot 152, DP 1053649
- Lot 151, DP1053649
- Lot 3, DP 168046
- Lot 14, DP 751386
- Lot 313, DP751386
- Lot 312, DP 751386

- Lot 214, DP 751386
- Lot 199, DP 751386
- Lot 179, DP 751386
- Lot 1, DP 751386
- Lot 2, DP 751386
- Lot 326, DP707328
- Lot 322, DP751386
- Lot 318, DP751386
- Lot 323, DP751386
- Lot 328, DP751386.

The Project Site is currently used for agriculture, including farming and grazing operations, and is within the Clarence River catchment. Adjacent land uses include agriculture, rural residential, forestry and National Parks estate land. The Project Site consists of land zoned as RU1 (Primary Production) and RU2 (Rural Landscape) under the Clarence Valley Local Environment Plan (LEP) 2011 (Figure 1-3).

The overall lifespan of the Project is expected to be 30 years from the start of construction to the decommissioning of the Project. Upon decommissioning of the Project, the land will be restored to its pre-approval land use.

1.2 Proponent

The Proponent for the Project is Pelican Solar Farm Pty Ltd. Infinergy Australia Pty Ltd is developing the Clarence Valley Solar Farm on behalf of Pelican Solar Farm Pty Ltd. Proponent details in relation to this Project are included in Table 1-1.

Table 1-1: Proponent details

Document	Details
Proponent name	Pelican Solar Farm Pty Ltd
Postal address	PO Box 38, Sandy Bay, Tasmania, 7005
ABN	84 633 544 073
Project address	58 Boormans Lane, Lower Southgate, NSW, 2460; and Lawrence Rd, Lower Southgate, NSW, 2460 and 100 Dilkoon Rd, Dilkoon, NSW, 2460
Project contact	Jane Ross Development Director Infinergy Australia Pty Ltd

1.3 About Infinergy Australia Pty Ltd

Infinergy Australia has an established track record in the successful delivery of medium and large-scale solar projects in New South Wales, including the Metz Solar farm, currently under construction with a capacity of 120 MW. Infinergy Australia has also developed consent and grid connection arrangements for the Stringybark and Olive Grove Solar Farms, each with an approximate capacity of 29.9 MW.



Figure 1-1: Project Site locality and LGA

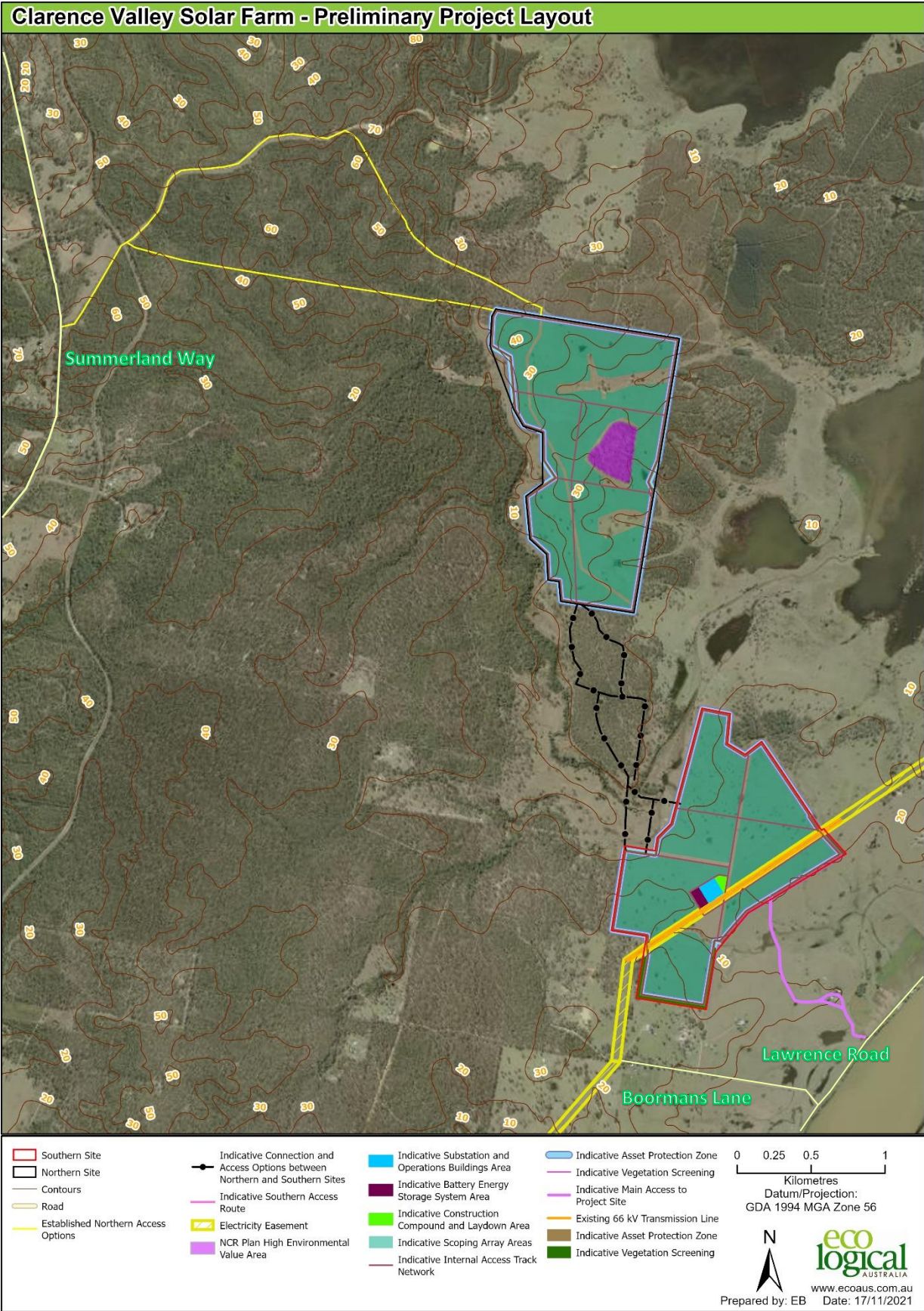


Figure 1-2: Preliminary project layout

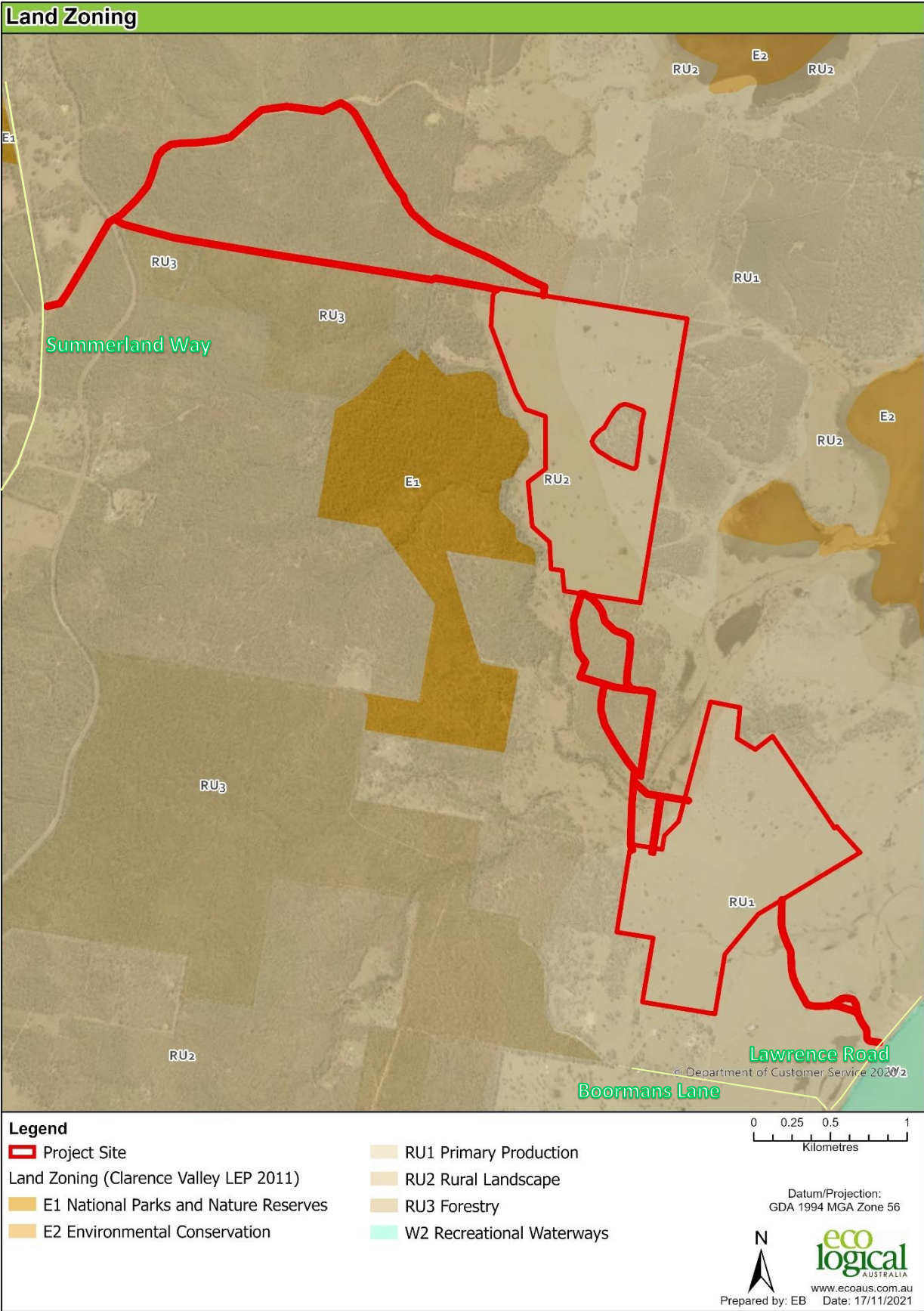


Figure 1-3: Land zoning (Clarence Valley LEP 2011)

1.4 Document Purpose

This Scoping Report has been prepared by Eco Logical Australia Pty Ltd (ELA) to support an application to the Secretary of the Department of Planning, Industry and Environment (DPIE) for Secretary's Environmental Assessment Requirements (SEARs) to guide the preparation of the EIS for the Project under Part 4 of the EP&A Act.

This Scoping Report has been prepared in accordance with the *State significant development guidelines – preparing a scoping report - Appendix A to the state significant development guidelines* (DPIE 2021a), *Undertaking Engagement Guidelines for State Significant Projects* (DPIE 2021b), *Social Impact Assessment Guideline for State Significant Projects* (DPIE 2021c) and the *Large-Scale Solar Energy Guideline for State Significant Development* (Department of Planning and Environment (DPE) 2018). Table 1-2 indicates where each requirement is addressed.

Table 1-2: Summary of State significant development guidelines – preparing a scoping report and Solar Guideline PEA requirements

Item	Section
State significant development guidelines – preparing a scoping report	
Describe the project in simple terms	Section 3
Include an analysis of feasible alternatives considered having regard to the objectives of the development, and identify the alternatives that will be investigated further in the EIS	Section 3
Give an early indication of community views on the project and identify what engagement will be carried out during the preparation of the EIS	Section 5
Identify the key matters requiring further assessment in the EIS and the proposed approach to assessing each of these matters having regard to any relevant Government legislation, plans, policies or guidelines.	Section 6
Undertaking Engagement Guidelines for State Significant Projects	
The proponent must:	Section 5
<ul style="list-style-type: none"> Identify any early engagement that has been carried out that is relevant to the project (i.e. engagement undertaken as part of a prior planning process) Identify the key stakeholders for further engagement (i.e. individuals, special interest groups, councils and government agencies with an interest in or likely to be affected by the project) Plan how they intend to engage with the community, council and government agencies, so that the engagement is proportionate to the scale and nature of the project and the likely level of community interest in the project. 	
The community is able to:	
<ul style="list-style-type: none"> Take up any early engagement opportunities to understand the project Provide feedback to the proponent about aspects of the project which they support, do not support, or wish to be adjusted Provide clear reasons for any concerns to enable the proponent to consider possible alternative approaches to address the issues Alert the proponent to any matters they feel have not been considered. 	
Social Impact Assessment Guideline (SIA) for State Significant Projects	
Gain an initial understanding of the project's social locality	Section 6
Gain an initial understanding of the characteristics of the communities within the project's social locality	Section 6
Conduct an initial evaluation of the likely social impacts for different groups in the social locality and the level to which these impacts need to be assessed	Section 6

Item	Section
Consider potential refinements or approaches in response to likely social impacts	Section 2
Consider the remainder of the SIA tasks, including engagement	Section 5
Solar Guideline Requirements	
The Proponent identifies the matters that are likely to be impacted by the proposed Project, including:	Section 2, Section 6
<ul style="list-style-type: none"> Key assessment issues: <ul style="list-style-type: none"> Strategic context Land use conflict Traffic and transport Batteries Other issues that may be relevant: <ul style="list-style-type: none"> Biodiversity Heritage Visual impacts Water Hazards and risks Health Waste Cumulative impacts Social and economic impacts Noise Public interest. 	
Engages with the community and other stakeholders to get their views on the issues that are important to them.	Section 5

This Scoping Report will use the following terminology:

- The Project – this is in reference to the proposed development, including the solar farm, BESS and all ancillary infrastructure, as described in Section 3
- The Project Site – this includes the site areas for the solar farm, BESS, and all ancillary infrastructure (Figure 1-2)
- Northern Site – refers to the northern area within the Project Site (Figure 1-2)
- Southern Site – refers to the southern area within the Project Site (Figure 1-2)
- Involved Landholder – a landholder that is involved in the Project
- Non-Involved Landholder – a landholder that is not involved in the Project.

2. Strategic Context

2.1 Strategic Need for the Project

Climate change is increasingly affecting the way we live, with more frequent and severe weather events, impacting our health, our agricultural systems, our communities, our economy, and our natural ecosystems and wildlife (Climate Council 2020). To halt or slow the effects of climate change, the energy sector (which contributes two thirds of greenhouse gas emissions) needs to transform through a shift to renewable energy and energy efficiency (International Renewable Energy Agency (IRENA) 2019).

Increased adoption of renewable energy sources will assist Australia to transition away from traditional carbon intensive energy production which is linked to atmospheric pollution and carbon emissions associated with climate change. Reduced carbon emissions have the potential to halt or slow the effects of climate change, benefitting current and future generations.

The Project will therefore play an important role in addressing the need for affordable renewable energy projects to assist during the phasing out of centrally located fossil fuel generators, as well as provide the following strategic benefits:

- Mitigate the impacts associated with global warming and climate change by displacing CO₂ from the current NSW energy generation supply, which is heavily reliant on coal powered generation
- Contribute to achieving the 2016 Paris Agreement to reduce emissions by 26-28% below 2005 levels by 2030 and the United Nation's Sustainable Development Goals (SDGs)
- Implement the aims of NSW's Net Zero Plan Stage 1: 2020-2030 and contribute to NSW's aspirational target of net zero emissions by 2050
- Implement the aims of NSW's Electricity Strategy by providing over \$30 million in capital investment into NSW's electricity system, particularly in regional NSW
- Provide additional generation capacity to the grid to assist in meeting future load demands as thermal generators retire
- Provide local and regional economic benefits through investment opportunities, and direct and indirect full-time employment construction and operation jobs
- Maximise local business participation through contracted work
- Provide ongoing economic stimulus through payments to associated landholders.

The above benefits are discussed in detail below.

2.1.1 Greenhouse Gas Emissions and Climate Change

There is global recognition that human activities are linked to climate change and global warming and that there is an urgent need to mitigate the environmental effects associated with fossil fuel energy generation. Electricity and heat production are the primary driver behind the rate of carbon dioxide equivalent emissions due to the heavy reliance on coal for electricity production (Figure 2-1). This is also true for Australia, where the electricity sector has contributed 33.2% of greenhouse gas emissions in the year to March 2021 (Australian Government Department of Industry, Science, Energy and Resources 2021) (Figure 2-2).

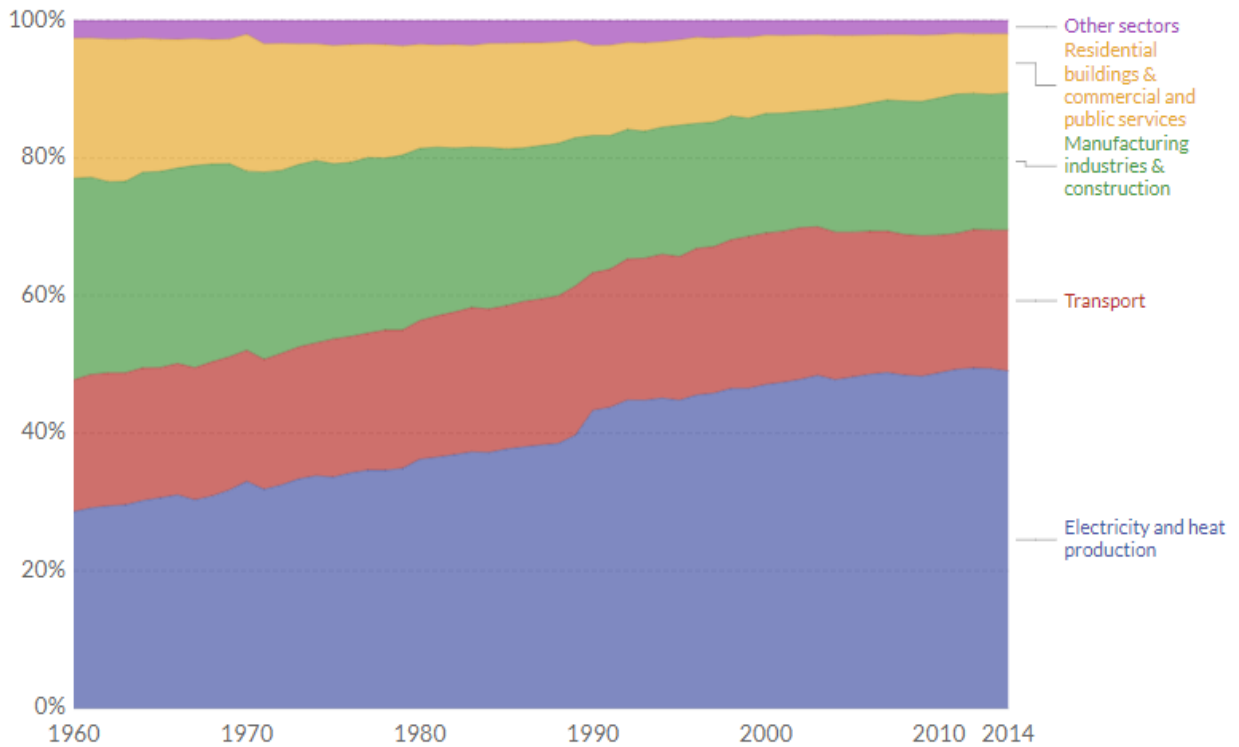


Figure 2-1: Global carbon dioxide emissions by sector or source (Our World in Data (OWID) 2019)

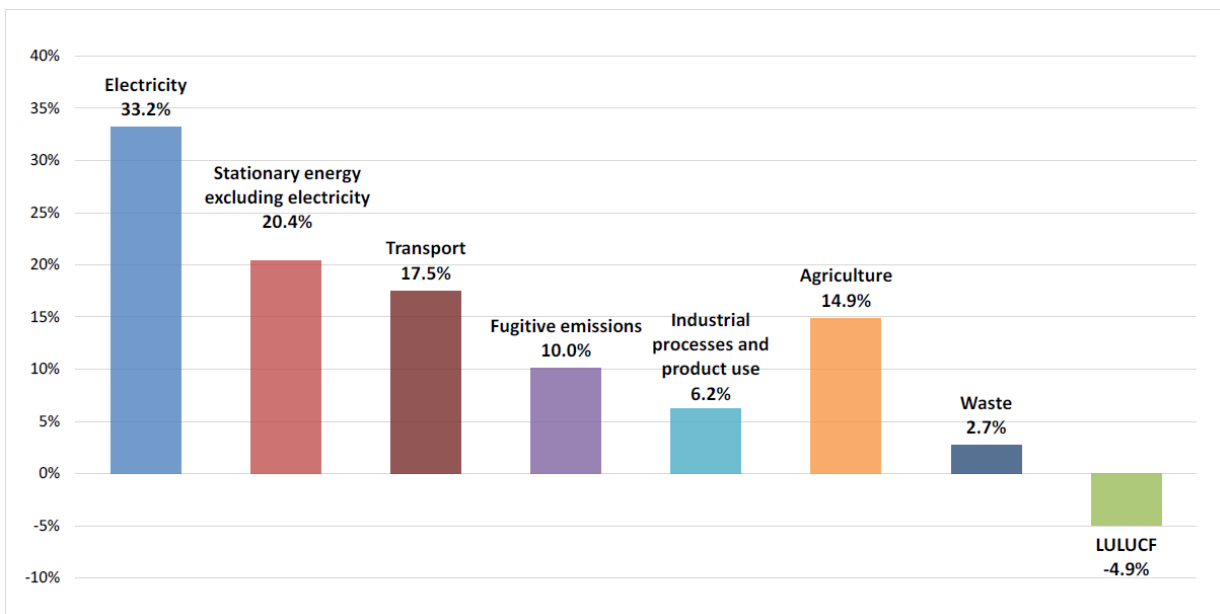


Figure 2-2: Australia's greenhouse gas emissions by sector, March 2021 (Australian Government Department of Industry, Science, Energy and Resources 2021). LULUCF (Land Use, Land Use Change and Forestry)

2.1.1.1 Global Climate Change Agreements and Policies

The anthropogenic effects of climate change are well-documented and accepted globally. There is an international consensus for change in global carbon usage, led by the Intergovernmental Panel on

Climate Change (IPCC) and implemented by the United Nations Framework Convention (Paris Agreement, ratified by Australia in 2016).

The Paris Agreement is the most recent global commitment to climate change and aims to limit global warming to well below 2 degrees Celsius (°C), preferably to 1.5 °C compared to pre-industrial levels (United Nations Framework Convention on Climate Change (UNFCCC) 2021). Australia committed to helping achieve this target by nominating to reduce carbon dioxide emissions to 26-28% below the 2005 levels, by 2030 (Parliament of Australia 2021).

In 2019, the IPCC report on global warming estimated that global surface temperatures are likely to increase by 1.5 °C above pre-industrial levels between 2030-2052 if the current rate of global warming is sustained (IPCC 2021). Higher temperature rises are directly related to higher climate risks to human populations and the natural environment; the Paris Agreement aims to stabilise the global surface temperature rise of 1.5°C to minimise global impact with an achievable target:

“Modelled pathways limiting global warming to 1.5°C include more land-based mitigation than higher warming level pathways (high confidence), but the impacts of climate change on land systems in these pathways are less severe (medium confidence)” (United Nations Development Programme (UNDP) 2021).

The SDGs, or Global Goals of the UNDP were adopted in 2015 by United Nations Member States (of which Australia is a member). The seventeen goals focus global development direction and are integrated, meaning that no goal operates independently to the others. Of specific relevance to the Project are the following SDGs:

- Goal 7: Affordable and clean energy
- Goal 11: Sustainable cities and communities
- Goal 13: Climate action.

2.1.1.2 Australian Climate Change Agreements and Policies

Australia acknowledges that carbon emissions have a significant impact on global climate change. Australia is signatory to international agreements, conventions, and protocols such as the Paris Agreement (ratified in 2016) and is a member country of the UNFCCC. Australia has recognised that with one of the highest greenhouse gas emission rates per capita in the world, a concerted effort is required to deliver on climate commitments (Commonwealth of Australia 2021).

Reorienting global energy generation from carbon intensive to renewable sources is identified as one of the mitigation pathways that is likely to limit global warming to below 1.5°C relative to pre-industrial levels (IPCC 2021).

To deliver on the climate commitments made, Australia developed a Climate Solutions Package. Building on existing policies, the \$3.5 billion package aims to reduce greenhouse gas emissions across the economy through the existing Emissions Reduction Fund, continue to support the transition to reliable renewables, transition to new vehicle technology and infrastructure, help households and businesses improve energy efficiency and ‘green and clean’ local environments by supporting local communities (Department of Agriculture, Water Environment (DAWE) 2021).

Additionally, the Australian Government implemented the Renewable Energy Target (RET) scheme, which aimed to reduce greenhouse gas emissions specifically in the electricity sector with the aim of generating 37,000 GWh of renewable energy. This target was met and exceeded in 2019.

In October 2021, the Australian Government released *Australia's Long-term Emissions Reduction Plan - A whole-of-economy Plan to achieve net zero emissions by 2050* (Commonwealth of Australia 2021), which sets out a Plan on how Australia will achieve net zero emissions by 2050. Renewable energy, including solar will play a major part in this Plan, with an increased share of renewables being the foundation for a zero emissions grid by 2050.

With a generation capacity of approximately 85 MW, the Project would be a contributor to the deliverability of Federal and international commitments to renewable energy generation thereby reducing reliance on carbon intensive power generation.

2.1.1.3 New South Wales' Climate Change Policies

The Net Zero Plan Stage 1: 2020-2030 is the foundation for NSW's action on climate change and goal to reach net zero emissions by 2050. It outlines the NSW Government's plan to grow the economy, create jobs and reduce emissions over the next decade. The plan aims to enhance the prosperity and quality of life of the people of NSW, while helping the state to deliver a 35% cut in emissions by 2030 compared to 2005 levels (Figure 2-3) (DPIE 2020a).

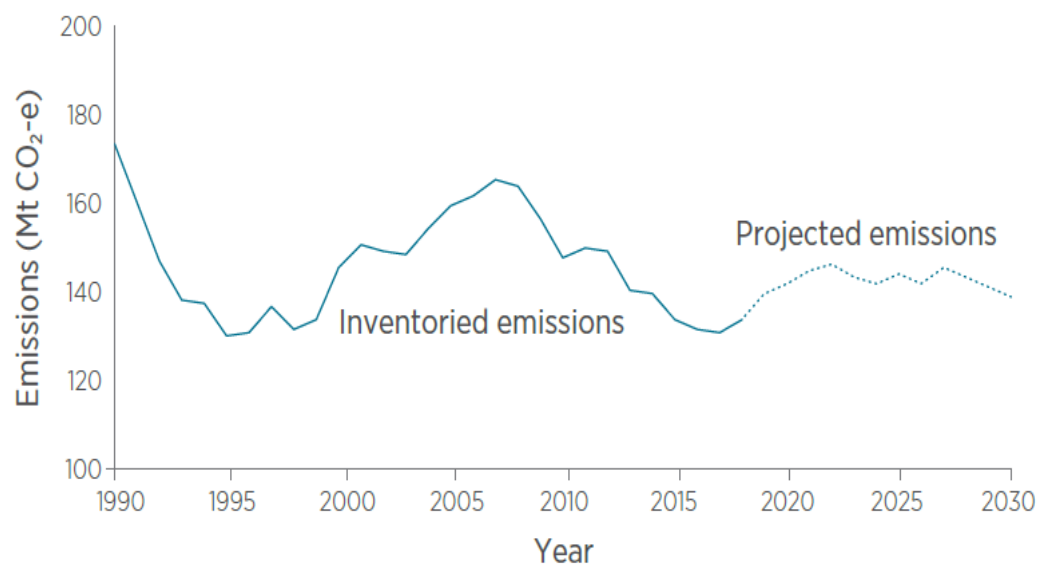


Figure 2-3: NSW total annual emissions to 2030 (DPIE, 2020). Note MtCO₂-e = Mega tonnes of carbon dioxide equivalent (DPIE 2020a)

In September 2021, the NSW DPIE released the 'Net Zero Plan Stage 1: 2020-2030 Implementation Update' (the Plan), which outlined an increased target for the state to deliver a 50% cut in emissions by 2030 compared to 2005 levels (Figure 2-4) (DPIE 2021d).

The Plan is forecast to reduce annual emissions by 28.6 to 37.3 million tonnes of carbon dioxide equivalent by 2030, projecting a 47 to 52% reduction in emissions compared to 2005 levels. The Plan

and related policies are expected to attract up to \$37 billion in private investment, support more than 9,000 jobs and lower household electricity bills by \$130 per year (DPIE 2021d).

Currently, the biggest emissions within NSW are derived from electricity generation. The plan will support a range of initiatives targeting electricity and energy efficiency, electric vehicles, hydrogen, primary industries, coal innovation, organic waste, and carbon financing.

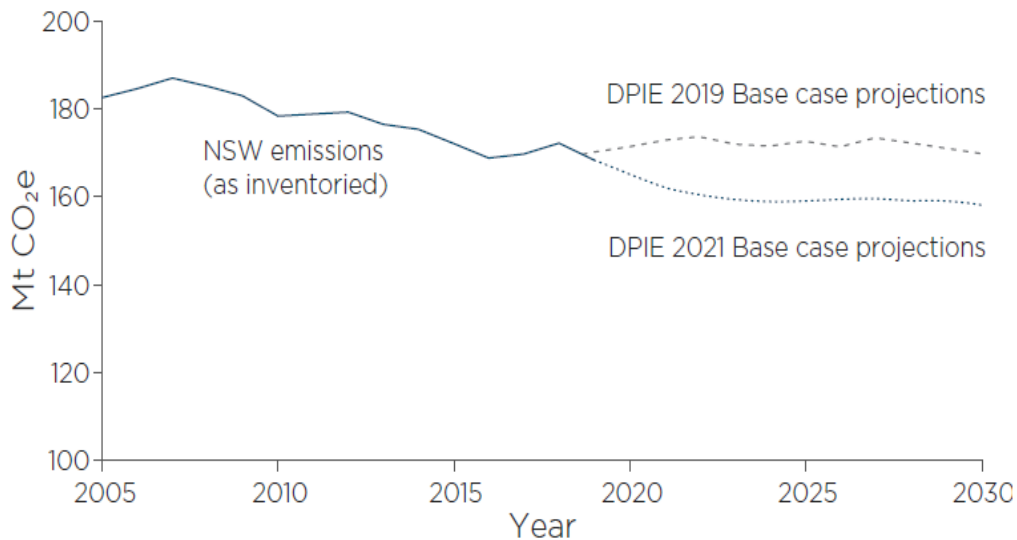


Figure 2-4: Comparison of 2019 and 2021 base case projections for NSW emissions (projected emissions without the Net Zero Plan) (DPIE 2021d).

The ‘NSW Electricity Strategy’ is the NSW Government’s plan for a reliable, affordable and sustainable electricity future that supports a growing economy. The strategy encourages an estimated \$8 billion of new private investment in NSW’s electricity system over the next decade, including \$5.6 billion in regional NSW. It will also support an estimated 1,200 jobs, mostly in regional NSW (DPIE 2019).

In November 2020, the DPIE released the ‘Electricity Infrastructure Roadmap’ (the Roadmap), which is enabled by the *Electricity Infrastructure Investment Act 2020*. The Roadmap builds on the foundations of the NSW Electricity Strategy and is expected to attract up to \$32 billion of private investment in regional energy infrastructure by 2030, and support 6,300 construction jobs and 2,800 ongoing jobs, mostly in regional NSW (DPIE 2020b). The NSW Electricity Strategy and Electricity Infrastructure Roadmap aligns closely with the NSW Government’s Net Zero Plan Stage 1: 2020 – 2030.

With a generation capacity of approximately 85 MW, the Project is a contributor to the deliverability of State commitments to renewable energy generation thereby reducing reliance on carbon intensive power generation.

2.2 Project Location Context

The Project Site would be accessed via either Lawrence Road or Summerland Way, Southgate approximately 13 km to the north east of Grafton within the North Coast Local Land Services region of NSW. The North Coast is a region of NSW that supports a range of diverse and productive based

industries, including grazing, horticulture, fishing and aquaculture, timber production and tourism. The region provides a diversity of natural landscapes and a mix of temperate and subtropical climates and has nine large river systems with extensive floodplains.

The Southgate community is dominated by rural residences and structures associated with agricultural land uses. According to the 2016 Census, there were 184 people in Southgate. The nearest localities to the Project Site are Lower Southgate, Kyarran, Trenayr, Great Marlow, Ulmarra, Cowper, Warragai Creek and Clifden.

The Project Site is currently used for agriculture, including farming and grazing operations, and is within the Clarence River catchment. Adjacent land uses include agriculture, rural residential, forestry and National Parks estate land. The Project Site consists of land zoned as RU1 (Primary Production) and RU2 under the Clarence Valley LEP 2011.

2.2.1 Key Landscape Features

In addition to the agricultural landscape, the region is characterised by scenic landscapes, natural environments and productive forests, including the following protected areas within a 10 km radius of the Project Site (Figure 2-5):

- Southgate State Forest (SF) – west of the Project Site
- Warragai Creek Nature Reserve (NR) – west of the Project Site
- Everlasting Swamp National Park (NP) – north-east of the Project Site
- Everlasting Swamp State Conservation Area (SCA) – north-east of the Project Site
- Corymbia SCA – west of the Project Site
- Fortis Creek NP – north-west of the Project Site
- Munro Island NR – north-east of the Project Site
- Gurranang SCA – north of the Project Site
- Banyabba NR – north of the Project Site
- Banyabba SCA – north of the Project Site
- Pine Brush SF – east of the Project Site
- Lawrence Road SCA – north of the Project Site.

The Project Site is within the Clarence River catchment. The Clarence River does not enter the Project Site and is located to the south-east.

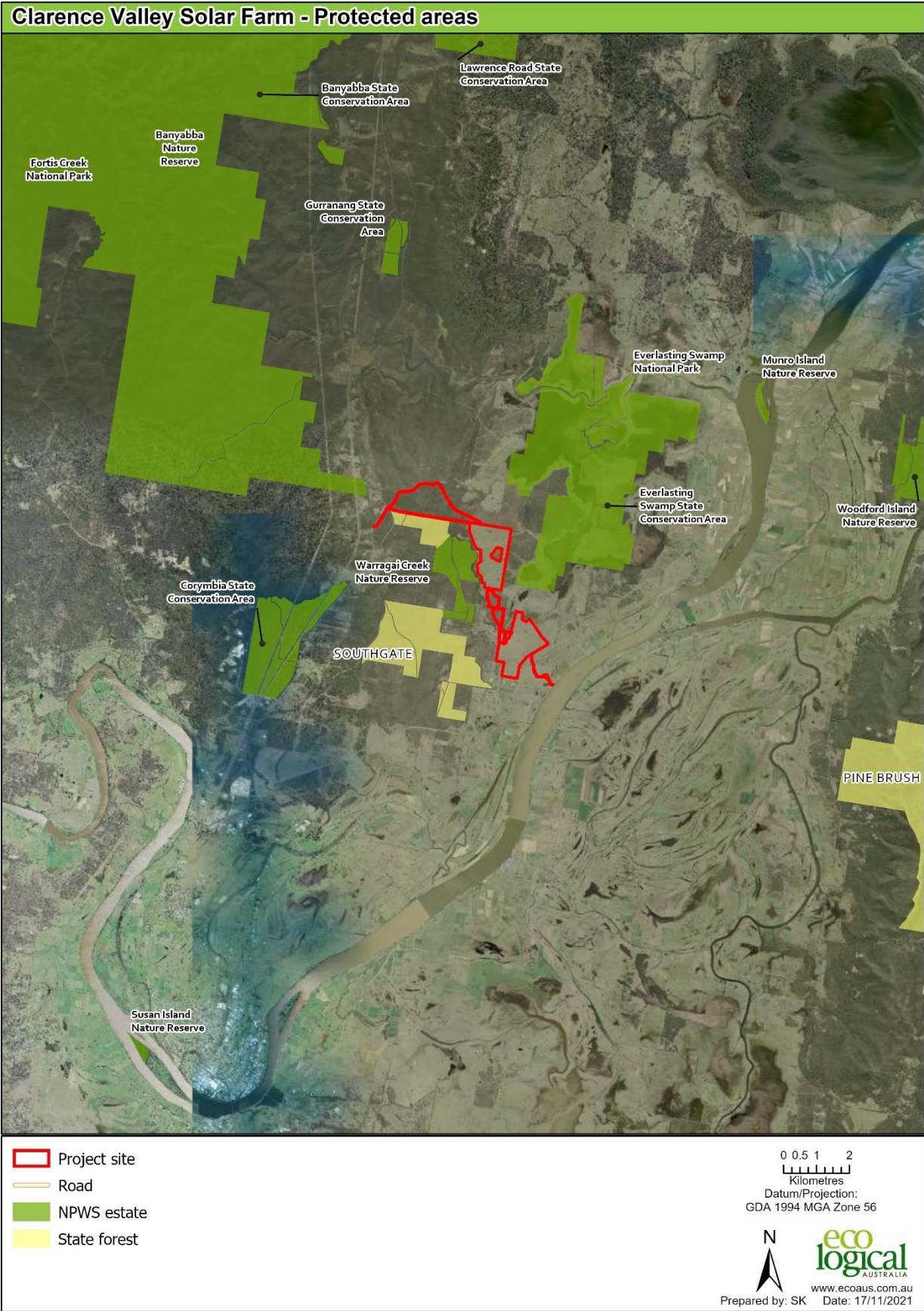


Figure 2-5: Protected areas within 10km of the Project Site

2.2.2 Key Transport and Infrastructure

The Project Site is in proximity to the major centres of Grafton (18 km by road to the south-west) and Coffs Harbour (103 km by road to the south) and is benefited by major road and rail routes that connect the LGA to the wider region, including the Pacific Highway, Orara Way, Big River Way, Summerland Way and the Sydney to Brisbane Rail line. The region is also serviced by regional airports including the Clarence Valley Regional Airport and the Coffs Harbour Airport.

The solar farm equipment may be supplied through domestic manufacturing and/or imported and arrive at port. The closest port of entry to the Project Site is Port of Newcastle, located 488 km by road. However, other NSW and Queensland ports including (but not limited to) Port Botany, Port Kembla and Port of Brisbane may be considered by the construction contractor.

2.2.3 Renewable Energy Projects

The Project Site is not located within close proximity to other existing wind or solar renewable energy projects. The closest proposed solar farm is the Myrtle Creek Solar Farm (approximately 90 km north), which is currently going through the environmental approvals process. The other closest wind and solar projects are located on the New England Tablelands, with the closest over 100 km to the west of the Project Site.

2.3 Local and Regional Plans

2.3.1 North Coast Regional Plan 2036

The *North Coast Regional Plan 2036* (NCR Plan) is the NSW Government's strategy for guiding land use planning decisions for the North Coast Region for the next 20 years. The vision of the NCR Plan is to be *'the best region in Australia to live, work and play thanks to its spectacular environment and vibrant communities'* (DPE 2017).

The supporting goals of the NCR Plan are:

- The most stunning environment in NSW
- A thriving, interconnected economy
- Vibrant and engaged communities
- Great housing choice and lifestyle options.

These goals are in turn supported by a range of local directions that provide context and detail to the overarching goals. Of particular relevance to the development of this Project are the following directions, discussed in the context of the Project in Table 2-1. Based upon the context of the Project in relation to the directions of the NCR Plan, the Project is considered to be consistent with the vision of the NCR Plan.

Table 2-1: NCR Plan

Direction	Project Context
Direction 1: Deliver environmentally sustainable growth	The Project will provide a significant investment into the local community and assist with the delivery of a renewable energy project. The Project will be developed in consideration of the principles of Ecologically Sustainable Development (ESD).
Direction 3: Manage natural hazards and climate change	Through assessment, natural hazards would be managed and this will be demonstrated in the EIS. Through supporting renewable energy, the reliance on traditional forms of energy generation, such as the burning of fossil fuels, is reduced, thus the project is a positive step towards reducing the impacts of climate change.
Direction 4: Promote renewable energy opportunities	The Project will be consistent with this direction through the delivery of a renewable energy resource.
Direction 11: Protect and enhance productive agricultural lands	Through careful site selection the Project Site has been chosen in part due to its location not being mapped as Important Farmland by the NCR Plan.
Direction 13: Sustainably manage natural resources	Impacts to environmental assets would be adequately assessed within the EIS.
Direction 15: Develop healthy, safe, socially engaged and well-connected communities	This is achieved through careful, considered and comprehensive engagement with the local community about the Project would help to provide a sustainable future for future generations.
Direction 16: Collaborate and partner with Aboriginal communities	Engagement with the local Aboriginal community will occur as a component of Aboriginal Cultural Heritage Assessment (ACHA) for the Project during the EIS.
Direction 18: Respect and protect the North Coast's Aboriginal heritage	Appropriate assessment and review of potential impacts to heritage would be addressed within the EIS, including consultation with the Aboriginal community via the ACHA.

2.3.2 Clarence Valley Local Strategic Planning Statement 2020

The Clarence Valley Local Strategic Planning Statement (LSPS) is a 20-year planning vision for the Clarence Valley LGA (Clarence Valley Council 2020). The vision of the LSPS is to be '*a community of opportunities*' which is the same vision as the *Community Strategic Plan – Our Clarence 2027*.

The planning priorities of the LSPS are grouped under five themes, being:

- Society
- Infrastructure
- Economy
- Environment
- Leadership.

These themes are in turn supported by a range of priorities that provide context and detail to the overarching planning priorities. Of particular relevance to the development of this Project are the following themes and priorities, discussed in the context of the Project:

- Society
 - Priority 1 – Take a proactive 'place making' approach to create great places suitable to our climate, culture and aspirations. The Project will help in achieving Action 1.3 (Explore

opportunities to incorporate and measure outcomes against the UN Sustainable Development Goals and Sendai Framework), with the following SGD applicable to the Project:

- Goal 7: Affordable and clean energy
 - Goal 11: Sustainable cities and communities
 - Goal 13: Climate action.
- Infrastructure
 - Priority 7 – Co-ordinate local and state funded infrastructure delivery with land use planning. The Project will help in achieving Action 7.3 (work with state government and infrastructure providers to accelerate the provision of infrastructure and availability of residential and employment land to support a growing community and job opportunities in the Clarence Valley, where appropriate) through investment in the local community and employment opportunities.
 - Environment
 - Priority 18 – Promote a low-carbon community. The Project will help in achieving Council's strategy of increasing the use of renewables to 50% before 2030, help address climate change and contribute to the Council 100% Renewables strategy.

Based upon the context of the Project in relation to the themes and priorities of the LSPS, the Project is considered to be consistent with the vision and intent of the LSPS.

2.3.3 Clarence Valley Community Energy and Emissions Reduction Strategy

The Community Energy and Emissions Reduction Strategy for Clarence Valley (2021) was developed by 100% Renewables on behalf of the DPIE Sustainable Councils and Communities Program. The strategy outlined Council's emission reduction targets, including reducing greenhouse gas emissions (excluding landfill) by 40 per cent by 2030 compared with 2016/17 levels, with the long term goal to reach zero net emissions by 2050 and supplying 50 per cent of Council's electricity demand from renewable energy by 2030, with the long term goal to source all electricity from renewable energy, and recommended a community emission reduction target be net zero emissions by 2040, with 2030 emissions being reduced by at least 35% compared with 2019 emission levels (Figure 2-6) (100% Renewables 2021).

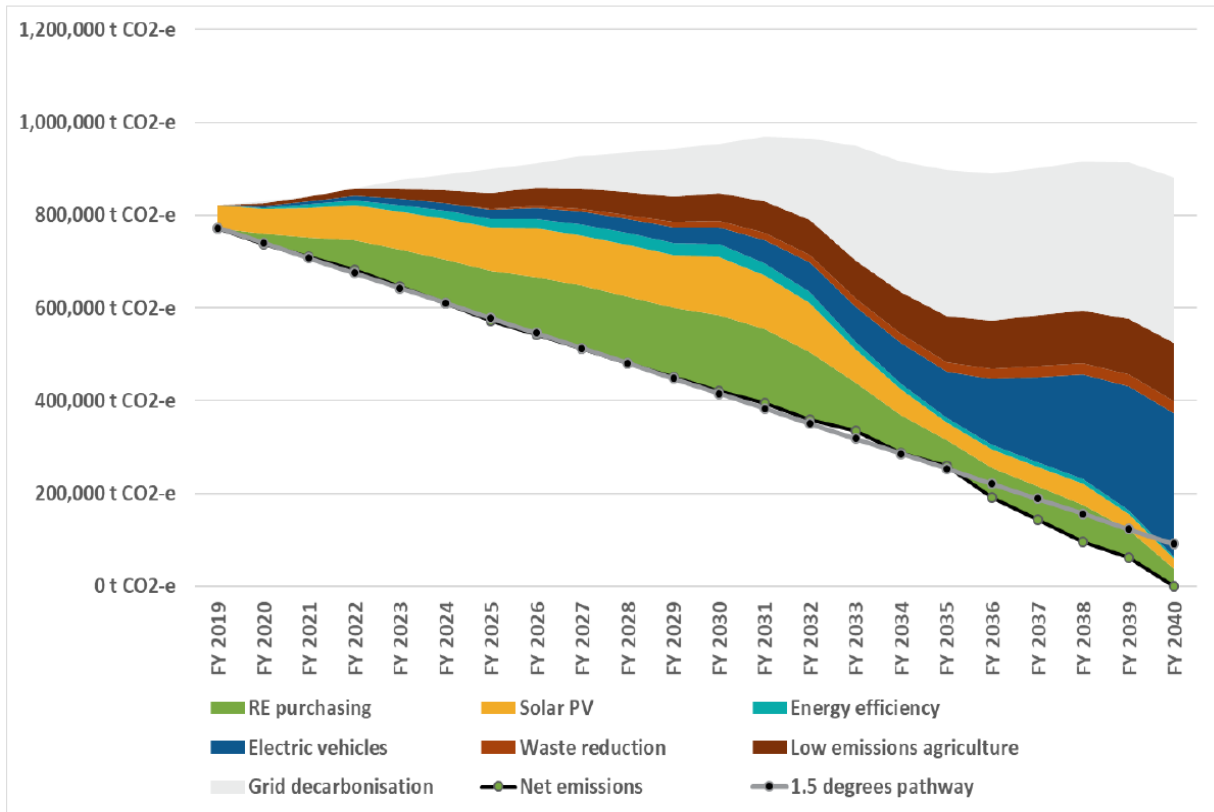


Figure 2-6: 2040 Net Zero Emissions Aligned with 1.5°C – Possible Pathway for the Clarence Valley (100% Renewables 2021)

Within the Strategy, nine main areas of action were outlined, and when implemented together in a sustained way, could significantly reduce emissions. The nine areas include (100% Renewables 2021):

1. Grid decarbonisation
2. Buying clean energy (e.g. via a renewable energy power purchase agreement or a Power Purchase Agreement)
3. Community and regional clean energy generation (grid-side)
4. Behind-the-meter solar (i.e. onsite solar)
5. Energy efficiency
6. Sustainable transport
7. Waste Management
8. Sequestration
9. Agriculture.

The Project will contribute mostly to the first three actions above, grid decarbonisation, buying clean energy and community and regional clean energy generation (grid-side), with the Project to contribute a generation capacity of 85 MW to the National Electricity Network.

2.4 Project Justification and Alternatives

The Project is still in its early stages of design, with the development of the preliminary Project layout considering:

- Results from the preliminary assessments undertaken to date
- Feedback from associated and neighbouring landowners
- The principles outlined in the Large-Scale Solar Energy Guideline.

The development of a solar farm layout is, by nature, an iterative process, with opportunity for refinement and revision as more information is obtained from environmental studies, ongoing feedback from consultation and updated monitoring. The evolution of the Project design will be focused around three core principles:

- Minimising and/or avoiding negative environmental and community impacts
- Maximising positive impacts (clean energy production resulting in greenhouse gas reduction)
- Incorporating practical and economic limitations in relation to the construction and operation of the Project.

2.4.1 Project Site Selection Process

2.4.1.1 *Do Nothing Scenario*

Under the 'Do Nothing' Scenario the Project would not take place, which would negate all potential environmental impacts associated with the Project. However, the environmental benefits resulting from the opportunity to generate additional renewable energy and progress towards renewable energy targets and national and international carbon reduction commitments, as well as the local socioeconomic benefits resulting from the Project, would also be forgone.

2.4.1.2 *Alternative Locations*

At a regional scale, a multi-criteria site selection process was undertaken to identify the most suitable location for the Project. Initial investigations, including consultation with network operators was undertaken. The capacity to export electricity from a development to the National Electricity Network is a key factor in selecting a site for large-scale generation in NSW (DPIE 2019). As such, potential capacity in the transmission and distribution lines in NSW was used as a starting point to identify a suitable site for the Project.

The following site selection criteria were considered in the identification of suitable development sites for the Project (in no particular order):

- Solar irradiation
- Access to the existing road network
- Access to the electricity network
- Capacity of the local transmission/distribution lines
- Topography and key landscape features
- Minimal environmental constraints / impact
- Compatible existing land uses
- Access to suppliers and materials
- Proximity to residential settlement
- Landowner support.

The Proponent has reviewed sites within NSW and the local area for solar farm development and determined that the Project location represented a feasible opportunity for PV development.

2.4.2 Design Principles

The Project Site was selected due to its suitability for a solar farm and the limited nature of the environmental constraints identified in preliminary assessments. In designing the preliminary layout and assessing the potential impacts of the Project, the following design hierarchy has been adopted:

- Avoid – in the first instance, all efforts have been made to avoid potential environmental impacts
- Minimise – where potential impacts cannot be avoided, design principles seek to minimise environmental impacts, as far as feasibly possible
- Mitigate – mitigation strategies will be identified and implemented to manage the extent and severity of remaining environmental impacts
- Offset – environmental offsets shall be used only as applicable, following all efforts to first avoid, minimise and mitigate environmental impacts.

In addition, the following specific principles have been adopted:

- Minimise vegetation clearing – areas of high conservation value and/or native vegetation have been strategically avoided
- Use previously disturbed land – the Project has been located on previously cultivated or disturbed land
- Protect cultural heritage values – desktop assessment indicates that the Project Site does not contain any previously recorded AHIMS sites or places or heritage items
- Protect agricultural values - existing agricultural values shall be preserved and a negotiated lease shall offset forgone landholder income while diversifying income for the duration of the Project life
- Minimise direct and indirect impacts – as far as possible, infrastructure has been located away from sensitive receivers
- Adopt a flexible approach to design – the preliminary layout responds to identified environmental impacts and constraints.

2.4.3 Site Selection

The Project Site has been selected based on the site selection criteria outlined in Section Project Site Selection Process and the design principles outlined in Section 2.4.2. It has been an iterative process that has used information from preliminary assessments, local landowners and feedback from engagement activities (Section 5) to identify a suitable location for the Project.

An Initial Study Area (Figure 2-8) of 378 ha was identified for the Project at 58 Boormans Lane, Lower Southgate. The Initial Study Area was located outside of any land designated for environmental values including NPWS Estate land and State Forest and within land designated as RU1 and RU2 under the Clarence Valley LEP (2011). As discussed in Section 4 and given that the Initial Study Area is located on prescribed rural land (RU1 and RU2), and the proposed activity is to generate electricity using solar

panels, the Project would be permissible within the Initial Study Area with consent under clause 34(1b) of the *State Environmental Planning Policy (Infrastructure) 2007* (ISEPP) (see Section 4 for more detail).

The Initial Study Area itself is highly disturbed and has been cleared for agricultural use. The topography at the Initial Study Area is generally flat with some small undulations and ridgelines (Figure 2-7). The Initial Study Area slopes in an east to south easterly direction towards the Clarence River. Two parallel 66 kV Essential Energy transmission lines traverse the Initial Study Area.



Figure 2-7: Typical topography of the initial study area and existing 66kV lines

Preliminary investigations at the location indicated:

- A good solar resource
- Proximity to transmission infrastructure with potential to connect the Project to the National Electricity Network
- The area is highly modified and grazed for agricultural purposes reducing the potential for unacceptable environmental effects
- Suitable topography for solar development
- Suitable land use zoning
- A landowner interested in hosting a solar farm on their land.

However, further investigations revealed that areas of the Initial Study Area were not suitable for solar development. The land adjacent to the Clarence River is designated as Flood Prone Land and while it is possible to place PV Panels and the associated tracking equipment in flood prone areas, the inverters, substation and operations buildings need to be located outside the 1:100 flood event (as mapped). In addition to this, more detailed studies of the topography within the Initial Study Area and the location of neighbouring residents, along with site visits, revealed that it would be possible to screen views of the Project more effectively if development is restricted to the northern portion of the Initial Study Area. The Revised Study Area was identified in response to these findings and is shown in Figure 2-9.

Following consultation with residents neighbouring the proposed Project, the Revised Study Area was extended to include land at Lawrence Rd, Lower Southgate and 100 Dilkoon Rd, Dilkoon (Northern Site) to form the Project Site as shown in Figure 2-10. The extended Project Site allows scope to further refine and optimise the final design of the Project in response to feedback from the local community regarding the proximity of the Project and potential visual and noise impacts. While initial desktop assessments indicate that it would be possible to mitigate these issues using screening and noise mitigation strategies within the Revised Study Area, increasing the area of land available for the Project allows the Project design to be further refined in response to the findings of detailed environmental assessments with the aim of avoiding or reducing potential impacts in line with the principals of ESD.

The Northern Site, like the Southern Site, is also highly modified, cleared and is used for agricultural purposes. The land within the Northern Site is zoned under the Clarence Valley LEP as RU1 (Primary Production) and RU2 (Rural Landscape) and as such (like the Southern Site), the proposed activity to generate electricity using solar panels would be permissible with consent under clause 34(1b) of the ISEPP (see Section 4 for more detail).

The topography of the Northern Site is more undulating than the flatter Southern Site, but initial investigations indicate that with careful design it would be possible to use areas for solar arrays pending the outcome of the detailed environmental assessments. As shown in Figure 2-11, the Northern Area of the Project Site is well screened by existing vegetation. There is a small parcel of land in the centre of Northern Site that is designated as a High Environmental Value Area under the NCR Plan. This area will be avoided and will not be used for any infrastructure associated with the Project.

There are no transmission lines associated with the Northern Site, so a connection to export generation from the Proposal to the National Electricity Network will be via the 66 kV transmission lines that cross the Southern Site (Figure 2-11). Two options to connect the Northern and Southern Sites electrically and by track are identified in the Preliminary Layout Design (Figure 2-11). Note, both the connection options follow existing tracks.

The results of the initial investigations have been used to refine the siting and preliminary layout of the Proposal, as described in Section 3 below.

2.4.4 Siting and Design Evolution

From the outset, the Project has adopted a methodology to, in the first instance, avoid all possible environmental impacts. The evolution of the Site is summarised in Table 2-2 below.

Table 2-2: Site Selection and Design Evolution

Site		Area (ha)	Comments	Figure
Initial Study Area		378 ha	As described in Section 2.4.3 above, the development was originally part of a greater single parcel of land, comprising all land at 58 Boormans Lane, Lower Southgate.	Figure 2-8
Revised Study Area		152 ha	<p>Preliminary high level constraints analysis, environmental surveys, discussions with the landowner and technical investigations indicated that not all the land within the Initial Study Area was suitable for solar development as first intended. Rather, a Revised Study Area within the Initial Study Area was identified.</p> <p>The Revised Study Area responded to preliminary studies which included the identification of areas of Flood Prone Land, initial visual assessments, and the assessment of local transmission infrastructure to identify a suitable connection point.</p>	Figure 2-9
Consultation		-	As part of the iterative design process, the Proponent presented the proposed Project to the community in August 2021. More detail is provided in Section 5.	
Project Site		339 ha	The Project Site: The Revised Study Area was further refined to further mitigate potential impacts to form the Project Site. In particular, and in response to community feedback, the Project Site was extended to include land at Lawrence Rd, Lower Southgate and 100 Dilkoon Rd, Dilkoon. The extended Project Site allows scope to refine and optimise the final design of the Project within the Project Site in response to detailed environmental assessments in order to avoid, minimise and mitigate potential impacts.	Figure 2-10
Preliminary Project Layout		280 ha	The Preliminary layout is an indicative layout based on the site selection and design process to date. It includes preliminary locations for the solar arrays, the substation & the operations buildings, the BESS and internal access tracks, which are described in detail below. The preliminary layout also includes vegetation screening along sensitive boundaries of which the final extent will be determined through the Landscape and Visual Impact Assessment. An Asset Protection Zone (APZ) has been included around the perimeter of the Project Site. Note that the extent and the final location of the APZ will be determined through a Bushfire Risk Assessment.	Figure 2-11
Preliminary Array Area		251.6 ha	The Preliminary Array Area delineates the extent of the Project Site that assessments to date indicate would likely be suitable for the installation of PV panels and associated infrastructure (inverters, cables, internal access tracks).	Figure 2-11
Preliminary Substation and Operations Buildings Location		1.6 ha	An area suitable for the substation and the operations buildings has been identified in the Preliminary Project Layout. This area is situated adjacent to the northern side of the existing 66kV lines that will connect the Project to the National Electricity Network. This location is indicative and subject to further detailed assessment. The area will include the substation and supporting infrastructure, control room, maintenance facilities such as an office and sheds, parking, security fencing and an APZ. Details of this area will be provided in the EIS in response to detailed assessments.	Figure 2-11

Site	Area (ha)	Comments	Figure
Preliminary Location	BESS 0.8 ha	<p>The Project includes an 85 MW (85 MWh) BESS. The BESS has been located next to the substation and operations building area adjacent to the existing 66kV lines that will connect the Project to the National Electricity Network. The specific technology of the BESS will be determined through further design and assessment, and will depend on a number of technical, financial and government policy considerations.</p> <p>The major components of the BESS will be:</p> <ul style="list-style-type: none"> batteries (likely to be lithium-ion technology) inverters (convert DC electricity generated by the PV modules to AC electricity) transformers heating, ventilation, air conditioning fire protection systems including an APZ. <p>The final location of the BESS will be subject to further detailed assessment.</p>	Figure 2-11
Internal Access Tracks	-	<p>Internal access tracks will connect all areas of the Project and will be designed to accommodate construction and operational traffic over the lifetime of the Project. The tracks will be constructed of compacted gravel, approximately 4 m wide with wider stretches created for passing, parking, and access around corners.</p> <p>Internal access tracks will include an access track from the Lawrence Road entrance to the main Project Area, a perimeter track, and internal tracks to allow access to the array areas and access between the Northern Site and the Southern Site.</p> <p>Two access options to connect the Northern and Southern Sites by track are identified in the Preliminary Layout. Both options follow existing access tracks. The final location of all internal access tracks will be designed in response to the environmental assessments to be conducted as part of the EIS.</p>	Figure 2-11
Access to the Project Site	-	<p>Preliminary investigations have determined that there are two options for the main entrance into the Project Site, which will either be via Lawrence Road or Summerland Way. Both options would likely require upgrades to the intersections between Lawrence Road/Summerland Way and the Project Site in line with RMS guidelines.</p> <p>Site access arrangements will be assessed as part of the Traffic and Transport Assessment.</p>	Figure 2-11

The Preliminary Layout has been designed in response to the site selection and design process as described in Table 2-2 and is presented in Figure 2-11. Note, this is a preliminary design that will be further refined in response to the findings of the detailed environmental assessments that will be carried out as outlined in Section 6 of this Scoping Report. The Final design will also respond to ongoing engagement with interested people, communities and stakeholders.

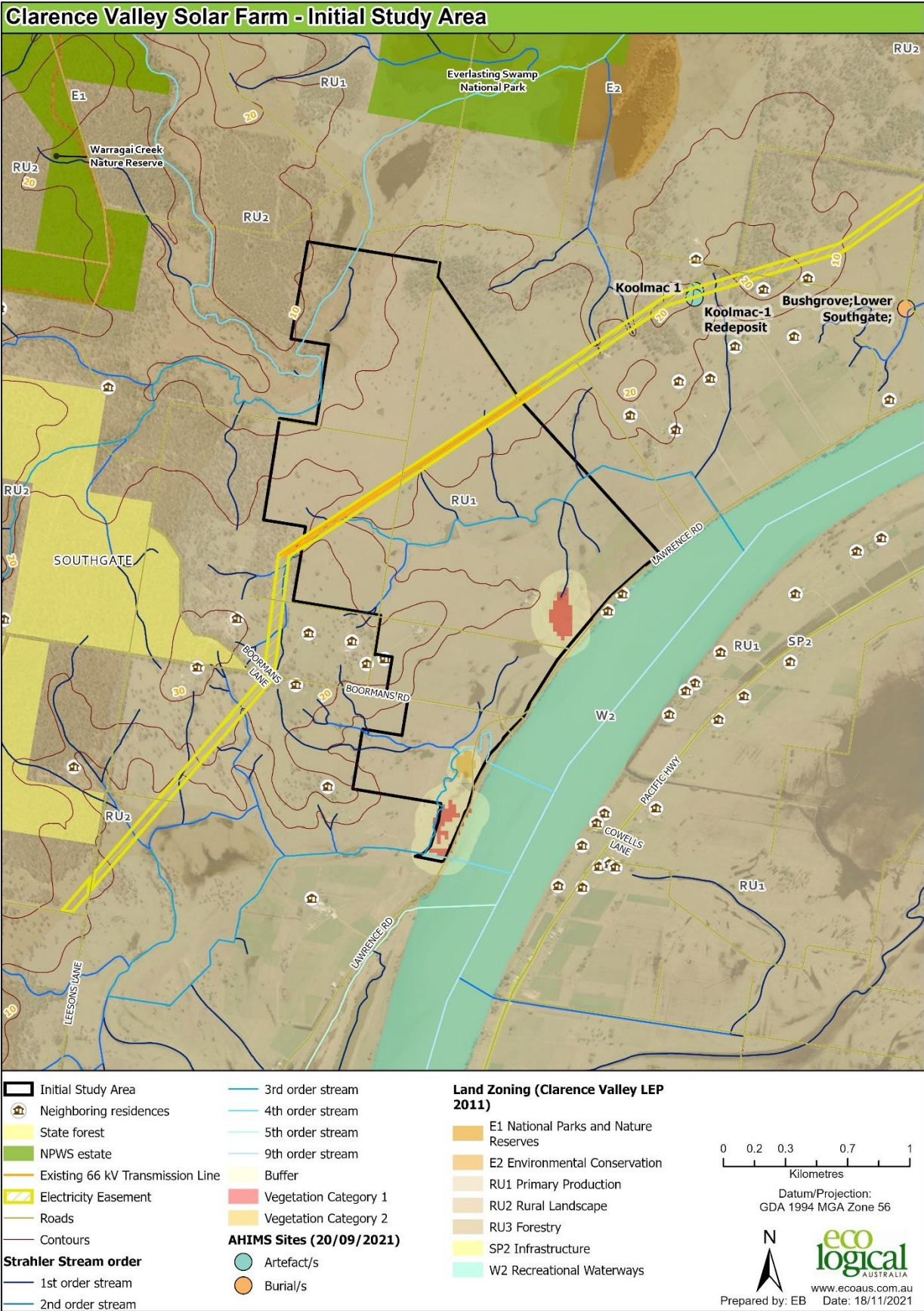


Figure 2-8: Initial study area

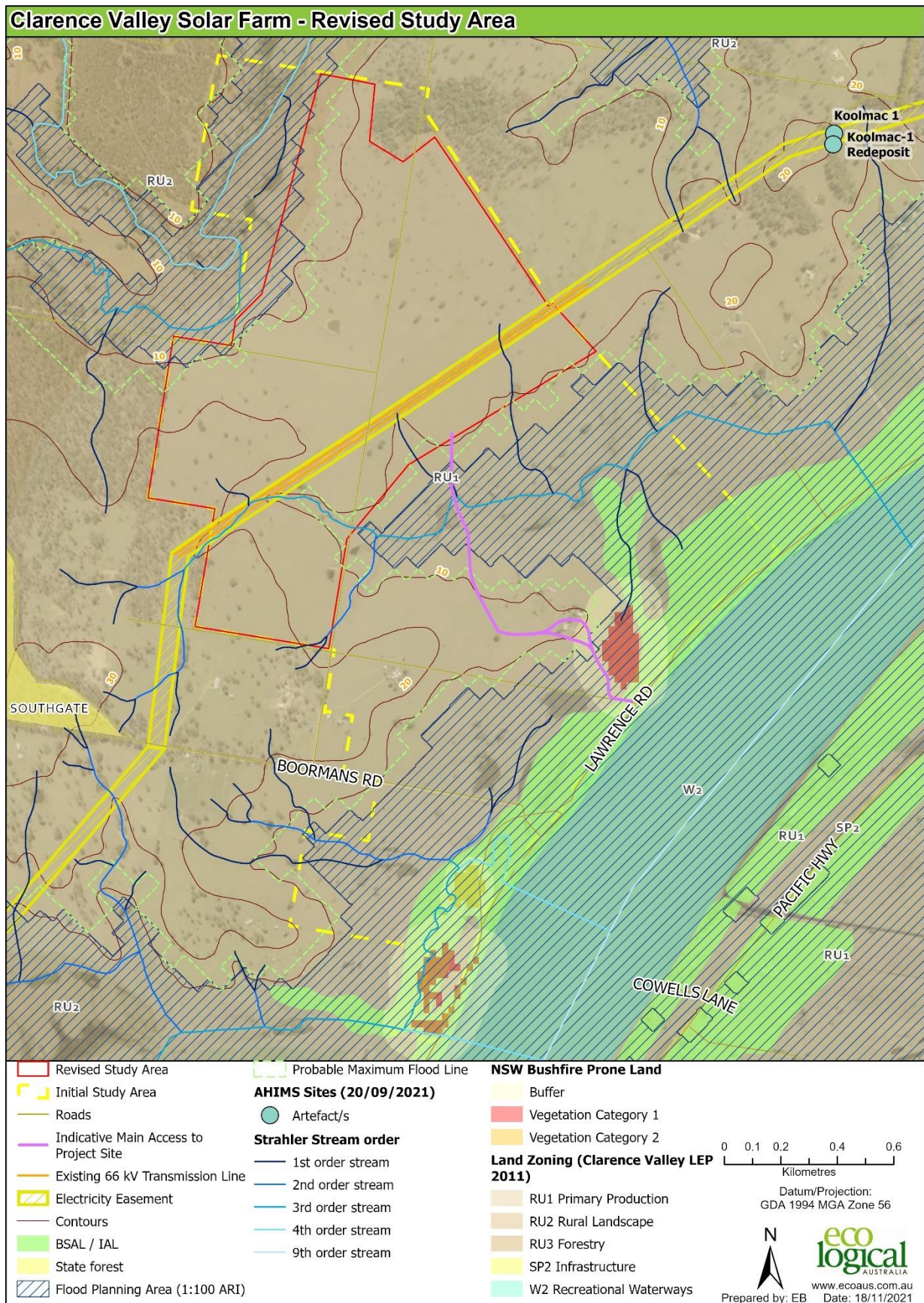


Figure 2-9: Revised study area

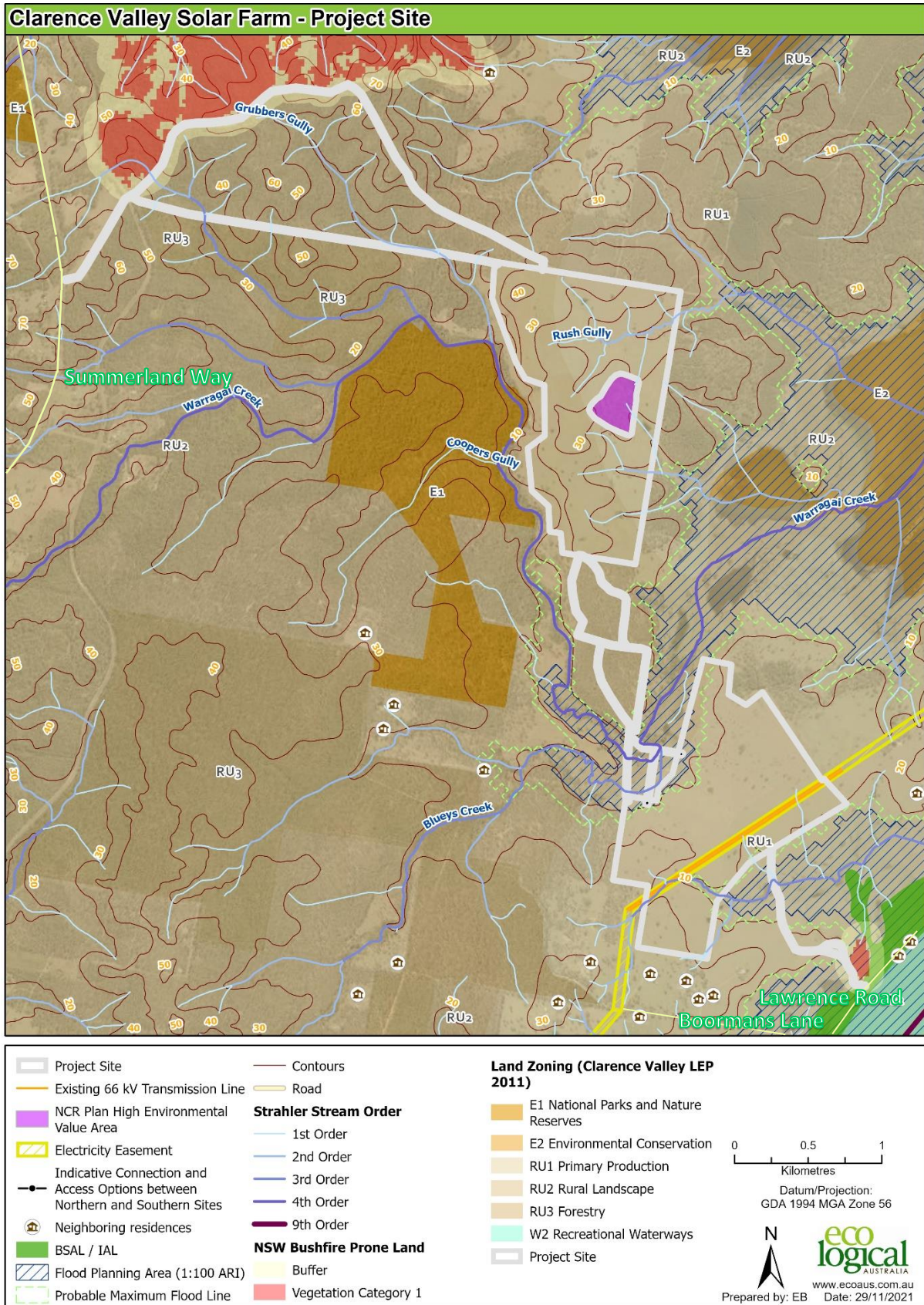


Figure 2-10: Project Site

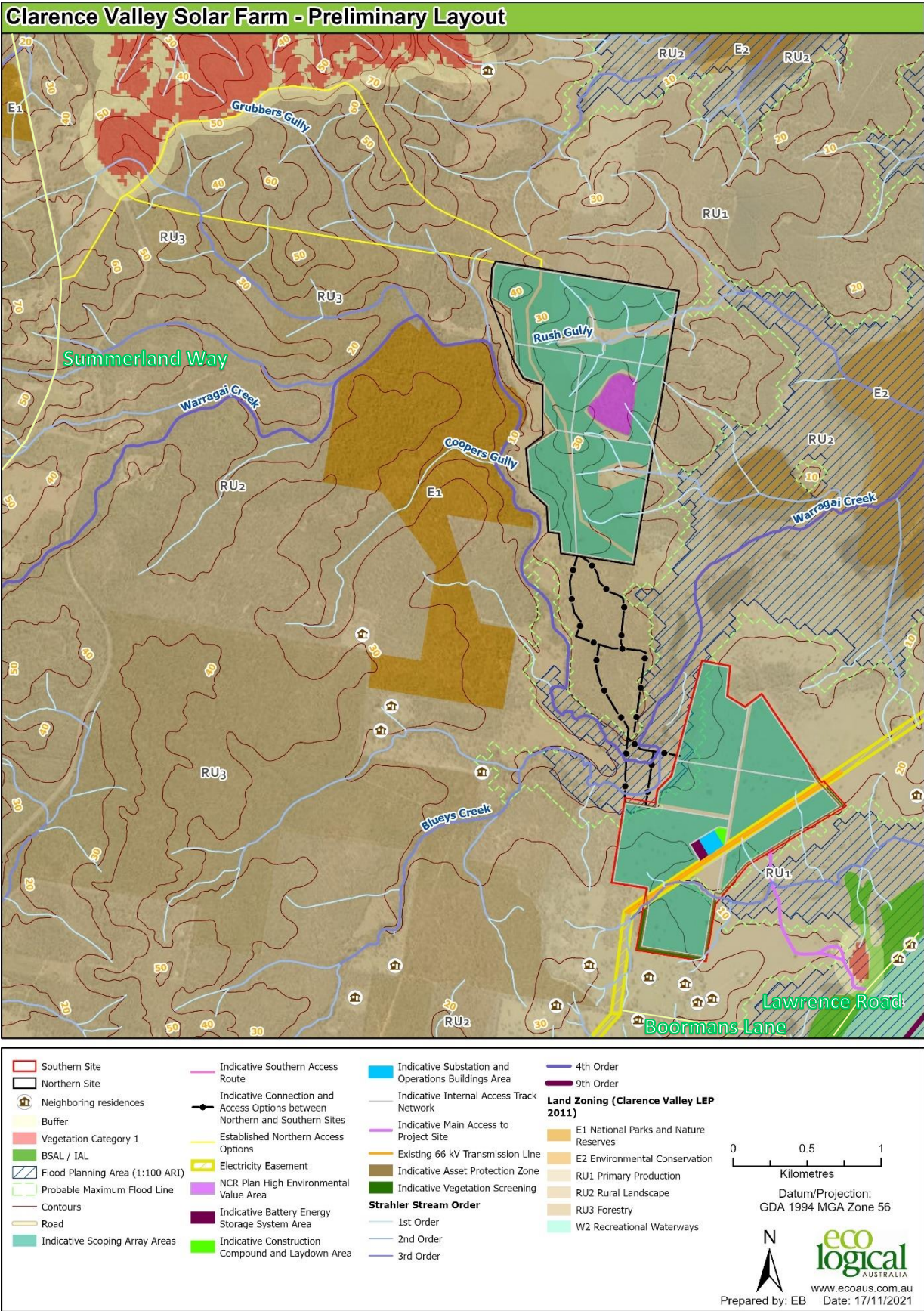


Figure 2-11: Preliminary layout and environmental constraints

3. Project Description

3.1 Site Context

The Project Site is located off Lawrence Road, Southgate approximately 13 km to the north east of Grafton within the North Coast region of NSW. The nearest localities to the Project Site are Lower Southgate, Kyarran, Trenayr, Great Marlow, Ulmarra, Cowper, Warragai Creek and Clifton. An existing transmission line runs through the Southern Site in a generally north east direction.

The Project Site consists of cleared grazing and modified pastureland and is within the Clarence River catchment. The topography of the Project Site and surrounding area is predominately flat with slight undulations. There are several first and second order watercourses within the Project Site and one third order watercourse located within the Southern Site. There are also a number of farm dams within the Project Site.

The Northern Site consists of land zoned as RU1 (Primary Production) and RU2 (Rural Landscape) under the Clarence Valley LEP 2011, and is characterised by cleared grazing and modified pastureland, surrounded by vegetation. The Southern Site consists of land zoned as RU1 (Primary Production) and RU2 (Rural Landscape) under the Clarence Valley LEP 2011 and is characterised by cleared grazing land surrounded by cleared land to the west of the Clarence River. The Project Site is currently used for agriculture, including farming and grazing operations.

A combination of desktop searches and community consultation has identified a total of 49 residential dwellings within 2 km of the Project Site.

3.2 Project Overview

The Project would involve the construction, operation and decommissioning of key components as follows:

- Single axis tracking solar arrays combining for a total installed capacity of approximately 85 MW_{AC}
- An 85 MW (85 MWh) BESS
- Inverters
- A reticulated cable network
- Step up transformers
- A switchyard and substation
- Connection to the electricity transmission grid
- Operations and maintenance facilities
- Minor local road upgrade to facilitate access from the public road network to the Project Site (in line with RMS guidance)
- Other associated infrastructure such as perimeter security fencing, a perimeter firebreak and an internal track network.

3.2.1 Solar Panels

Final panel numbers and power output for the Project Site are dependent on the final geographic footprint as well as outcomes of the various environmental studies and is subject to change. It is

expected that the Project could comprise of solar arrays combining for a total generation output of approximately 85 MW_{AC} (110.5 MW_{DC}).

3.2.2 Electrical Connection

To export the electricity generated from the Project, a substation for grid connection to the existing electricity network will be required. Preliminary investigations indicate sufficient capacity within the existing network to transmit the electricity generated by the Project to the required load centres. This system will be supported by an 85 MW (85 MWh) BESS.

3.2.3 Access

The Project will utilise an existing access point along either Lawrence Road or Summerland Way and it is expected that one of these access points will be required to be upgraded to facilitate the construction, ongoing maintenance and decommissioning of the Project.

Internal access would require a system of tracks linking key areas within the Project Site. In addition, a track around the periphery of the Project Site would be constructed within a fire break in line with Rural Fire Services (RFS) requirements. Access tracks to each inverter for maintenance purposes would be suitably wide to accommodate maintenance vehicles and to allow for replacement inverters.

Traffic associated with the construction phase of the Project will consist of both light vehicles for transporting workers and heavy vehicles for delivery of plant and panel components.

3.2.4 Other Associated Infrastructure

Various ancillary infrastructure will be required for the Project including (but not limited to): onsite operations building, equipment storage facilities, temporary construction compound, communications equipment, a perimeter security fence, vegetation screening and other related facilities.

3.2.5 Crown Roads

Several Crown roads are located within the Project Site and will be considered during the detailed design of the Project.

3.2.6 Construction Phase

The main construction activities include:

- Site clearing and preparation for construction (preliminary civil works and drainage, including access upgrades and construction of temporary construction facilities)
- Construction of the internal track network
- Installation of the mounting system to support PV modules
- PV module attachment
- Installation of inverters, transformers and other electrical infrastructure
- Substation construction and Grid connection to the existing 66 kV electricity line that crosses the Project Site
- Commissioning and testing
- Removal of temporary construction facilities.

Whilst the above activities are listed in the approximate order of construction, in practice the individual activities would likely run in parallel or in a different order depending on construction requirements.

The construction phase for the entire Project is expected take approximately 12 months and create approximately 100 FTE jobs. The construction working hours are to be in line with the '*Interim Construction Noise Guideline*' (DECC 2009):

- Monday to Friday 7.00am to 6.00pm
- Saturday 8.00am to 1.00pm
- No work on Sunday or public holidays.

3.2.7 Operational Activities

The Project is expected to have a 30-year operational life. Approximately 4 full time positions would operate and maintain the plant. On-site activities would include equipment maintenance and vegetation management activities.

3.2.8 Decommissioning

Decommissioning would involve the removal of all above ground infrastructure and any below ground infrastructure to 0.5 m below the surface. The site would be rehabilitated for agriculture or other land use purposes.

3.2.9 Ancillary Activities

Materials will need to be sourced for the construction, ongoing maintenance and decommissioning of the Project (including but not limited to): road and construction materials, water, and concrete.

4. Statutory Context

The relevant statutory requirements for the Project are summarised in Table 4-1.

Table 4-1: Statutory requirements for the Project

Matter	Relevance to the Project
Power to Grant Approval	<p>In accordance with Part 2, Clause 8 of the SEPP SRD, development is declared to be SSD for the purposes of the EP&A Act if:</p> <ul style="list-style-type: none"> c) <i>the development on the land concerned is, by the operation of an environmental planning instrument, not permissible without development consent under Part 4 of the Act, and</i> d) <i>the development is specified in Schedule 1 or 2.</i> <p>Clause 20 of Schedule 1 of the SEPP SRD states that “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 have a capital investment value of more than \$30 million” shall be classified as SSD under Division 4.7 of the EP&A Act.</p> <p>The Project has a capital investment value estimated to be greater than \$30 million, and therefore is deemed SSD.</p> <p>The Minister for Planning and Public Spaces is the consent authority for SSD applications. SSD applications are assessed by DPIE, and in some cases the Minister may delegate decision making to Department staff. However, the Independent Planning Commission (IPC) is the consent authority for SSD applications where specific conditions occur.</p>
Permissibility	<p>The Project Site is located within the Clarence Valley LGA and is subject to the Clarence Valley LEP 2011.</p> <p>The Project Site is situated on land zoned as RU1 (Primary Production) and RU2 (Rural Landscape). Within these zones, Electricity Generation is not permitted.</p> <p>However, pursuant to clause 34(1b) of the <i>State Environmental Planning Policy (Infrastructure) 2007</i> (ISEPP), development for the purpose of electricity generating works may be carried out by any person with consent on any land in a prescribed rural, industrial or special use zone, which in this case is the RU1 (Primary Production) and RU2 (Rural Landscape) zones.</p> <p>Given that the Project is located on prescribed rural land (RU1 and RU2), and the proposed activity is to generate electricity using solar panels, the Project is permissible with consent under clause 34(1b) of the ISEPP.</p>
Other Approvals	<p>Consistent Approvals</p> <p>In accordance with Section 4.42 of the EP&A Act, an authorisation of the following relevant approvals cannot be refused if it is necessary for carrying out SSD that is authorised by a development consent under this Division and is to be substantially consistent with the consent:</p> <ul style="list-style-type: none"> • An Environmental Protection Licence (EPL) under Chapter 3 of the <i>Protection of the Environment Operations Act 1997</i> (POEO Act) (for any of the purposes referred to in Section 43 of the Act) • A consent under Section 138 of the <i>Roads Act 1993</i> (Roads Act). <p>Environment Protection & Biodiversity Conservation Act 1999 (EPBC Act) Approval</p> <p>The Project may have the potential to have a significant impact on EPBC listed threatened species and a Referral to DAWE may need to be undertaken. Some Matters of National</p>

Matter	Relevance to the Project
	<p>Environmental Significance (MNES) have been identified as potentially occurring on or near the Project Site, including Threatened Ecological Communities (TEC). If during the preparation of the biodiversity assessment it becomes apparent that a significant impact on any MNES is likely, a referral will be made. If the Commonwealth determine that the development would have a significant impact on a MNES, the development would become a 'Controlled Action', and assessed under the recently signed NSW Bilateral Agreement with the Commonwealth.</p> <p>Other Approvals</p> <p>A summary of approvals and licences that may be required for the Project prior to construction include:</p> <ul style="list-style-type: none"> • Approval under Section 138 of the Roads Act to undertake upgrade works in, on or over a public road to allow for the transportation of infrastructure • A Licence in accordance with Part 5, Division 5.6 of the <i>Crown Land Management Act 2016</i> • An EPL under Section 48 of the POEO Act for the regulation of noise pollution during both the construction and operational phases of the Project. It is noted that an EPL may also be required during the construction phase for crushing, grinding, or separating if the activity has the capacity to process more than 150 tonnes of materials per day or 30,000 tonnes of materials per year. <p>Approvals Required if this was not an SSD Project</p> <p>Although all relevant environmental impacts will be assessed in the EIS for the Project, due to the Project's nature and being SSD, there are several approvals and licences, as listed in Section 4.41 of the EP&A Act, that are not required. These include:</p> <ul style="list-style-type: none"> • Applications for separate permits under Sections 201, 205 or 219 of the <i>Fisheries Management Act 1994</i> (FM Act) however, the offset policy still applies • Applications for separate approvals under Sections 89, 90 and 91 (other than an aquifer interference policy) of the <i>Water Management Act 2000</i> (WM Act) • An Excavation Permit under Section 139 of the <i>Heritage Act 1977</i> (Heritage Act) • An Aboriginal Heritage Impact Permit (AHIP) under Section 90 of the <i>National Parks and Wildlife Act 1974</i> (NPW Act).
Pre-Condition to Exercising the Power to Grant Approval	No pre-conditions to exercising the power to grant approval have been identified for the Project.
Mandatory Matters for Consideration	<p>The following Acts, Regulations and Environmental Planning Instruments (EPIs) are applicable to the project:</p> <ul style="list-style-type: none"> • Commonwealth Legislation <ul style="list-style-type: none"> ○ EPBC Act ○ <i>Hazardous Waste (Regulation of Exports and Imports) Act 1989</i> (Hazardous Waste Act) ○ <i>Native Title Act 1993</i> ○ <i>Renewable Energy (Electricity) Act 2000</i> (RE Act) • State Legislation <ul style="list-style-type: none"> ○ <i>Biodiversity Conservation Act 2016</i> (BC Act) ○ <i>Biosecurity Act 2015</i> (Biosecurity Act) ○ EP&A Act ○ FM Act ○ Heritage Act ○ <i>Mining Act 1992</i> (Mining Act) ○ NPW Act ○ POEO Act

Matter	Relevance to the Project
	<ul style="list-style-type: none"> ○ Roads Act ○ <i>Rural Fires Act 1997</i> (RF Act) ○ <i>Waste Avoidance and Resource Recovery Act 2001</i> (WARR Act) ○ WM Act ● Planning Instruments <ul style="list-style-type: none"> ○ <i>State Environmental Planning Policy No. 33 – Hazardous and Offensive Development</i> (SEPP 33) ○ <i>State Environmental Planning Policy (Koala Habitat Protection) 2021</i> ○ <i>State Environmental Planning Policy (Primary Production and Rural Development) 2019</i> ○ ISEPP ○ SRD SEPP ○ Clarence Valley LEP 2011 ○ Clarence Valley LSPS 2020

5. Engagement

Effective and meaningful consultation is an essential part of the development process. Consultation should provide a clear understanding of a proposal to the people, community and stakeholders that could be affected by the Project, as well as opportunities to offer feedback that can be considered to improve development outcomes.

The following section describes the Engagement Strategy for the Project, activities that have taken place during the scoping phase of the Project, and the consultation that will be carried out during the preparation of an EIS.

The following documents have been considered in establishing the Engagement Strategy for the Project:

- *State significant development guidelines – preparing a scoping report - Appendix A to the state significant development guidelines* (DPIE 2021a)
- *Undertaking Engagement Guidelines for State Significant Projects* (DPIE 2021b)
- *Social Impact Assessment Guideline for State Significant Projects* (DPIE 2021c)
- *Large-Scale Solar Energy Guideline for State Significant Development* (DPE 2018).

5.1 Engagement Strategy

The central aims of the Engagement Strategy are to:

1. Promote activities that encourage and facilitate the participation of people, community and stakeholders that could be affected by the Project
2. Provide clear and concise information about the Project and its potential impacts to interested people, community and stakeholders
3. Present clear and concise information about how the Project has responded to feedback, including information on what has changed/ hasn't (in response to feedback), and the reasons for this.

Table 5-1 provides further detail on the Engagement Strategy by outlining the Project's responses to each 'key factor' that should be considered when developing an Engagement Strategy for an SSD (DPIE 2021b).

Table 5-1: Project response to 'key factors' that should be considered when developing an Engagement Strategy

Engagement 'key factor'	Objectives
1) Plan Early <i>'A proponent should plan its approach to engagement early in the project formation or scoping phases...'</i>	<ul style="list-style-type: none"> • The Proponent carried out initial desktop studies that considered the proximity of nearby dwellings, towns, transport networks and surrounding land use to gain an understanding of the people, community and stakeholders that may have an interest in, or be affected by the Project. • The Proponent has engaged a qualified consultant to carry out a SIA. The scoping stage for the SIA is complete and has been used to develop the Proponent's understanding of the people, community and groups who may have an interest or be affected by the Project, and has provided a broad understanding of appropriate activities and the scale of the

Engagement 'key factor'	Objectives
	consultation that will be required throughout the development phase of the Project.
2) Engage Early	<ul style="list-style-type: none"> The Proponent sent an introductory letter to nearby neighbours of the Project at the beginning of the scoping phase. The Proponent has since conducted other consultation activities to develop its understanding of the people and groups who may be affected by the Project (outlined in sections below). The Proponent introduced the Project to the Local community, the Council and DPIE early in the scoping phase and continues to develop its relationship with these stakeholders.
3) Ensure Engagement is effective <i>'Proponents should remember that high quality planning outcomes rely on effective engagement. Effective engagement occurs when the community, councils and government agencies have the information they need to understand a project and its impacts and are given the opportunity to participate in a meaningful way.'</i>	<ul style="list-style-type: none"> A central tenant of the Engagement Strategy is to provide clear and concise information through numerous information channels. This will ensure potentially affected people, community or interested stakeholders can participate meaningfully in the process. This engagement will be fair and transparent and will allow for the consideration of diverse views and concerns.
4) Ensure Engagement is proportionate to the scale of the Project	<ul style="list-style-type: none"> The Project is likely to generate interest in the local and wider Clarence Valley LGA. In formalising the scale and type of engagement strategies for the Project, the Proponent has considered the results of the SIA scoping, the likely scale and potential impacts of the Project, the Project's timeline, and feedback from early consultation activities. Engagement strategies will be adaptive, if it is determined that particular activities are not generating the reach required for a meaningful process.
5) Be Innovative	<ul style="list-style-type: none"> Consultation activities will be diverse and use a variety of modes, for example letter drops, emails, telephone calls, zoom meetings, internet websites, media and face to face consultation, to ensure effective reach, and that engagement is meaningful and suitable to the scale of the Project.
6) Be open and transparent about what can be influenced	<ul style="list-style-type: none"> The Proponent will clearly communicate information about what can be influenced throughout the design and assessment process.
7) Implement the 'community participation objectives' To engage effectively, a proponent should: <ol style="list-style-type: none"> identify the people or groups who are interested in or are likely to be affected by the project. use appropriate engagement techniques. This is particularly important when engaging with specific groups, such as Aboriginal and Torres Strait Islander groups, where engagement should be a 	<ol style="list-style-type: none"> The scoping stage of the SIA, desktop assessment of potential impacts, and responses to early consultation have helped to identify the people or groups who may be interested in or are likely to be affected by the project. This will continue to be assessed throughout the preparation of the EIS.

Engagement 'key factor'	Objectives
discrete, planned activity undertaken by and with experienced Indigenous engagement specialists	ii Appropriate engagement techniques including the use of specialists where appropriate will be used to ensure consultation is appropriate to specific people or groups.
iii ensure the community are provided with safe, respectful, and inclusive opportunities to express their views	iii The community will be provided with safe, respectful and inclusive opportunities to express their views.
iv involve the community, councils and government agencies early in the development of the proposal, to enable their views to be considered in project planning and design	iv The community, Council and relevant government agencies have been contacted early in the development process (detailed below).
v be innovative in their engagement approach and tailor engagement activities to suit the context, its impacts, and level of interest in the project	v The engagement approach will be tailored to specific people and groups to suit the context, levels of predicted impact and level of interest in the project.
vi provide clear and concise information about what is proposed and the likely impacts for the relevant people or group they are engaging with	vi Clear and concise information about what is proposed and the likely impacts for relevant people or groups will be provided.
vii clearly outline how and when the community can be involved in the process	vii Information about the Project, and its design evolution will be accessible and provided in a variety of forms.
viii make it easy for the community to access information and provide feedback	viii The Proponent will seek to understand issues of concern for all affected people and groups and respond appropriately to those concerns.
ix seek to understand issues of concern for all affected people and groups and respond appropriately to those concerns	ix Consideration will be given to all concerns and issues raised about the Project.
x provide feedback about how community and stakeholder views were used to shape the project or considered in making decisions	x Feedback will be provided about how community and stakeholder views were used to shape the project or considered in making decisions.
xi be able to demonstrate how the demography of the area affected has been considered in how and what engagement activities have been undertaken.	xi A full SIA is being conducted which will provide an understanding of the demography of the area. This will be used to inform appropriate engagement activities for potentially affected people and groups.

5.2 Scoping Stage Consultation Activities

The following consultation activities have taken place during the scoping phase of Project:

- Identification of stakeholders
- Consultation with local residents
- Publication of a newsletter
- Development of a website
- Briefing with Council
- Consultation with Government Agencies
- Information has been provided to media.

A summary of each of these activities is provided below.

5.2.1 Stakeholders

Through feasibility assessment, and by completing the Scoping Stage of the Project's SIA, the following preliminary stakeholder groups have been identified for the Project:

- Involved landowners
- Adjacent landholders
- Residents within a 2 km radius of the Project Site
- Local Community
- Local Council
- State and Federal Government Agencies
- Traditional Owners and Aboriginal Australians
- Road users in the LGA
- Environmental groups
- Business groups and the service sector of Clarence Valley and the wider region.

Additional stakeholders may be identified throughout the assessment process.

5.2.2 Consultation with local residents

An Introductory letter was hand delivered to neighbours surrounding the Project Site in August 2021 (within an approximate radius of 1 km of the proposed Project boundary). The letter (**Appendix B**) set out the location of the Project as well as providing preliminary information. The letter also invited residents to contact the Proponent if they wished to ask questions or provide feedback regarding the proposed Project. A variety of ways to contact the Proponent were provided, including a mail address, email address, telephone number, and the option of organising a time for a zoom call.

In response to the introductory letter, engagement by telephone and email has continued to date.

A second letter was delivered to local residents in October 2021 (**Appendix B**). The letter introduced the formal name of the Project, the 'Clarence Valley Solar Farm', and was accompanied by a newsletter (see below), which provided updated details of the Project as described in Section 5.2.3 below.

Feedback received through the preliminary consultation process with local residents has been incorporated into the Scoping Report. It should be noted that the Project Site has been extended in response to initial feedback from neighbouring residences. The larger Project Site will allow plenty of scope to refine and optimise the design of the Project in order to avoid, minimise and mitigate potential impacts. A summary of issues raised by the local community is provided in Section 5.3.

5.2.3 Newsletter

The 'Clarence Valley Solar Farm Newsletter No. 1' was delivered to residents within 2km of the Project boundary in October 2021 (**Appendix B**). The newsletter sets out the following information:

- The Project name
- Location
- Details of the proposed solar farm
- How the proposed Project has been altered in response to feedback from local residents
- Contact details to encourage engagement and feedback

- A link to the Project website
- An explanation of the SSD approval process
- Details of ongoing and future consultation activities.

5.2.4 Website

The Project website went live in October 2021. The website contains detailed Project information and contact details. The website can be accessed at www.clarencevalleysolarfarm.com.au and will be kept up to date as the Project progresses through the development process.

5.2.5 Information provided to media

A press release was provided in response to a request for information about the proposal from a regional newspaper on 14 October 2021.

5.2.6 Consultation with Council

Consultation with the Clarence Valley Council has been ongoing since mid-2021. This has included providing the Council with introductory information about the Project, discussing the Project name, and providing updates on the Project status and consultation activities. A briefing meeting was held via Teams on the 14th of October 2021 (confirmation of meeting from Council is provided in **Appendix C**). The briefing covered the location and extent of the Project and access points, identified constraints in the local area, included a general discussion of why the site is suitable for solar development, and an overview of consultation conducted with the local community to date.

Several items were brought to the Proponent's attention by Council, including Bushfire Prone Land and Bushfire risk, the NCR Plan and associated mapped Important Agricultural Land and high environmental value areas, vegetation management strategies that might be employed during the operational stage, and how landscape impacts might be managed, and the Council's adopted Community Energy and Emissions Reduction Strategy for Clarence Valley (2021).

5.2.7 Consultation with Government agencies

Consultation with DPIE has been undertaken since mid-2021. This includes providing introductory information about the Project, discussing the Project name, discussing a consultation strategy for the scoping phase of the Proposal in light of COVID-19 restrictions and providing updates on the status of the Project. Communication has been carried out by telephone, Zoom meetings and email.

Project information has been provided to NSW National Parks and Wildlife Service since mid-2021. This includes information on the location, scale, and status of the Project (including a copy of the Newsletter). Figure 2-5 illustrates the National Parks estate areas adjacent to the Project.

There are several Crown Roads (paper roads) within the Project Site. As such, telephone and email correspondence with Crown Lands has taken place since May 2021 and a formal request to close down a section of Crown Road within the Southern Site has been made. As the design for the Project is refined, the Proponent will continue to consult with Crown lands regarding the Crown Roads within the Project Site.

5.2.8 Consultation with Essential Energy

Consultation with Essential Energy commenced in March 2021, when Pelican Solar Farm Pty Ltd submitted a preliminary connection enquiry. Pelican Solar Farm Pty entered into a Connection Service

Agreement with Essential Energy in October 2021. A letter confirming our engagement with Essential Energy is provided in **Appendix D**. Note, Pelican Solar Farm referred to in the letter is now known as the Clarence Valley Solar Farm.

5.2.9 Geographic makeup of community responses to date

Community inquiries in response to the Proponent's Letters, Newsletter and Website about the Project have been predominantly from the local area, and have the following geographic makeup:

- Three people from within the local area (up to 5km from the Project Site)
- One person from within the region (< 5km to 100km from the Project Site)
- No people from within the wider state or national level (< 100km from the Project Site)
- Two people from an unknown location.

Note that each person has been included only once, and that several people have engaged a number of times. Further, an individual from the local area has stated that they are representing a number of people in Southgate.

5.3 Key Community Issues Raised

Key issues raised during initial consultation with the local community:

- suitability of the area for solar development / land use conflict
- impact on prime agricultural land
- impact on wildlife corridors
- Impact on birds
- impact on heritage
- impact relating to the 'heat island effect'
- the need for the development
- flood risk
- impact on nearby national parks and reserves
- noise impacts
- impacts on endangered species
- property values
- set back distances
- visual impact on neighbouring and local residents
- access rights across the property
- consistency of the Project with land use zoning.

The Proponent will use the issues identified to inform the assessment phase of the Project and will continue to engage with people, community, and stakeholders in line with the principles outlined in Table 5-1. It should be noted that the Project Site has been extended in response to feedback from the neighbouring community. As stated above, the larger Project Site will allow greater scope to refine and optimise the final design of the Project in order to avoid, minimise and mitigate potential impacts identified through consultation and the EIS process.

5.4 Ongoing Engagement

During the preparation of the EIS, continued engagement with interested people, community and stakeholders will be conducted in accordance with the principles listed in Table 5-1 and the requirements outlined in '*Undertaking Engagement Guidelines for State Significant Projects, Appendix A, Table 1*' (DPIE 2021b).

Consultation activities will include:

- Community information sessions
- Meetings
- Telephone calls
- Zoom calls
- Emails
- Letters
- Project website updates
- Newsletters
- Exploration of community partnerships.

The consultation activities will be adaptive to ensure that engagement is meaningful and suitable to the scale of the Project.

5.5 Ongoing Government Agency Consultation and Other Stakeholders

The Proponent will continue or initiate engagement with relevant government agencies and statutory stakeholders throughout the development process. This will include engagement with, but not limited to:

- DPIE
- Clarence Valley Council
- DPIE - Biodiversity Conservation Division (BCD)
- DPIE- Water
- DPIE- Division of Resources and Energy (DRE)
- DPIE- Crown Lands
- Environment Protection Authority (EPA)
- Transport NSW
- Local Land Services (LLS)
- NSW Rural Fire Service (RFS)
- DAWE.

6. Proposed Assessment of Impacts

6.1 Preliminary Environmental Risk Assessment

A preliminary environmental risk assessment has been undertaken for all potential environmental impacts that may need to be considered within the EIS for the Project. The preliminary risk rating is the risk rating prior to detailed assessment, or any mitigation being applied and is therefore precautionary and worst-case for the purposes of this Scoping Study. The preliminary environmental risk assessment has been based upon experience with other solar farm approvals, together with a preliminary assessment of the Project Site, to identify the key issues to be assessed in relation to the Project. The preliminary environmental risk assessment also included a review of the Large-Scale Solar Energy Guideline as well as the SEARs for recent solar farm projects.

Table 6-1 summarises the results of the preliminary environmental risk assessment, and outlines the potential impacts and risks, as well as all assessments (including specialist assessments) that will be completed to assess and minimise environmental risk during the completion of the EIS. Furthermore, Section 6.2 provides further details with respect to the environmental and social matters and associated receptors that could be potentially impacted by the Project, as well as providing a preliminary assessment of the scale of impacts, nature of impacts and sensitivity of the receiving environment.

Table 6-1: Preliminary risk assessment summary

Environmental Factor	Phase (construction, operation)	Potential Impact	Likelihood ¹	Consequence ²	Risk ³	Further studies required / Potential mitigation measures
Biodiversity	Construction	Disturbance of terrestrial and aquatic vegetation	Almost certain	Moderate	Moderate	Further studies required: <ul style="list-style-type: none"> During the EIS, undertake assessment in accordance with the Biodiversity Assessment Methodology (BAM) including offsetting if required. Potential mitigation measures: <ul style="list-style-type: none"> Develop a Biodiversity Management Plan for the Project. Undertake pre-clearance surveys by a suitably qualified ecologist. Avoid where possible areas of high ecological sensitivity
		Disturbance/loss of habitat	Almost certain	Moderate	Moderate	
		Indirect impacts of the Project e.g. light, noise	Almost certain	Moderate	Moderate	
Aboriginal heritage	Construction	Potential to impact on previously unrecorded Aboriginal objects, sites, or culturally modified trees.	Possible	Minor - Moderate	Minor	Further studies required: <ul style="list-style-type: none"> During the EIS, undertake an ACHA in accordance with the <i>Guide to investigating, assessing and reporting on Aboriginal cultural heritage in NSW</i> (OEH 2011), the <i>Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales</i> (DECCW 2010a), and the

¹Likelihood – unlikely, possible, likely, almost certain²Consequence – negligible, minor, moderate, extreme³ Risk – negligible, minor, moderate, extreme

Environmental Factor	Phase (construction, operation)	Potential Impact	Likelihood ¹	Consequence ²	Risk ³	Further studies required / Potential mitigation measures
						<p><i>Aboriginal cultural heritage consultation requirements for proponents (DECCW 2010b).</i></p> <ul style="list-style-type: none"> The ACHA should be conducted by a qualified archaeologist. <p>Potential mitigation measures:</p> <ul style="list-style-type: none"> Design and ground disturbance will be undertaken to minimise impact to heritage items if identified within the Project Site. Develop an unexpected finds protocol for Aboriginal artefacts to be incorporated into the Construction Environmental Management Plan (CEMP) for the Project.
Historic heritage	Construction	Potential to impact on previously unknown historical archaeological relics.	Unlikely	Minor	Minor	<p>Further studies required:</p> <ul style="list-style-type: none"> A preliminary Historic Heritage assessment should be conducted during the EIS to establish the potential impacts and likelihood of previously unidentified historical archaeological relics being present within the Project Site. This should include a review of historic aerial images, parish maps, and relevant reports of the area. <p>Potential mitigation measures:</p> <ul style="list-style-type: none"> Develop an unexpected finds protocol for historical heritage items to be incorporated into the CEMP for the Project.
Visual amenity	Construction and Operation	Solar panels visible to nearby residences and travellers using local roads reducing visual amenity	Almost certain	Moderate	Moderate	<p>Further studies required:</p> <ul style="list-style-type: none"> Undertake Landscape and Visual Impact Assessment as part of the EIS. <p>Potential mitigation measures:</p> <ul style="list-style-type: none"> Concept design to minimise visual impact.

Environmental Factor	Phase (construction, operation)	Potential Impact	Likelihood ¹	Consequence ²	Risk ³	Further studies required / Potential mitigation measures
						<ul style="list-style-type: none"> Establish vegetation planting to provide visual screening.
Water Resources	Construction and Operation	Disturbance to waterways	Possible	Minor	Minor	<p>Further studies required:</p> <ul style="list-style-type: none"> Undertake a water quality and aquatic ecology assessment as part of the EIS. <p>Potential mitigation measures:</p> <ul style="list-style-type: none"> If creek lines within the Project Site require crossing for infrastructure, Project design will consider DPI <i>Guidelines for Controlled Activities on Waterfront Land</i> (2018), <i>Why Do Fish Need to Cross the Road? Fish Passage Requirements for Waterway Crossings</i> (DPI 2003), and <i>Policy & Guidelines for Fish Habitat Conservation & Management</i> (DPI, 2013). Prepare a CEMP prior to any construction works to address measures to be adopted to minimise impacts on the environment as a result of the construction works, including soil erosion and compaction and the protection of water resources. Implement sediment and erosion control measures prior any construction work. Acquire water access licence if necessary. Inspect erosion controls regularly and after rainfall. Fix damaged controls immediately. Maintain grass cover under PV panels.
Electro-magnetic interference	Operation	Disturbance to radio, television and mobile and data reception	Unlikely	Minor	Minor	<p>Further studies required:</p> <ul style="list-style-type: none"> Undertake an EMF assessment as part of the EIS. <p>Potential mitigation measures:</p>

Environmental Factor	Phase (construction, operation)	Potential Impact	Likelihood ¹	Consequence ²	Risk ³	Further studies required / Potential mitigation measures
						<ul style="list-style-type: none"> Electrical infrastructure and equipment designed and installed to minimise potential electromagnetic interference impacts
Bushfire	Construction and Operation	Potential for bushfire starting from construction activities or potential for construction to be affected by an external bushfire. Potential for bushfire starting within the Site due to vegetation or electrical malfunction or to be affected by an external bushfire.	Possible	High	Moderate	<p>Further studies required:</p> <ul style="list-style-type: none"> Undertake a Bushfire Risk Assessment during the EIS in accordance with <i>Planning for Bush Fire Protection (PBP), A guide for councils, planners, fire authorities and developers 2019</i> (NSW RFS 2019) <p>Potential mitigation measures:</p> <ul style="list-style-type: none"> Development of a Bushfire Management Plan. Incorporate appropriate emergency vehicle access into Project design. Incorporate infrastructure setbacks from the Project Site boundary that will form APZ.
Noise	Construction and Operation	Noise impacts during the construction and operational phase.	Likely	Negligible	Minor	<p>Further studies required:</p> <ul style="list-style-type: none"> Undertake a noise assessment as part of the EIS. <p>Potential mitigation measures:</p> <ul style="list-style-type: none"> The construction work hours will be in accordance with the Interim Construction Noise Guideline (DECC 2009): <ul style="list-style-type: none"> Monday to Friday 7.00am to 6.00pm. Saturday 8.00am to 1.00pm; and No work on Sunday or public holidays. Should construction work be proposed outside of these hours, consultation with affected residents will be undertaken.

Environmental Factor	Phase (construction, operation)	Potential Impact	Likelihood ¹	Consequence ²	Risk ³	Further studies required / Potential mitigation measures
						<ul style="list-style-type: none"> Equipment will be well maintained and will have noise mufflers if appropriate. Orient equipment such that offensive noise carries away from residential receivers. Implement all feasible and reasonable work practices to minimise construction noise impacts. Maintain complaints line. Design should ensure that noise levels will be acceptable at sensitive receptors during the operational phase of the Project.
Traffic and access	Construction	Additional vehicles on local roads	Almost certain	Moderate	Moderate	<p>Further studies required:</p> <ul style="list-style-type: none"> Undertake a Traffic and Transport Assessment as part of the EIS. <p>Potential mitigation measures:</p> <ul style="list-style-type: none"> Prepare of a Traffic Management Plan (TMP).
Land use and soils	Construction and Operation	<p>Soil erosion of the Project Site as a result of exposure of soils during the construction phase.</p> <p>Soil erosion of the Project Site as a result of exposure of soils due to poor vegetation management during the operational phase.</p>	Possible	Moderate	Moderate	<p>Further studies required:</p> <ul style="list-style-type: none"> Undertake an agricultural impact assessment as part of the EIS. Undertake a Land Use Conflict Risk Assessment (LUCRA) during the EIS. <p>Potential mitigation measures:</p> <ul style="list-style-type: none"> Prepare a CEMP prior to any construction works to establish measures to be adopted to minimise impacts on the environment as a result of the construction works, including soil erosion and compaction. Implement sediment and erosion control measures prior to any construction work.

Environmental Factor	Phase (construction, operation)	Potential Impact	Likelihood ¹	Consequence ²	Risk ³	Further studies required / Potential mitigation measures
						<ul style="list-style-type: none"> Inspect erosion controls regularly and after rainfall. Fix damaged controls immediately. During construction, stockpiling of materials will be carried out away from any waterways and sensitive areas. Where appropriate, revegetate with fast growing ground cover species to stabilise the soil immediately after construction ceases. Stabilise disturbed areas such as stockpiles as soon as possible using geotextile fabric if they are to be exposed for extended periods of times. Re-schedule construction work as appropriate during periods of heavy rain. Prepare an Operational Environmental Management Plan (OEMP) prior to operations to be adopted to minimise impacts on the environment as a result the Projects operational activities including soil erosion and compaction. Maintain grass cover under the panel areas.
	Construction	Incidental discovery of soil contamination	Unlikely	Minor	Minor	<ul style="list-style-type: none"> If potential contamination is discovered stop work and inform the project manager. Any soils identified during construction work that are discoloured or odorous, include asbestos or other anthropogenic materials should be segregated for further assessment and characterisation by an appropriately experienced environmental consultant.
	Construction and Operation	Accidental contamination of soil as a result of a chemical spill	Possible	Minor	Minor	<ul style="list-style-type: none"> Keep a functioning 'spill kit' on site at all times for clean-up of accidental spills. Include a spill response process within the CEMP and OEMP.

Environmental Factor	Phase (construction, operation)	Potential Impact	Likelihood ¹	Consequence ²	Risk ³	Further studies required / Potential mitigation measures
	Construction and Operation	Land use capability – loss of productive soils during construction and use of and removal of rural land for the Project	Almost certain	Minor	Minor	<ul style="list-style-type: none"> If storage of chemicals and fuels are required these should be stored within designated bunded areas, identified with appropriate signage. Record all stored chemicals on a register with their MSDS's. Ensure all tools and machinery are in good working order and without fuel, oil or hydraulic leaks. Repair or remove equipment immediately. Develop a Decommissioning Management Plan that will have an objective of returning the land capability to its pre-existing agricultural capacity.
Social	Construction	Localised impacts on physical and mental health from air pollution, water pollution and noise during construction.	Possible	Minor	Minor	Further studies required: <ul style="list-style-type: none"> Undertake a Social Impact Assessment as part of the EIS. Undertake a Traffic and Transport Assessment as part of the EIS. Undertake a Bushfire Risk Assessment during the EIS.
	Construction and Operation	Safety impacts through increased traffic on local roads during construction, and potential for bushfire during construction and operation	Almost certain	Moderate	Moderate	Potential mitigation measures: <ul style="list-style-type: none"> Development of a Consultation Strategy.
Economic	Construction	Use of local natural resources during construction	Unlikely	Minor	Minor	Further studies required: <ul style="list-style-type: none"> Undertake an Economic Assessment as part of the EIS.

Environmental Factor	Phase (construction, operation)	Potential Impact	Likelihood ¹	Consequence ²	Risk ³	Further studies required / Potential mitigation measures
						Potential mitigation measures: <ul style="list-style-type: none"> • Implement a 'buy local' practice where goods and services can be purchased from local businesses. • Advertise construction jobs locally.
Air quality	Construction	Dust and exhaust emissions during the construction.	Almost certain	Minor	Minor	Potential mitigation measures Prepare a CEMP prior to any construction works to establish measures to be adopted to minimise impacts on the environment as a result of the construction works, including dust and exhaust emissions. Monitor work areas for dust generation and spray water to suppress dust if required. Minimise use of machinery for required activity only. Ensure all plant and equipment used for the project are maintained regularly and operated in a proper and efficient manner.

6.2 Preliminary Environmental Assessment

A preliminary environmental assessment has been carried out in conjunction with the preliminary environmental risk assessment (Section 6.1) to identify the environmental and social matters that will require further assessment during the EIS. The level of assessment that will be carried out for each environmental and social matter as part of the EIS has also been identified. In accordance with the *State significant development guidelines – preparing a scoping report - Appendix A to the state significant development guidelines* (DPIE 2021a), the following factors have been considered in the identification of environmental and social matters needing further assessment for the Project:

- the scale and nature of the likely impact of the Project and the sensitivity of the receiving environment (including the likely receptors to be potentially impacted)
- whether the Project is likely to generate cumulative impacts with other relevant future projects in the locality
- the ability to avoid, minimise and/or offset the impacts of the Project, to the extent currently investigated through the preliminary assessment.

This Section presents the identified environmental and social matters requiring further assessment and the proposed approach for further assessment within the EIS. The environmental and social matters have been categorised as per the categories identified in the *State significant development guidelines – preparing a scoping report - Appendix A to the state significant development guidelines* (DPIE 2021a). A scoping summary table has been included in **Appendix A**, which summaries the need for cumulative impact assessment, the level of consultation required, and relevant government plans, policies and guidelines that will be considered during the EIS for each environmental and social matter.

it is considered that the level of assessment required for each environmental and social matter, as per Appendix D of the *State significant development guidelines – preparing a scoping report - Appendix A to the state significant development guidelines* (DPIE 2021a), is as follows:

- Detailed
 - Biodiversity
 - Landscape and visual amenity
 - Traffic and transport
 - Water
 - Hazards and risks
- Standard
 - Aboriginal heritage
 - Historic heritage
 - Noise and vibration
 - Land use and soils
 - Social
 - Economic

6.2.1 Biodiversity

6.2.1.1 Potential Impacts

Impacts on native vegetation, native fauna and aquatic and terrestrial ecosystems are likely to occur as a result of the Project. Direct and indirect impacts during the construction phase may include clearing, sedimentation, dust deposition, erosion, weed introduction and/or spread, introduction of competitive feral fauna, vehicle/machinery strike, light and noise pollution and vibration from the movement of equipment and vehicles. Indirect impacts during the operational phase of the Project may include a continuation of indirect impacts associated with weed spread.

The key receptors for these potential impacts are nearby National Parks, State Forest lands, ecosystems, vegetation communities, flora and fauna. Table 6-2 outlines the potential biodiversity impacts that could occur as a consequence of the Project.

Table 6-2: Potential biodiversity impacts

Environmental & Social Matters	Likely Impact	Receptors	Does the impact need assessment in the EIS?	Consultation required
Heritage: Natural	<p><i>Construction</i></p> <p>There are National Parks and State Forests adjacent to the Project Site. Whilst direct impacts are not expected to the Reserves, indirect impacts could occur including noise, erosion and sedimentation, dust deposition, and weed introduction and/or spread.</p> <p><i>Operational</i></p> <p>Indirect impacts could occur including noise and weed introduction and/or spread.</p>	Nearby National Parks Estate and State Forest lands.	Yes	Yes DPIE – National Parks and Wildlife Service, Forestry Corporation and community.
Biodiversity: Native Vegetation	<p><i>Construction</i></p> <p>Disturbance/loss of vegetation during construction, including potential direct (clearing) and indirect impacts (sedimentation, dust deposition, erosion, weed introduction and/or spread, soil and/or water pollution) to TECs and threatened flora species.</p> <p><i>Operational</i></p> <p>Potential indirect impacts associated with weed spread, and erosion.</p>	Vegetation communities and plants.	Yes	Yes DPIE – BCD, DAWE and community.
Biodiversity: Native Fauna	<p><i>Construction</i></p> <p>Direct impacts including disturbance / loss of habitat, injury and mortality from vehicle strike, and loss of wildlife corridors.</p>	Fauna	Yes	Yes DPIE – BCD, DAWE and community.

Environmental & Social Matters	Likely Impact	Receptors	Does the impact need assessment in the EIS?	Consultation required
	Indirect impacts including impacts resulting from light, noise, and dust. <i>Operational</i> Direct impacts including potential injury and mortality from vehicle strike. Indirect impacts from light and noise.			
Biodiversity: Habitat	<p><i>Construction</i></p> <p>Potential direct Impacts on terrestrial and aquatic ecosystems including loss or modification of habitat for aquatic and terrestrial species. Potential indirect impacts through the introduction and spread of weeds and pests, sedimentation and erosion, soil and water pollution, light, noise and dust.</p> <p><i>Operational</i></p> <p>Potential indirect impacts associated with weed spread, and erosion.</p>	Ecosystems, flora and fauna.	Yes	Yes DPIE – BCD, DAWE and community.

6.2.1.2 Preliminary Assessment

LITERATURE AND DATABASE REVIEW AND FIELD ASSESSMENT

A desktop literature review and data audit were undertaken to identify the potential presence of any threatened species, populations and ecological communities listed under the BC Act and the EPBC Act within the Project Site and surrounds which could be affected by the Project. Additional species were added to the list based on ELA databases and local knowledge.

The results of the desktop assessment were combined to produce a list of threatened and migratory species and ecological communities, listed under the BC Act and/or EPBC Act, that could potentially occur within the Project Site.

Preliminary surveys were conducted on 22 June 2020 (Southern Site) and 20 October 2021 (Northern Site), by ELA ecologists Liz Brown, Ronnie Hill, Tom Schmidt and Samantha Patch. The field survey was to enable:

- initial determinations of vegetation communities present, where possible assigning Plant Community Types (PCT) in accordance with the PCT criteria set out in the Vegetation Information System (VIS) database
- preliminary assessment of the potential habitat for threatened flora and fauna (including records of hollow-bearing trees, rocky outcrops)

- preliminary determination of the potential for vegetation communities identified to meet the listing criteria of Endangered Ecological Community (EEC) under the BC Act and/or Critically Endangered Ecological Community (CEEC) under the EPBC Act
- record opportunistic threatened flora and fauna species.

RESULTS

Vegetation Communities

The desktop assessment identified a list of vegetation communities that may potentially occur within the Project Site based on SEED vegetation mapping of the Northern Rivers (DPIE 2010). Although the vegetation type mapping included in this dataset did not cover the Project Site, it gave an indication of the possible vegetation types that could occur within the Project Site.

The Project Site is located in the Clarence Lowlands subregion of the South Eastern Queensland bioregion. Plant Community Types were assigned based on landscape position, elevation, vegetation formation and representative canopy species. These ecotones were generally definable across the Project Site; however, many species occur intermittently across vegetation communities, without being indicative of that community. Rapid Data Points and four full floristic plots were undertaken to further develop an understanding of the range of species present in each PCT. Further field survey, in accordance with the BAM will be undertaken to accompany a Biodiversity Development Assessment Report (BDAR) and the EIS.

Five PCTs were identified in the Project Site during the field surveys (Table 6-3; Figure 6-1).

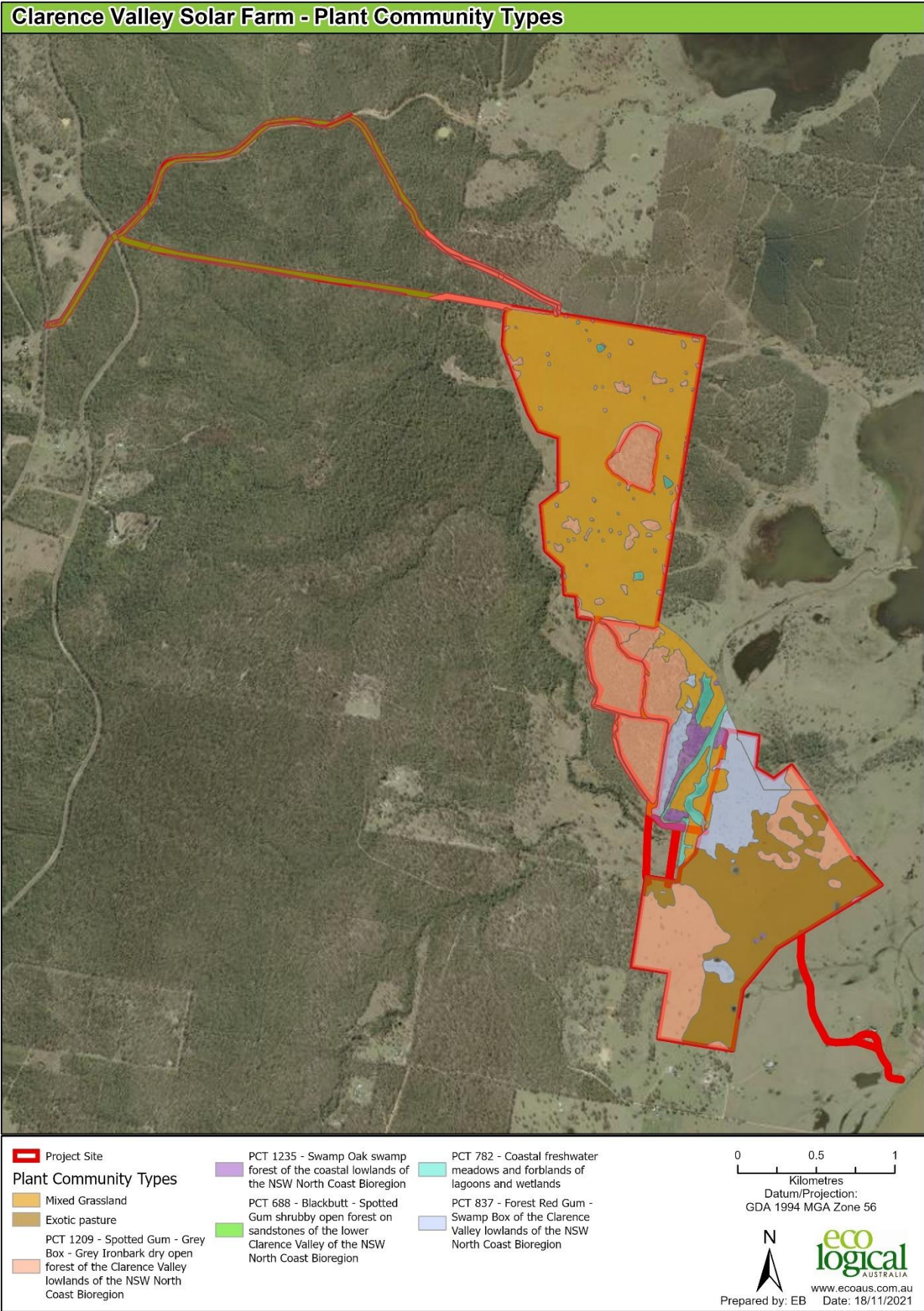


Figure 6-1: PCT mapping within the Project Site

Table 6-3: Initial PCTs validated within the Project Site

Plant Community Type	BC Status	EPBC Status	Vegetation Description
PCT 688: Blackbutt - Spotted Gum shrubby open forest on sandstones of the lower Clarence Valley of the NSW North Coast Bioregion (Figure 6-2)	-	-	This PCT is a tall to very tall open forest that has scattered occurrences on sandstones in the Clarence Moreton Basin. This PCT is located along the established northern access options, with a condition of moderate to high, and has evidence of past fire impacts. This PCT typically has a canopy dominated by <i>Eucalyptus pilularis</i> (Blackbutt), <i>Corymbia henryi</i> (Spotted Gum), <i>E. siderophloia</i> (Grey Ironbark) and <i>C. intermedia</i> (Pink Bloodwood). The mid-storey typically consists of <i>Acacia concurrens</i> (Black Wattle), <i>Allocasuarina torulosa</i> (Forest Oak), <i>Alphitonia excelsa</i> (Red Ash), <i>Jacksonia scoparia</i> (Dogwood), <i>Persoonia stradbokensis</i> and <i>Pimelea linifolia</i> (Slender Rice Flower). The groundcover typically consists of <i>Cymbopogon refractus</i> (Barbed-wire Grass), <i>Desmodium rhytidophyllum</i> , <i>Dianella caerulea</i> (Blue Flax Lily), <i>Entolasia stricta</i> (Wiry Panic), <i>Hardenbergia violacea</i> (Purple Coral Pea), <i>Laxmannia gracilis</i> (Slender Wire Lily), <i>Lepidosperma laterale</i> , <i>Pratia purpurascens</i> , <i>Themeda australis</i> (Kangaroo Grass) and <i>Imperata cylindrica</i> var. <i>major</i> (Blady Grass).
PCT 782 - Coastal freshwater meadows and forblands of lagoons and wetlands (Figure 6-3)	E	-	This PCT is a wetland dominated by the floating fern <i>Azolla pinnata</i> and <i>Ludwigia peploides</i> subsp. <i>montevideensis</i> (Water Primrose). This community has been recorded in a semi-permanent wetland on the Richmond River floodplain in North Casino, but it possibly would occur in other similar locations on coastal floodplains. The substrate is deep silty alluvium. This PCT is scattered through the Northern Site and in the area of the Project Site located between the Northern and Southern Sites. The condition of this community varies from low to moderate within the Project Site.
PCT 837: Forest Red Gum - Swamp Box of the Clarence Valley lowlands of the NSW North Coast Bioregion (Figure 6-4)	E	-	This PCT occurs on the slopes and quartz sediments of the Project Site. Most of this community has been previously cleared and now consists of patches containing sparse stands of regenerating stems to more advanced regrowth that form an open forest formation. The dominant canopy species that occurs within this PCT is <i>Eucalyptus tereticornis</i> (Forest Red Gum), with smaller densities of <i>Lophostemon suaveolens</i> (Swamp Mahogany), <i>Corymbia intermedia</i> and <i>Eucalyptus siderophloia</i> . Mid-storey consisted of <i>Melaleuca quinquenervia</i> (Broad-leave Paperbark). The groundcover of this PCT across the Project Site was heavily degraded with introduced pasture species such as <i>Setaria sphacelata</i> (Setaria) and <i>Chamaecrista rotundifolia</i> (Wynn Cassia) forming the dominant covers. Native groundcovers such as <i>Cymbopogon refractus</i> , <i>Imperata cylindrica</i> var. <i>major</i> , <i>Lomandra</i> spp and <i>Lobelia purpurascens</i> (Whiteroot) sporadically persist throughout the Project Site.
PCT 1209: Spotted Gum - Grey Box - Grey Ironbark dry open forest of the Clarence Valley lowlands of the NSW North Coast Bioregion (Figure 6-5)		-	This PCT occurs on the low hills and upper slopes of the Project Site. Most of this community has been previously cleared and now consists of patches containing sparse stands of regenerating stems to more mature regrowth that forms an open forest formation. Characteristic canopy species include <i>Corymbia henryi</i> , <i>E. siderophloia</i> and <i>E. tereticornis</i> . Mid-storey species are mostly absent from the Project Site. Groundcover has been improved in parts by the introduction of <i>S. sphacelata</i> and <i>C. rotundifolia</i> ,

Plant Community Type	BC Status	EPBC Status	Vegetation Description
			although natives such as <i>Aristida vagans</i> (Threeawn Speargrass) , <i>C. refractus</i> , <i>Eustrephus latifolius</i> (Wombat Berry), <i>Glycine clandestine</i> (Twining Glycine); <i>Goodenia</i> spp; <i>Themeda australis</i> ; <i>I. cylindrica</i> var. <i>major</i> and <i>Lomandra</i> spp remain a feature in the southern portion of the Project Site.
PCT 1235: <i>Swamp Oak swamp forest of the coastal lowlands of the NSW North Coast Bioregion</i> (Figure 6-6)	E	E	This PCT occurs on the lower slopes of the Project Site that are characterised by areas of poor drainage where soils possess a higher moisture content. It is characterised up the upper stratum species, <i>Casuarina glauca</i> (Swamp Oak). Other characteristic canopy and mid-storey species such as <i>M. quinquenervia</i> and <i>E. tereticornis</i> are absent from this PCT within the Project Site. Groundcover has mostly been removed and suppressed from repeated degradation from livestock camps.
<i>E = Endangered</i>			



Figure 6-2: PCT 688: Blackbutt - Spotted Gum shrubby open forest on sandstones of the lower Clarence Valley of the NSW North Coast Bioregion



Figure 6-3: PCT 682: Coastal freshwater meadows and forblands of lagoons and wetlands



Figure 6-4: PCT 837: Forest Red Gum - Swamp Box of the Clarence Valley lowlands of the NSW North Coast Bioregion



Figure 6-5: PCT 1209: Spotted Gum - Grey Box - Grey Ironbark dry open forest of the Clarence Valley lowlands of the NSW North Coast Bioregion



Figure 6-6: PCT 1235: Swamp Oak swamp forest of the coastal lowlands of the NSW North Coast Bioregion

Threatened Ecological Communities

Three TECs under the BC Act were identified within the field survey:

- Freshwater Wetlands on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions, associated with PCT 782
- Subtropical Coastal Floodplain Forest of the New South Wales North Coast Bioregion (i.e.: Floodplain Forest; Endangered); associated with PCT 837
- Swamp Oak Floodplain Forest of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions (i.e.: Swamp Oak Forest; Endangered); associated with PCT 1235.

The condition and occurrence of these TECs across the Project Site would need to be further refined during additional survey periods.

Additionally, Swamp Oak Forest is also an endangered TEC under the Commonwealth EPBC Act. The EPBC Act component of this TEC is dependent on the condition of vegetation and factors such as native/exotic species richness, structural characteristic and patch size are all limiting factors for assessment under the EPBC Act. Patches identified within the Project Site do not fit within the required condition categories and are therefore not protected under the EPBC Act.

Threatened Flora and Fauna

The Desktop Bionet search recorded 22 threatened fauna species and seven threatened flora species that may potentially occur within a 5km radius of the Project Site and surrounding areas.

Habitat features were identified in the preliminary study area that would provide suitable habitat for a number of threatened species. A low abundance of hollow bearing trees and stags were noted providing potential habitat for hollow dependent species. There were also areas of native woodlands/forests, fallen timber and drainage lines within the Project Site. These areas are the dominant habitat for potential threatened species within site including Brush-tailed Phascogale (*Phascogale tapoatafa*), Koala (*Phascolarctos cinereus*), Southern Myotis (*Myotis macropus*), Squirrel Glider (*Petaurus norfolcensis*). Drainage lines and several farm dams could also host potential habitat for the threatened flora species, *Maundia triglochinos* and threatened amphibian species, *Crinia tinnula* (Wallum Froglet) and *Litoria brevipalmata* (Green-thighed Frog). The Project Site also contains a primary Koala feed tree species *E. tereticornis*, other tree species that occur could also supplement the diet of the Koala.

Further targeted surveys will be undertaken in accordance with the BAM during the preparation of the BDAR and EIS to determine the presence/absence of these threatened species and others, as well as demonstrating impact avoidance, mitigation, and offset obligations, if required.

Other Considerations

The final Project layout will represent all areas that will be directly impacted by the works, including, but not limited to the building envelope, any clearing for bushfire APZs, internal access tracks, driveways, and construction areas. Access, including upgrading the access point at either Lawrence Road or Summerland Way to facilitate the movement of construction materials onto the Project Site, is likely to require an upgraded intersection design and the increased footprint will be included in the BDAR.

Several threatened and/or migratory species listed under the EPBC Act potentially occur within or near the Project Site. Whether or not the final Project layout will have a significant impact on MNES will be identified during the preparation of the BDAR and consideration of additional approval pathways (e.g., referral to the Commonwealth), will be undertaken, if required.

6.2.1.3 EIS Assessment Approach

An assessment under the Biodiversity Offset Scheme using the BAM will be undertaken and a BDAR will be prepared and included in the EIS to address impacts to threatened ecological communities and species protected by the BC Act. It is noted that access to the Project Site, including upgrading the intersection at either Lawrence Road or Summerland Way to facilitate the movement of heavy vehicles to the Project Site, may require road widening, realignment and track clearing with this activity to be assessed in the BDAR.

Some MNES under the Commonwealth EPBC Act have been identified as potentially occurring on or near the Project Site, including TEC and nationally threatened species. An assessment of impacts upon MNES will be undertaken during the preparation of the BDAR for the Project. If the assessment determines that a significant impact on any MNES is likely, an additional approval pathway will be required in the form of a referral to DAWE for the Project. Depending upon the magnitude of the potential impacts determined in the BDAR, the Project can either be referred as 'Not Controlled Action' or a 'Controlled

Action' to DAWE. If DAWE determine that the Project would have a significant impact upon MNES, the Project would become a 'Controlled Action', and assessed under the NSW Bilateral Agreement with the Commonwealth.

6.2.2 Aboriginal Heritage

6.2.2.1 Potential Impacts

All Aboriginal cultural heritage Sites, whether recorded or not, are protected under the NP&W Act. It is an offence to disturb or damage these Sites without first having obtained an Aboriginal Heritage Impact Permit (AHIP). Works or activities that could potentially disturb the ground surface include earthworks, access road construction / upgrades, associated building construction, services installation, repetitive vehicular movement, and landscaping. These works have the potential to disturb surface and in situ subsurface Aboriginal sites.

The key receptors for these potential impacts are Aboriginal people and the community. Table 6-4 outlines the potential Aboriginal heritage impacts from the Project.

Table 6-4: Potential Aboriginal heritage impacts

Environmental & Social Matters	Likely Impact	Receptors	Does the impact need assessment in the EIS?	Consultation required
Heritage	<p><i>Aboriginal Cultural</i></p> <p><i>Construction</i></p> <p>Excavation and access road construction has the potential to impact on unknown artefacts/values. This could include impacts to natural heritage items or places listed on LEP schedules, the State Heritage Register, the Aboriginal Heritage Information Management System (AHIMS), the National Heritage List, the World Heritage List, or objects and places not listed of heritage value.</p> <p><i>Operational</i></p> <p>Permanent change to potentially sacred and cultural landscapes and places for Aboriginal people.</p>	Aboriginal people and community.	Yes	Yes Aboriginal people and Heritage NSW

6.2.2.2 Preliminary Assessment

An extensive AHIMS database search was undertaken on 17 September 2021 for the following area containing the Project Site at Lat, Long from -29.58, 153.02 to -29.56, 153.05.

The Project Site does not contain any previously recorded AHIMS sites or places. The AHIMS search (5 km surrounding the Project Site) identified 2 Aboriginal sites and no Aboriginal places recorded within the search boundary, the closest record being located approximately 1 km east of the Project Site (Figure 6-7).

6.2.2.3 EIS Assessment Approach

An ACHA for the proposed Project will be required to be prepared in accordance with the requirements of the NPW Act. As a component of the ACHA process, consultation with the Aboriginal Community will be undertaken in accordance with the *'Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010'* (DECCW 2010b). The scope of the ACHA will include:

- Desktop review, including an extensive AHIMS database search, Native Title Search, and a review of previously completed studies conducted in the area to assist in the development of a predictive model
- Aboriginal stakeholder consultation in line with the *'Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010'* (DECCW 2010b)
- A comprehensive site inspection to identify and record any sites of Aboriginal Cultural Heritage (social, historical, scientific and aesthetic values) within the Project boundary, specifically within areas proposed to be impacted by the proposed solar farm. The site inspection will be undertaken in partnership with members of the local Aboriginal community in accordance with the *'Guide to Investigating, Assessing and Reporting on Aboriginal Cultural Heritage in NSW'* (OEH, 2011), the *'Code of Practice for Archaeological Investigations of Aboriginal Objects in NSW'* (DECCW, 2010a)
- Preparation of an ACHA to meet the DPIE guidelines and provide to the local Aboriginal community for comment. This will include:
 - an assessment of any additional Aboriginal Cultural Heritage issues or places identified during the field work
 - Development of appropriate management and mitigation strategies for any Aboriginal sites or areas identified as culturally significant by the local Aboriginal community that are identified to be directly or indirectly impacted by the proposed Project.



Figure 6-7: AHIMS sites within and in proximity to the Project Site.

6.2.3 Historic Heritage

6.2.3.1 Potential Impacts

All environmental heritage in NSW is afforded protection under the Heritage Act. The Heritage Act regulates the impact of development on places, buildings, works, relics, moveable objects, and precincts that are significant to the heritage of NSW. Under Section 140 of the Heritage Act, a person must not disturb or excavate any land knowing or having reasonable cause to suspect that the disturbance or excavation will or is likely to result in a 'relic' being discovered, exposed, moved, damaged or destroyed unless the disturbance or excavation is carried out in accordance with a Section 140 permit.

Section 4(1) of the Heritage Act (as amended 2009) defines 'relic' as "any deposit, artefact, object or material that relates to the settlement of the area that comprises NSW, not being Aboriginal settlement, and is of State or Local heritage significance". The Heritage Council must be notified on the discovery of a relic under Section 146 of the Heritage Act.

The key receptors for these potential impacts is the community. Table 6-5 outlines the potential historic heritage impacts from the Project.

Table 6-5: Potential historic heritage impacts

Environmental & Social Matters		Likely Impact	Receptors	Does the impact need assessment in the EIS?	Consultation required
Heritage	Built	No registered historic heritage sites have been recorded in the vicinity of the proposed area for the Project.	Community.	Yes	Yes Heritage NSW, Council and community.

6.2.3.2 Preliminary Assessment

A search of the Commonwealth and National Heritage Lists, the NSW State Heritage Register (SHR) and the Clarence Valley LEP 2011 was undertaken within 5 km of the Project Site.

There were no World, Commonwealth, National, State or local heritage items identified within the Project Site. The closest heritage item outside the Project Site is a State heritage item within Southgate State Forest called High Conservation Value Old Growth Forest (SHR 01487). The closest local heritage item listed in the Clarence Valley LEP is I393 (Lower Ulmarra former school building) which is located approximately 1.7 km south east of the Project Site at the closest point. Several other local heritage items are listed within 5 km from the Project Site (Table 6-6; Figure 6-8).

Table 6-6: Heritage listings within 5 km of Northern Site and Southern Site under the *Clarence Valley Local Environmental Plan 2011*

ID	Name	Type	Significance
C1	Bushgrove Heritage Conservation Area	Conservation Area - General	Local
I28	Residence (former bank)	Item - General	Local
I29	Group of cottages	Item - General	Local
I24	Residence	Item - General	Local

ID	Name	Type	Significance
I187	Foley's Butter Factory building (former)	Item - General	Local
I22	Residence (former police station)	Item - General	Local
I31	Group of cottages	Item - General	Local
I186	Doust Park	Item - General	Local
I32	Group of cottages	Item - General	Local
I21	The Triangle (public open space)	Item - General	Local
I35	The Common	Item - General	Local
I30	Group of cottages	Item - General	Local
I36	Uniting Church	Item - General	Local
I33	Group of cottages	Item - General	Local
I37	Free Presbyterian Church	Item - General	Local
I189	War memorial	Item - General	Local
I34	Group of cottages	Item - General	Local
I25	Residence (former shops)	Item - General	Local
I26	Post Office	Item - General	Local
I393	Lower Ulmarra former school residence and school building	Item - General	Local
I23	Brushgrove Hotel	Item - General	Local
I27	Residence (2 former shops)	Item - General	Local

6.2.3.3 EIS Assessment Approach

A Statement of Heritage Impact (SoHI) may need to be completed for the Project depending upon the outcomes of an initial literature review and field survey. If required, the SoHI will be completed for the Project in accordance with the NSW Heritage Council *Statements of Heritage Impact Guidelines 2002*. The scope of the SoHI would include:

- A review of any relevant existing heritage assessment reports and other sources of information regarding heritage items in the region
- A field survey of the Project Site in conjunction with the Aboriginal heritage survey, with an emphasis on sites identified during preliminary research and areas with archaeological potential and the recording of any items located
- Preparation of a SoHI which considers the potential for impacts on any significant adjacent heritage items
- Identification of any necessary impact mitigation and management measures.

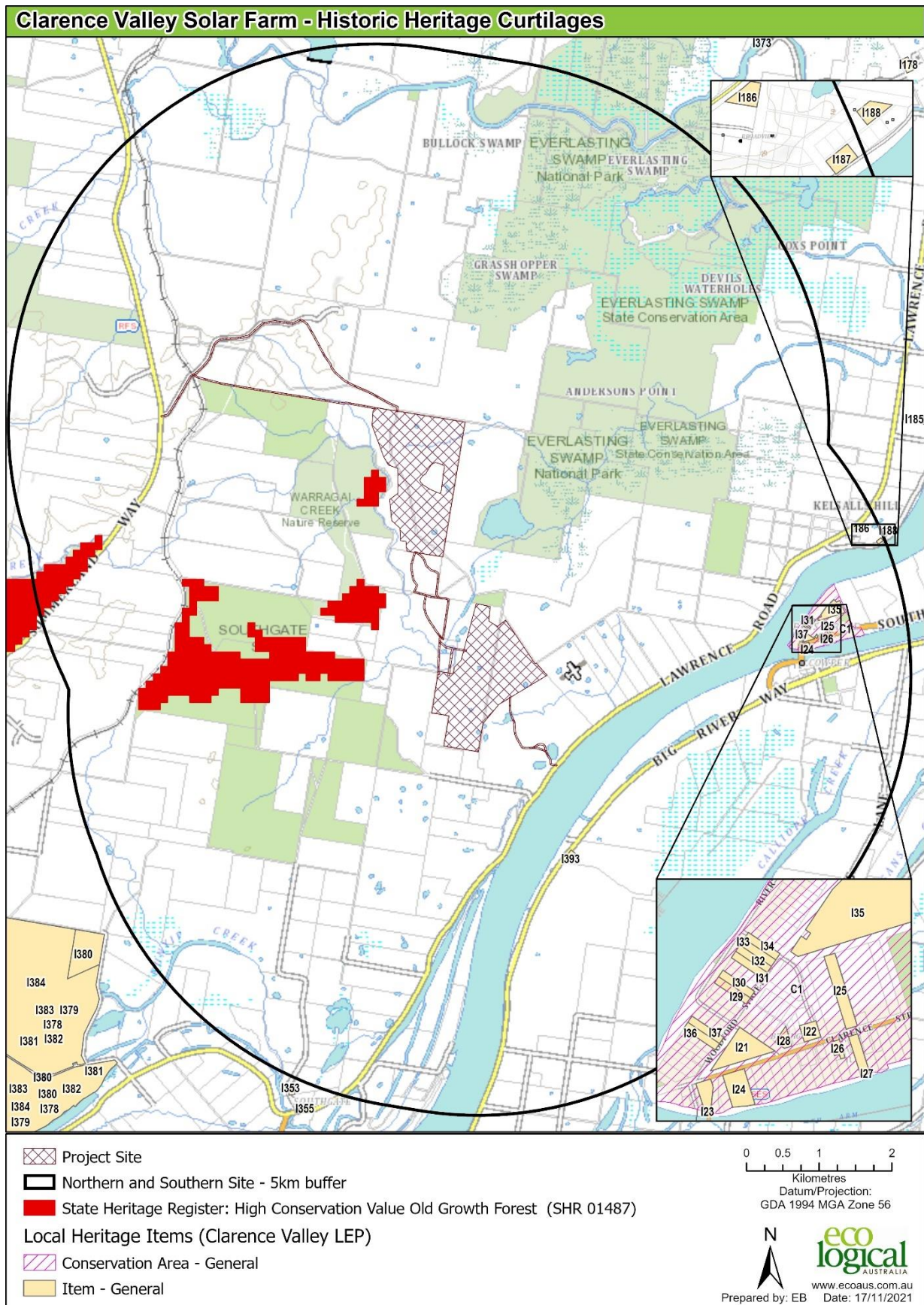


Figure 6-8: Heritage curtilages in proximity to the Project Site

6.2.4 Landscape and Visual Amenity

6.2.4.1 Potential Impacts

The introduction of a new element into the existing landscape has the potential to result in a change to the landscape character of the area. A landscape and visual impact assessment is therefore required to determine the level of change to the landscape character and assess the resulting visual impacts resulting from the level of change.

The key receptors for these potential impacts are nearby residences, adjoining publicly accessible areas in the landscapes visited by the community and the general public (i.e.. roads, lookouts, rest areas and places of recreation). Table 6-7 outlines the potential landscape and visual impacts from the Project.

Table 6-7: Potential visual impacts

Environmental & Social Matters		Likely Impact	Receptors	Does the impact need assessment in the EIS?	Consultation required
Amenity	Visual	<i>Construction</i> Potential for a temporary impact on visual amenity associated with construction equipment and machinery and ground disturbance/vegetation removal and lighting impacts. <i>Operational</i> Location of solar panels and impact on visual amenity and scenic landscape character, including glint and glare.	Nearby residences, public viewing locations (i.e.. local roads, lookouts, rest areas and places of recreation).	Yes	Yes. Nearby residences and community, and Council.
Built Environment	Public Domain	<i>Operational</i> Solar panel array has potential to affect the aesthetic appeal of the rural and natural environment.	Community / general public and residences.	Yes	Yes. Nearby residences and community, and Council.

6.2.4.2 Preliminary Assessment

A desktop assessment has been prepared for the Project by Moir Landscape Architects (**Appendix E**). The desktop assessment has been prepared to provide a preliminary analysis of the potential visibility of the Project from public viewpoints and local dwellings surrounding the Project Site. Zone of Visual Influence (ZVI) analysis was undertaken and was completed using a potential worst-case scenario, considering the entire Project Site at a height of 4 m. The ZVI analysis is a 'bare earth' model and does not take into account existing vegetation therefore overestimates actual visibility.

A preliminary desktop assessment of public viewing locations identified that there are limited views to the Project from publicly accessible land. The desktop assessment undertaken for public viewing locations identified:

- Lawrence Road runs along the western edge of the Clarence River to the south east of the Project Site. At its nearest point is in excess of 1000 metres from the Southern Site. The Project has the potential to be visible from some locations along Lawrence Road, however it is anticipated views will be limited to fleeting glimpses from motorists travelling at speed in a north east or south west direction.
- The ZVI indicated views from publicly accessible land on the eastern side of the Clarence River may be available. Further assessment identified vegetation between Big River Way and the Clarence River will assist in screening views to the Project.
- The ZVI indicated Land to the west of the Southern Site may have up to 50% visibility of the Project, however land in this area is densely vegetated and inaccessible for the most part, and as a result there would be minimal visual impact from west of the Site.
- The northern site is largely screened by vegetation (Moir 2021).

The dwelling analysis for the Project identified 49 dwellings within 2 km of the Project Site. The dwellings are generally associated with Boormans Lane and Reservoir Road to the south, Lawrence Road and Big River Way to the south east, east and north east. Several dwellings are also accessed via Southgate Forest Road, to the west of the Project Site, and one dwelling is accessed from Summerland Way.

Preliminary ZVI analysis for the Project Site has indicated that the large majority of dwellings will have no visibility of the Project, or less than 20% of the development footprint (Figure 6-9). Analysis of the potential visibility from dwelling is summarised as follows:

- Views to the Project will be completely screened by topography from eight of the dwellings
- Approximately 33 dwellings have the potential to view less than 25% of the Project. The majority of these are located on the eastern side of the Clarence River and will be assessed in detail during the EIS Phase of the Project.
- Four dwellings have potential to view between 25 - 50 % of the Project. These dwellings are located to the west of the Project Site and are surrounded by dense vegetation which is anticipated to screen the Project
- One dwelling has been identified as having potential to view between 50 - 75% of the Project, however this dwelling is surrounded by dense vegetation
- Three dwellings have the potential to view the between 75 - 100 % of the Project. These dwellings are located immediately south of the Project on the northern side of Boormans Lane and will be assessed in greater detail during the EIS Phase of the Project (Moir 2021).

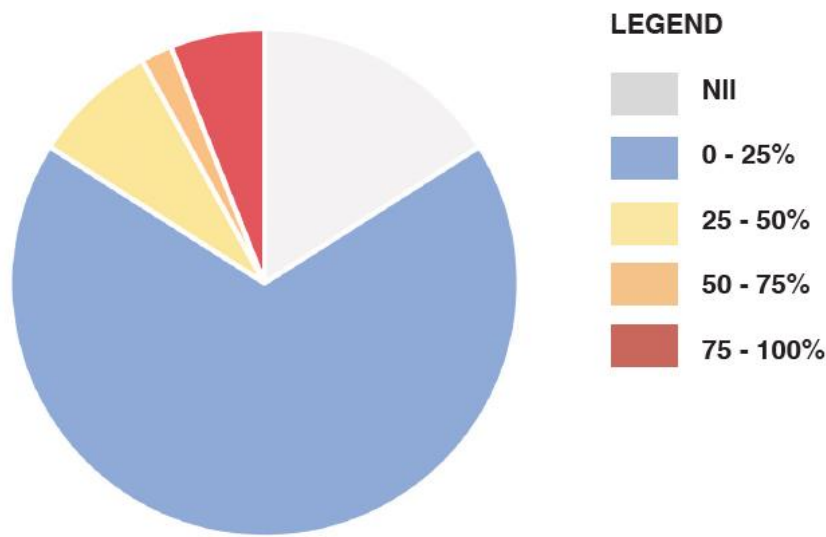


Figure 6-9: Preliminary ZVI results for dwellings for the Southern Site (Moir 2021).

6.2.4.3 EIS Assessment Approach

A detailed LVIA will be prepared as part of the EIS to determine the extent of the visual impacts, particularly from nearby residences and publicly accessible viewpoints. The LVIA is expected to include the following components:

- Analysis of the existing landscape character to determine a baseline for the visual impact assessment.
- Undertake community consultation to determine key public viewpoints and areas of concern.
- Detailed Assessment from dwellings identified as having potential visual impacts.
- Preparation of wire frame diagrams and photomontages to illustrate the Project and aid the assessment.
- Preparation of a technical glint and glare assessment and provision of recommendations (as required) to reduce potential glint and glare.
- Provide detailed mitigation measures to reduce any residual impacts. Potential mitigation measures may include removal, re-siting, resizing, and vegetation screening.

6.2.5 Noise and Vibration

6.2.5.1 Potential Impacts

Potential impacts can be categorised as construction noise and vibration, and operational noise. Construction related noise and vibration impacts expected will be associated with construction processes including vehicle and machinery movement and general construction activities. Potential noise impacts associated with the operation of the Project include the operation of the inverter stations, the substation and the tracking system, along with maintenance works. Impacts during construction and operation may impact upon sensitive receivers including landowners and non-associated receivers.

The key receptors for these potential impacts are nearby residences, the community, and fauna. Table 6-8 outlines the potential noise impacts from the Project.

Table 6-8: Potential noise impacts

Environmental Matters	& Social	Likely Impact	Receptors	Does the impact need assessment in the EIS?	Consultation required
Amenity	Acoustic	<p><i>Construction</i></p> <p>Nuisance noise levels and vibration as a result of construction activities and increased road traffic.</p> <p><i>Operation</i></p> <p>Increased noise levels as a result of the operation of inverters, the tracking system, the substation, along with noise associated with maintenance works.</p>	Nearby residences, community (road noise) and fauna.	Yes	<p>Yes.</p> <p>Nearby residences and community.</p>
Built Environment	Public Infrastructure	<p><i>Construction</i></p> <p>Potential impacts of vibration to local roads due to increased road traffic.</p>	Residences, community and Council.	Yes	<p>Yes.</p> <p>Nearby residences, community and Council.</p>
Built Environment	Other Assets	<p><i>Construction</i></p> <p>Potential impacts to private built assets including houses, sheds, private roads and bridges etc due to construction vibration.</p>	Nearby residences and any ancillary infrastructure.	Yes	<p>Yes.</p> <p>Nearby residences.</p>

6.2.5.2 Preliminary Assessment

The Project Site is located within a rural landscape, with 49 dwellings identified within 2 km of the Project Site. Existing noise sources in the general vicinity include road traffic, and agricultural and forestry activities.

Potential noise impacts would generally be limited to the construction phase, with minimal noise anticipated during operation. During the construction phase of the Project, noise emissions may occur from vehicle and machinery movement and general construction activities. The construction noise impacts are short term. The construction work hours will be in accordance with the Interim Construction Noise Guideline (DECC 2009):

- Monday to Friday 7.00am to 6.00pm
- Saturday 8.00am to 1.00pm
- No work on Sunday or public holidays.

6.2.5.3 EIS Assessment Approach

Potential for noise and vibration impacts on sensitive receivers including local residents will be considered further and incorporated into the final design of the Project. This is expected to include a noise assessment in line with the following guidelines and policy:

- *Construction Noise Strategy* (Transport for NSW 2019)
- *Interim Construction Noise Guideline* (DECCW 2009)
- *NSW Noise Policy for Industry* (EPA 2017)
- *NSW Road Noise Policy* (DECCW 2011),
- *Assessing Vibration: A Technical Guideline* (DEC 2006).

6.2.6 Traffic and Transport

6.2.6.1 Potential Impacts

Traffic associated with the construction phase of the Project will consist of both light vehicles for transporting workers and heavy vehicles for delivery of materials, plant and PV components. The Project will generate increased local traffic volumes during the construction phase, with minimal traffic impacts anticipated during ongoing operations.

The key receptors for these potential impacts are nearby residences, the community, the general public, drivers, pedestrians and cyclists. Table 6-9 outlines the potential traffic and transport impacts from the Project.

Table 6-9: Potential traffic and transport impacts

Environmental & Social Matters	Likely Impact	Receptors	Does the impact need assessment in the EIS?	Consultation required
Access to Property	<i>Construction</i> Interfering with residential access during construction as a consequence of the associated increase in traffic volumes.	General public, road users and residences.	Yes	Yes Nearby residences, community and Council.
Access Road Network	<i>Construction</i> Increase in traffic volumes resulting in congestion and increased travel times.	General public, drivers, cyclists and pedestrians (existing road network).	Yes	Community, Council and Transport for NSW.
Access Offsite Parking	No offsite parking.	N/A	No	No
Built Environment Public Infrastructure	<i>Construction</i> Potential impacts to local roads as a consequence of increased traffic volumes.	Residences and community.	Yes	Yes Nearby residences, community, Council and Transport for NSW.

6.2.6.2 Preliminary Assessment

The Project has the potential to generate increased traffic volumes during the construction phase, with minimal traffic impacts during ongoing operations. Traffic movements during construction will likely include both lightweight vehicles (transporting construction personnel and light construction materials) and heavy vehicles (transporting the solar farm and BESS infrastructure). Traffic volumes associated with the operational phase of the Project will be minimal and will generally only involve the movement of light vehicles transporting operational staff around the site intermittently.

Most materials for construction are not expected to be oversize and will be suitable for transport to the Project Site. The solar farm equipment may be supplied through domestic manufacturing or imported and arrive at port. The closest port of entry to the Project Site is the Port of Newcastle, located 488 km by road. However, other NSW and Queensland ports including (but not limited to) Port Botany, Port Kembla and Port of Brisbane may be considered by the construction contractor.

At this stage, it is expected that major components for the Project will be delivered to the Project Site via one of two access options to be further assessed within the EIS. Option 1 is for access to the Project Site to be from Lawrence Road (Figure 6-10). This route from Big River Way in Grafton would travel along Villiers Street and then along Dobie Street, before entering Queen St and then onto Lawrence Road. Option 2 is for access to the Project Site to be from an alternative access point from Summerland Way (Figure 6-11). This route from Big River Way in Grafton would travel along Villiers Street and then along Dobie Street, before travelling along Summerland Way to the alternative access point.

It is anticipated that any materials arriving to the Project Site from the Port of Newcastle would travel north along the Pacific Highway to Big River Way before turning onto the preferred access option to be identified within the EIS.

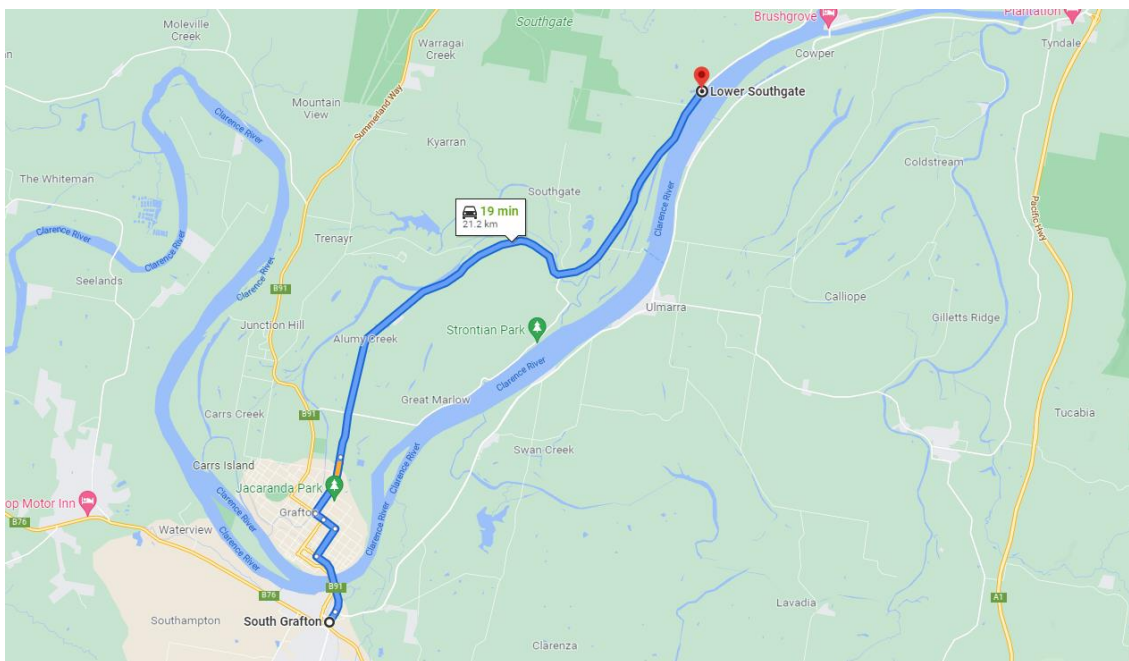


Figure 6-10: Option 1 - Project Site access via Lawrence Road (Google Maps)

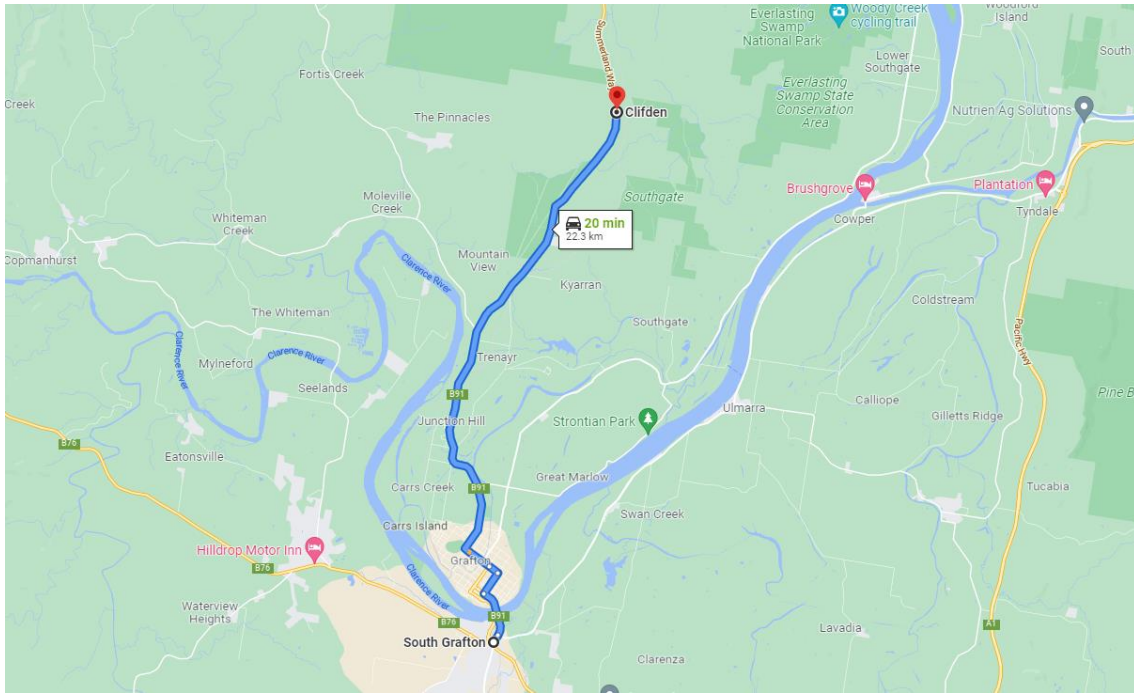


Figure 6-11: Option 2 - Alternative access to the Project Site via Summerland Way (Google Maps)

6.2.6.3 EIS Assessment Approach

A detailed Traffic and Transport Impact Assessment will be undertaken as part of the EIS in consultation with Council and Transport for NSW, and in accordance with the *'Guide to Traffic Generating Developments'* (RTA 2002), Road Design Guide and relevant Austroads Standards and *'Austroads Guide to Traffic Management'* (Austroads No Date).

The EIS will also include a review of the suitability of roads that can be used to access the Project Site and any potential impacts on road safety and local traffic movements. Where necessary, mitigation measures will be proposed that can be incorporated into a Traffic Management Plan.

6.2.7 Hazards and Risks

Potential impacts that may have a negative impact on the economy, environment and community can include chemical, biological or physical hazards and risks. The main potential hazard and risk impacts associated with this Project include bushfire, potentially hazardous development under SEPP33 and electromagnetic fields from electrical infrastructure.

The key receptors for potential impacts are nearby residences, the community, the general public, built environment, infrastructure, fauna and vegetation. Table 6-10 outlines the potential hazard and risk impacts associated with the Project.

Table 6-10: Potential hazards and risks associated with the Project

Environmental & Social Matters	Likely Impact	Receptors	Does the impact need assessment in the EIS?	Consultation required
Risks	Bushfire	Construction Potential for bushfire starting from construction activities. Potential for construction to be affected by an external bushfire. Operational Potential for bushfire starting from electrical malfunction within the Project or as a consequence of maintenance activities. Potential for an offsite bushfire to affect the Project.	Residences, general public, built environment, infrastructure, fauna and vegetation.	Yes Yes Community, Council and RFS.
Risks	Electro-magnetic Interference	Operational Disturbance to radio, television and mobile or data reception. Impact to human health from exposure to Electromagnetic Fields.	Nearby residences.	Yes Yes Community
Risks	Undermining	No likelihood.	N/A	No No
Risks	Steep Slopes	No likelihood.	N/A	No No

6.2.7.1 Hazard Analysis

A preliminary risk screening in accordance with SEPP 33 will be undertaken during the EIS, and if the preliminary risk screening indicates the development is “potentially hazardous”, a Preliminary Hazard Analysis (PHA) will be prepared in accordance with *Hazard Industry Planning Advisory Paper No. 6 – Guidelines for Hazard Analysis* (DoP 2011b) and *Multi-Level Risk Assessment* (DoP 2011a).

If a PHA is required, it would incorporate a Level 1 Qualitative Risk Analysis and Level 2 Semiquantitative Risk Analysis to satisfy DPIE requirements. The PHA would involve the following:

- Screening of preliminary risks for all hazardous materials and dangerous goods to be stored and transported to/from the Project, including batteries
- Classifying and prioritising risks in accordance with the NSW Multi-level Risk Assessment Guideline (DoP 2011a)
- Analysing consequence and frequency for hazard scenarios identified as requiring further assessment in the qualitative risk assessment, undertaken in accordance with the NSW Risk Criteria for Land Use Safety Planning (DoP 2011b).

6.2.7.2 Bushfire and Electrical Fire

The Project has the potential to be exposed to bushfire risk from grasslands and nearby areas of dense vegetation. Fire history and Bushfire Prone Land within 5 km of the Project Site are illustrated in Figure

6-12. The Project also carries the risk of a potential fire starting within the Project Site. To ensure there is minimal risk of the Project causing a bushfire or electrical fire and that the Project does not impact on land-based fighting of fires, a Bushfire Risk Assessment will be undertaken during the EIS in accordance with *Planning for Bush Fire Protection (PBP), A guide for councils, planners, fire authorities and developers 2019* (NSW RFS 2019).

6.2.7.3 Electromagnetic Fields

Electromagnetic fields (EMF) are present where electric current flows. It is expected that EMF risks associated with the Project will be below the International Commission on Non-Ionizing Radiation Protection (ICNIRP) Guidelines (2010) for limiting exposure to time-varying electric and magnetic fields (1 Hz – 100 kHz). An assessment of these operational risks will be undertaken during the EIS.

A review of potential EMF risks associated with the Project to electrical equipment will also be included in the EIS.

Suitable safeguards and mitigation measures will be proposed to reduce any potential EMF risks identified.

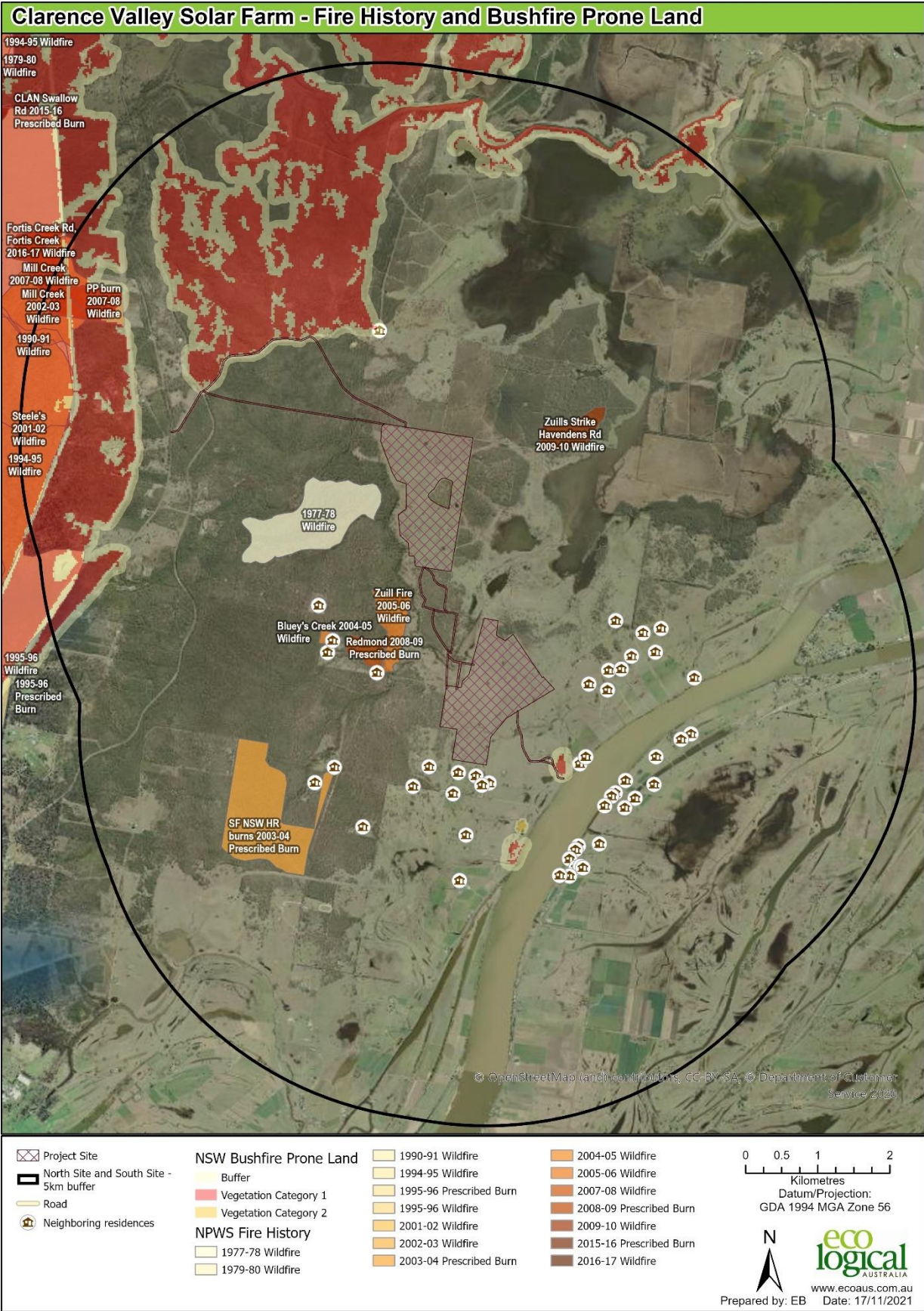


Figure 6-12: Bushfire history and Bushfire Prone Land

6.2.8 Water

6.2.8.1 Potential Impacts

The potential impacts from the Project can be categorised as changes to surface water quantity, surface water quality, groundwater, flood passage and aquatic ecology. These potential impacts will be most prevalent during construction with a reduced potential for impact during operations.

There is the potential for degradation of surface water quality related to sediment and erosion, dust deposition, pollution from spills and contamination from waste. Depending on the local groundwater conditions this could also lead to degradation of groundwater quality through infiltration processes or construction intersecting aquifers. For water quantity and water availability (surface water and groundwater), potential impacts are altered water availability due to construction water requirements, alteration of overland flow paths and reduction in environment health from groundwater drawdown or reduced streamflow. With the requirements for access tracks traversing creek lines, riparian corridors and their connectivity may be impacted along with the ability for the movement upstream and downstream of aquatic species.

The key receptors for these potential impacts are groundwater aquifers, surface water streams, licenced users, aquatic fauna, riparian vegetation, downstream users and the community. Table 6-11 outlines the potential water impacts associated with the Project.

Table 6-11: Potential water impacts

Environmental & Social Matters	Likely Impact	Receptors	Does the impact need assessment in the EIS?	Consultation required?
Water Quality	<i>Construction</i> Degradation of surface water quality related to construction sediment and erosion, dust deposition, construction pollution from spills, contamination from construction waste, and potential degradation of groundwater quality.	Watercourses, groundwater, fauna and community.	Yes	Yes DPIE – DRE, EPA and Community.
Water Availability	<i>Construction</i> Impact to availability of water.	Groundwater aquifer or surface water, licenced users, aquatic fauna and vegetation.	Yes	Yes DPIE – DRE, EPA and Community
Hydrological Flows	<i>Construction and operational</i> Changes in hydrological flows across the Project Site.	Local residences, flora and fauna.	Yes	Yes DPIE – DRE, EPA and Community
Risks	<i>Construction and operational</i> Potential impact to access ways resulting from local flooding of watercourses, or flooding external to the site affecting transportation of	Community and staff	Yes	Yes DPIE – DRE, EPA and Community

Environmental & Social Matters	Likely Impact	Receptors	Does the impact need assessment in the EIS?	Consultation required?
	solar farm equipment, site personnel access.			

6.2.8.2 Existing Environment

The Project Site is within the Clarence River catchment. The Clarence River runs directly to the east of Lawrence Road and the eastern boundary of the Project Site. One 3rd order and several smaller 1st and 2nd order Strahler tributaries run through the landscape including Boormans Creek. There are several dams within the Project Site (Figure 6-13).

There are two small areas within the Project Site that lie within the predicted 1 in 100-year flood level (Figure 6-13):

- a small section along the north-western boundary of the Southern Site
- a small area which will connect the Southern Site and the Northern Site.

A small area of Key Fish Habitat is located in the area that connects the Southern Site and the Northern Site. These aquatic areas have been identified as important to the sustainability of the maintenance of fish populations. Impacts associated with this area will likely only be access tracks and electrical infrastructure connecting the Northern Site to the Southern Site. Any associated impacts to the Key Fish Habitat and/or aquatic habitat will be further assessed as part of the EIS.

6.2.8.3 EIS Assessment Approach

A water impact assessment will be undertaken as part of the EIS and will include, but not be limited to:

- Quantification of water demand and identification of both surface and groundwater sources and potential impacts regarding water usage
- Assessment of impacts on water quality during construction
- Flood modelling
- Assessment of potential impacts to riparian land and aquatic habitat.

6.2.9 Land use and Soils

6.2.9.1 Potential Impacts

Potential impacts on land use and soils associated with the Project, may include compatibility of the Project with existing land use and land use conflict, reduced agricultural productivity, disturbance and erosion of topsoil during construction, compaction of soil and soil contamination.

The key receptors for these potential impacts are nearby residences and properties, land users, the community, the general public, infrastructure, flora, fauna, vegetation communities and watercourses. Table 6-12 outlines the potential land use and soil impacts from the Project.

Table 6-12: Potential land use and soil impacts

Environmental & Social Matters	Likely Impact	Receptors	Does the impact need assessment in the EIS?	Consultation required
Land Stability / Structure	<i>Construction</i> Excavation, disturbance and erosion of soils and productive topsoil, exposure of soils to wind and/or water erosion, compaction of soils leading to concentrated run off.	General public, infrastructure and watercourses.	Yes	Yes Nearby residences, community, DPI and LLS.
Land Soil Chemistry	<i>Construction</i> Soil contamination from spills, introduction and spread of weeds. <i>Operational</i> Soil contamination from spills, introduction and spread of weeds.	General public, nearby/neighbouring residents, watercourses, flora and fauna.	Yes	Nearby residences, community, DPI and LLS.
Land Land use	<i>Construction</i> Potential to impact upon soil and land capability classes and BSAL/IAL. <i>Operational</i> Use and removal of agricultural land. Weed incursion and spread into nearby properties. Potential to impact upon BSAL/IAL.	General public, nearby properties and residents.	Yes	Nearby residences, community, DPI and LLS.
Land Topography	<i>Construction</i> Excavation and stockpiling associated with access roads, and waterways which could potentially cause erosion, sedimentation and dust.	Nearby properties and watercourses.	Yes	Nearby residences, community, DPI and LLS.
Land Acid Sulfate Soils	<i>Construction</i> Exposure of acid sulfate soils can have potential impacts including damaging waterways, killing aquatic fauna, killing flora, corrosion and toxic water and dust.	Nearby residences, general public, watercourse, flora and fauna.	Yes	Nearby residences, community, DPI and EPA.

6.2.9.2 Assessment

The Project Site is in a landscape that is predominantly flat with slight undulations, where elevation ranges between 15 – 45 m Australian Height Datum (AHD). The Project Site has been historically cleared for grazing and is typical of farmland in the region. Surrounding land uses include agriculture, rural residential, forestry and National Parks estate land.

Soil Geology

The geology of the Project Site includes both Quaternary alluvial deposits and Jurassic sedimentary rocks. Quaternary alluvial deposits are current and recent mud, silt, sand, and gravel deposited by river (alluvial) systems which have a widespread distribution across NSW. Jurassic sedimentary rocks are sedimentary sequences dominated by sandstone with minor conglomerate units and claystone and are widespread through NSW (SEED – NSW 1500K Simplified Surface Geology).

Land and Soil Capability, Biophysical Strategic Agricultural Land (BSAL) and Important Agricultural Land (IAL)

Preliminary assessments have identified that the Project Site is dominated by Class 4 and Class 5 lands, with some areas of Class 6 lands (Figure 6-14). A definition of the land and soil capability classes found at the Project Site are as follows:

- Class 4 – land with moderate limitations for land use. These lands are not capable for regular cultivation cropping owing to limitations of slope gradient, shallowness of soil, climate, or a combination of these. These lands are generally suitable for very low to moderate impact land uses.
- Class 5 – land with moderate to high limitation for land use. These lands are not capable for regular cultivation owing to limitations of soil erodibility, slope gradient, shallowness of soil, climate, or a combination of these. These lands are generally suitable for moderate to low intensity grazing.
- Class 6 – land with a high degree of limitation for land use. These lands include rolling to steep hills with slopes up to 33 % with high erosion risk and areas where climate severely limits the potential for plant growth. These lands are not capable of supporting high or medium impact land uses due to extreme difficulty in removing or reversing degradation and associated off-site impacts. They are low in productivity, and capable of light grazing or nature conservation (OEHL 2012).

The main Project Site has been strategically located to avoid Biophysical Strategic Agricultural Land (BSAL) and Important Agricultural Land (IAL). However, a small portion of the existing access track from Lawrence Road to the main Project Site crosses over land that is mapped as both BSAL and IAL under the NCR Plan (Figure 6-14). The existing access is proposed to be upgraded as part of the Project and this is not expected to have a significant impact on availability of BASAL or IAL.

The Project will result in a temporary land use change from agriculture to electricity production of up to 340 ha for its proposed 30-year duration. A lease agreement will be established to compensate the landholders for foregone income due to reduced agricultural production. At the conclusion of the life of the Project, the Project Site would be decommissioned in order to permit the resumption of grazing activities or other agricultural uses.

Soils

The Project Site is dominated by Kandosols under the Australian Soil Classification, with small areas of Kurosols along the western boundary of both the Northern and Southern Site's (Figure 6-15). A general description of these soil types is:

- Kandosols – Soils that do not have a strong texture contrast between the A and B horizons. They have a massive or weakly structured B horizon and are not calcareous. Parent material of Kandosols ranges from highly siliceous, siliceous to intermediate in composition. Generally, Kandosols have low to moderate agricultural potential with moderate chemical fertility and water-holding capacity.
- Kurosols - Soils with strong texture contrast between A horizons and strongly acid B horizons. Many of these soils have some unusual subsoil chemical features (high magnesium, sodium and aluminium). They generally have very low agricultural potential with high acidity (pH < 5.5) and low chemical fertility. Kurosols commonly have low water-holding capacity and are often sodic (Isbell R.F. 2021).

Acid Sulphate Soils

The majority of the Project Site is not mapped as Acid Sulphate Soils under the Clarence Valley LEP (Figure 6-13). Acid Sulphate Soils are mapped in two small locations across the Project Site:

- a small area located between the Southern Site and Northern Site within the Project Site is mapped as Class 4 and 5 Acid Sulfate soils under the Clarence Valley LEP (Figure 6-13)
- a small area along the proposed access route from Lawrence Road is mapped as Class 2 and 3 Acid Sulfate soils.

Consent is required for works carried out on Acid Sulphate Soils as follows:

- Class 2 – Works below the natural ground surface. Works by which the water table is likely to be lowered.
- Class 3 - Works more than 1 metre below the natural ground surface. Works by which the water table is likely to be lowered more than 1 metre below the natural ground surface
- Class 4 - Works more than 2 metres below the natural ground surface. Works by which the water table is likely to be lowered more than 2 metres below the natural ground surface
- Class 5 - Works within 500 metres of adjacent Class 1, 2, 3 or 4 land that is below 5 metres Australian Height Datum and by which the water table is likely to be lowered below 1 metre Australian Height Datum on adjacent Class 1, 2, 3 or 4 land (Clarence Valley 2011).

Contaminated Land

A review of the EPA Contaminated Land Record under Section 58 of the *Contaminated Land Management Act 1997* and the List of NSW contaminated sites notified to the NSW EPA under Section 60 of *Contaminated Land Management Act 1997* did not reveal any registered contaminated land sites within or surrounding the proposed site.

6.2.9.3 EIS Assessment Approach

While it is not expected that impacts to agricultural production at a local, regional or state level will be significant, the EIS will include a Land Use Conflict Risk Assessment of the impact of the Project on existing land use. An assessment will be prepared to consider land and soil capability, potential impact to BSAL and IAL, potential impact to soils and an assessment of soil management throughout the

Project's life. Potential impacts of the works proposed in the two small areas mapped acid sulphate soils within the Project Site (access roads and underground cabling) will also be assessed as part of the EIS.

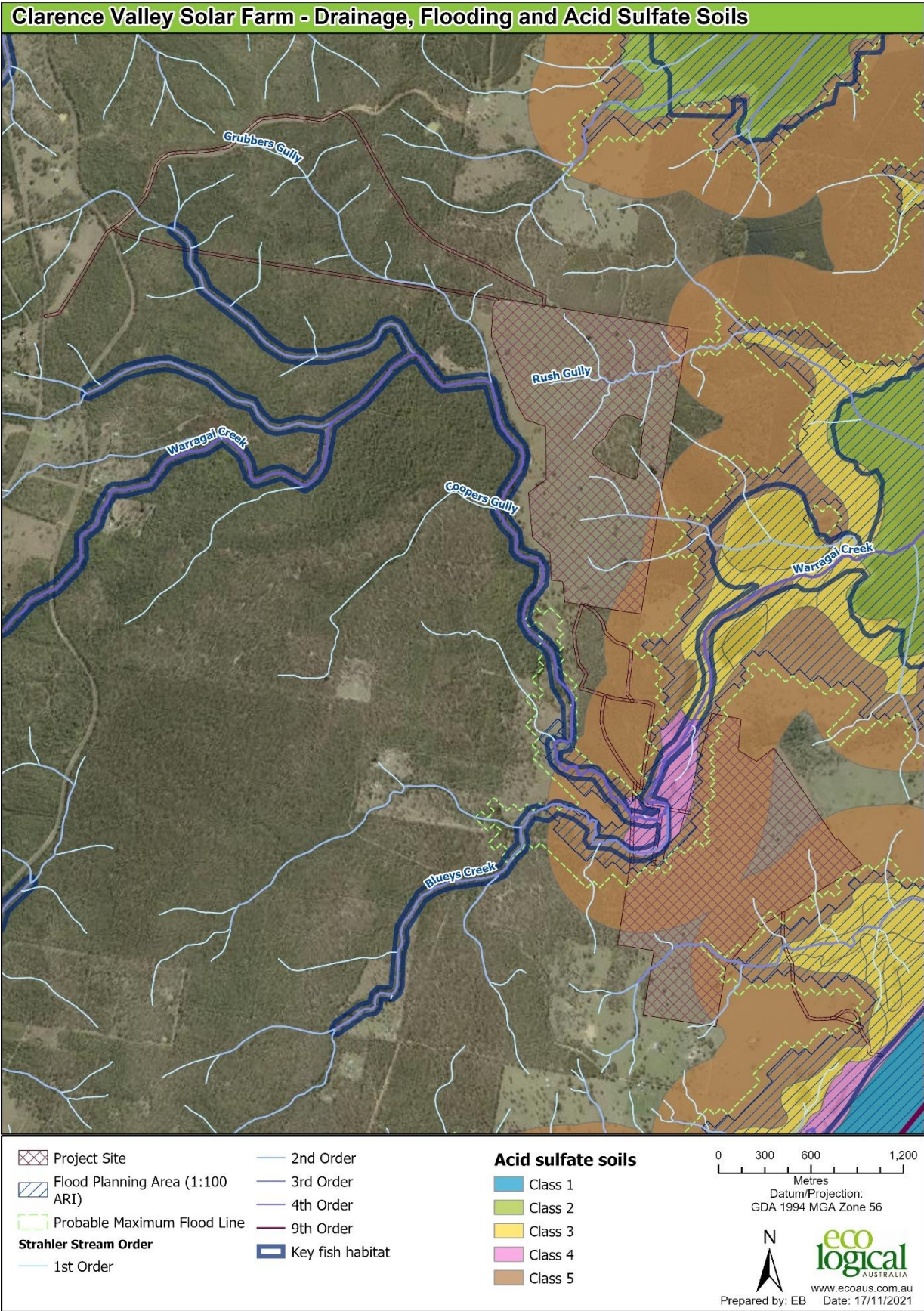


Figure 6-13: Drainage, flooding and acid sulphate soils within the Project Site

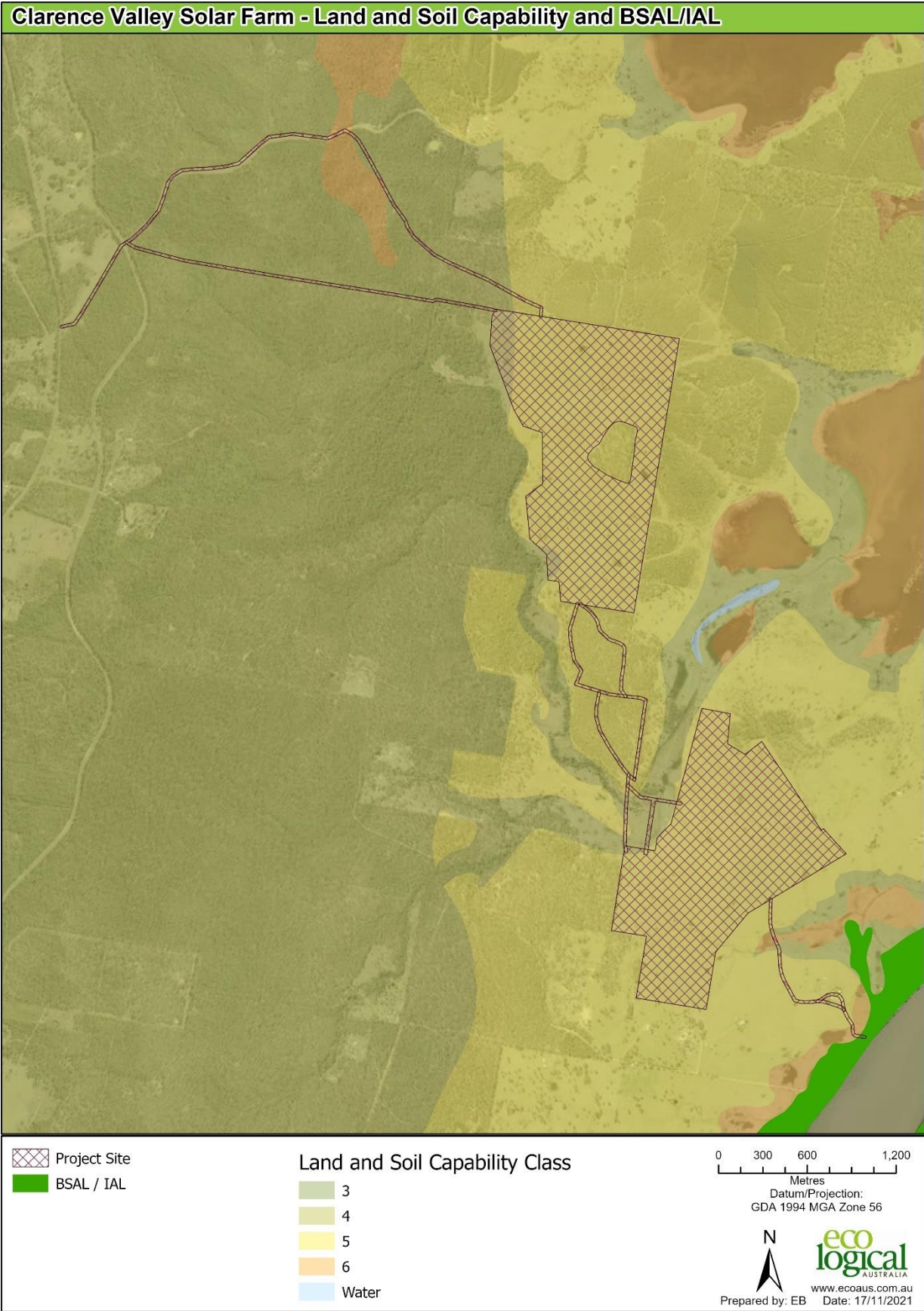


Figure 6-14: Land and Soil Capability Classes and BSAL/IAL within the Project Site

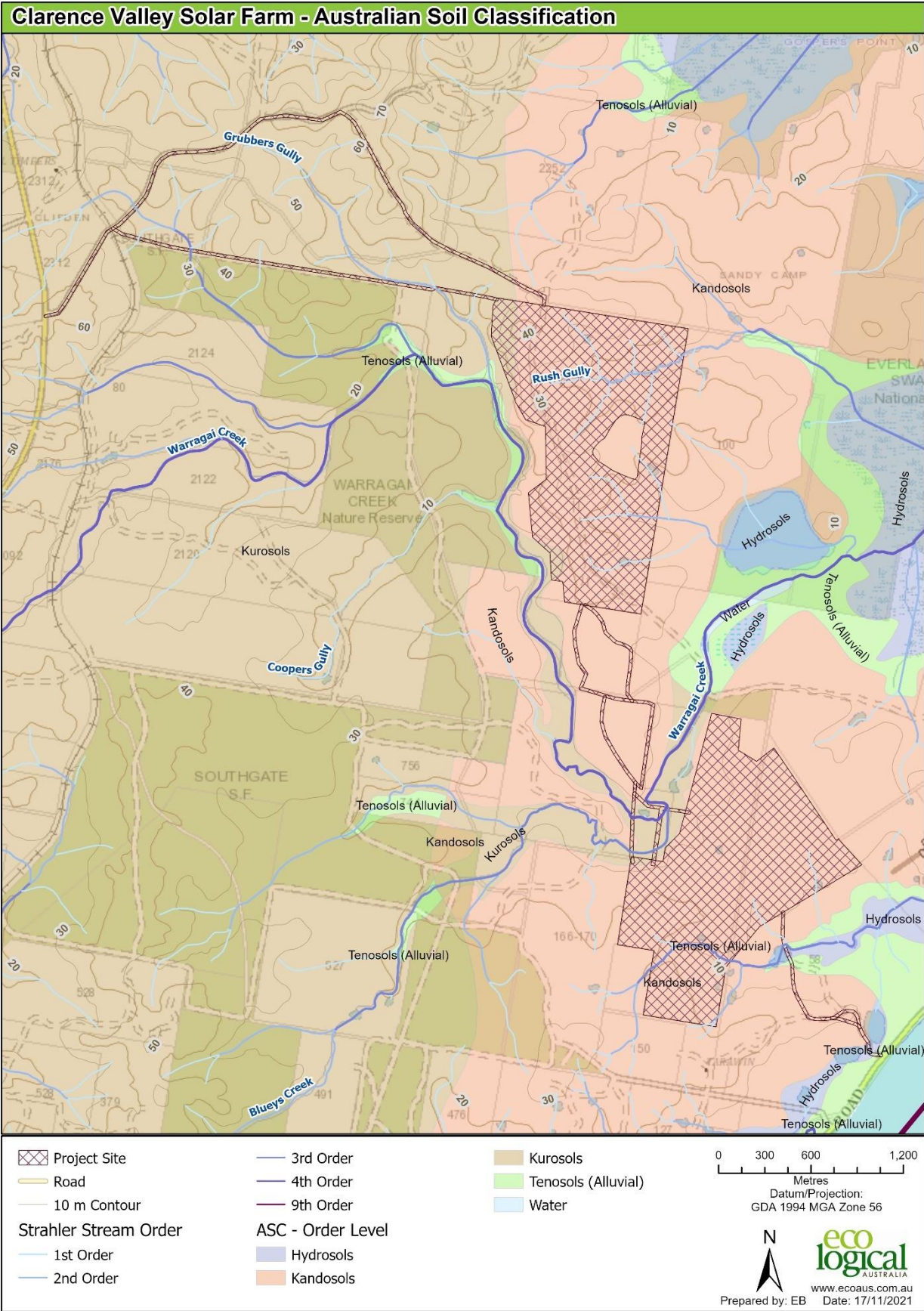


Figure 6-15: Soils within the Project Site

6.2.10 Economic Assessment

6.2.10.1 Potential Impacts

Potential economic impacts from the Project may include both economic benefits including employment generation and investment in local goods and services, and potential negative economic outcomes including increasing demands on Council infrastructure and the associated flow on effects.

The key receptors for these potential impacts are nearby landowners and the general public. Table 6-13 outlines the potential economic impacts from the Project.

Table 6-13: Potential economic impacts

Environmental Matters	& Social	Likely Impact	Receptors	Does the impact need assessment in the EIS?	Consultation required
Economic	Natural Resource Use	<p><i>Construction</i></p> <p>Use of local natural resources i.e. from local quarries or through the creation of quarries may have a positive economic effect.</p> <p><i>Operational</i></p> <p>Change in land use unlikely to affect availability of and access to natural resources.</p>	General public.	Yes	Yes Community and Council.
Economic	Livelihood	<p><i>Construction</i></p> <p>Employment: Approximately 100 FTE jobs will be created during the construction period. These jobs will require a mix of skilled, semi-skilled and unskilled workers.</p> <p><i>Operational</i></p> <p>Employment: potentially 4 FTE jobs will be created as a result of the Project.</p> <p>Potential land value change may affect the livelihood of some landowners.</p>	Landowners, local residents and job seekers in the wider locality.	Yes	Yes Community and Council.
Economic	Investment	<p><i>Construction</i></p> <p>The construction of the Solar Farm will require substantial investment at the National, State, Regional and local level.</p>	National, State, Regional and local communities, Council.		Yes Community and Council.
Economic	Opportunity Cost	It is unlikely that there will be any predicted loss of business opportunity.	General public.	Yes	Yes Community and Council.

6.2.10.2 Preliminary Assessment

The Project Site is located within the Clarence Valley LGA and in proximity to Grafton, and the localities of Southgate, Lower Southgate, and Lawrence. Based on a preliminary review of key community and demographic information, the Clarence Valley LGA has the following characteristics (ABS, 2016):

- Age distribution is varied, but with a Median age significantly older than the NSW median age (49 years versus 38 years)
- Key industries of employment include Aged Care Residential Services (4.1%), Hospitals (3.5%), Local Government Administration (2.8%), and Supermarket and Grocery Stores (2.8%)
- A higher rate of unemployment compared to the NSW average (9.0% versus 6.3%)
- Lower than NSW median mortgage costs (expressed as a percentage of income).

The Project will provide direct financial benefits to the regional and local community, involving:

- Investment in the solar farm infrastructure (capital value in excess of \$30 million)
- Employment generation creating approximately 100 direct jobs during the construction phase with 4 direct jobs during the operational phase
- Indirect benefits to local services throughout the construction and operational phases
- Additional landowner income for involved landowners increasing the economic resilience of their agricultural operations.

6.2.10.3 EIS Assessment Approach

An Economic Impact Assessment (EIA) will be undertaken as part of the EIS. The assessment will identify potential economic impacts associated with the Project including investment, employment, business participation, local wage stimulus, impact on accommodation, impact on agricultural activities and cumulative impacts.

6.2.11 Minor Issues

Additional consideration will be given to the following potential impacts within the EIS:

- Resource requirements and waste
- Air quality impacts in regarding construction dust
- Decommissioning.

Table 6-14 outlines the potential minor issue impacts from the Project.

Table 6-14: Potential minor issue impacts

Environmental & Social Matters	Likely Impact	Receptors	Does the impact need assessment in the EIS?	Consultation required?
Amenity	Odour Construction - potential odour impacts from vehicle and machinery	Nearby residences	No	No

Environmental & Social Matters	Likely Impact	Receptors	Does the impact need assessment in the EIS?	Consultation required?
	exhausts and any chemicals used in construction.			
Air	Particulate Matter	Construction Air quality impacts from construction dust.	Construction staff, nearby residences and flora and fauna.	Yes No
Air	Gases	Emissions are associated with conventional energy sources used in the construction and maintenance of the solar farm facilities.	N/A	Yes No
Air	Atmospheric Emissions	Long term positive. Energy generated from the Project will displace the green house gas emissions that would be emitted if the electricity was generated from traditional fossil fuels.	N/A	Yes No

6.2.12 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 Project, the relevant cumulative impacts are those associated with other known or foreseeable developments occurring in proximity to the Project.

State Significant projects listed on the Major Projects Register within the Clarence Valley LGA (and their current status) are:

- Sly's Quarry (Determined)
- Grafton Bridge Upgrade (Determined)
- Pacific Highway - Glenugie Upgrade (Determined)
- Pacific Highway - Devils Pulpit (Determined)
- Blue Dolphin Residential Flat (Determined)
- Woombah Residential Subdivision (Iluka Road) (Determined)
- Wooli Tourist Facility (Determined)
- Grafton Correctional Centre Concept Proposal & Stage 1 (Determined)
- Grafton Correctional Centre Stage 2 Design & Construction (Determined)
- Pacific Highway - Woolgoolga to Ballina (Determined)
- Whipbird Drive Ashby (Determined).

Potential cumulative impacts of overlapping construction periods are primarily associated with traffic impacts, pressures on local facilities, goods and services, natural resources and vegetation clearing. Potential operational cumulative impacts are associated with acoustic and landscape and visual amenity matters.

The EIS will assess cumulative impacts of the Project in relation to other major projects occurring in the vicinity.

6.3 Preliminary Social Assessment

6.3.1 Social Impact Assessment

SIA is an important technical study that will form part of the EIS. The final version of the *Social Impact Assessment Guideline for State Significant Projects* (SIA Guideline) was released by the DPIE in July 2021. This guidance has been produced to provide a consistent framework and approach to the assessment of social impacts for SSD projects. In the majority of cases, the SIA process includes two phases that form the process of analysing and responding to likely social impacts. The SIA for the Project will be delivered in line with the DPIE's Guideline (2021).

A scoping checklist forms Phase 1 of the SIA. It is used to identify and evaluate the potential social impacts associated with the construction and operational phases of the Project. The scoping checklist outlines potential social impacts and their possible extent, duration, and scale. These potential social impacts will be thoroughly investigated and assessed through a comprehensive SIA (Phase 2). For the scoping checklist, desktop assessment was undertaken to identify the potential social impacts resulting from changes that may occur as a consequence of the development of the Project. The desktop assessment included use of information provided by the proponent (maps of the Project Site, communication materials for adjacent residents, and project background information), demographic data (from the 2016 ABS Census), Google maps (to identify community, infrastructure and transport, and accessibility considerations) and was informed by a literature review of research conducted on the social impacts of solar farms. The potential social impacts were considered across the following social factors:

- of way of life
- health and wellbeing
- accessibility
- community
- culture
- surroundings
- livelihoods
- decision-making systems.

The Phase 2 report will further evaluate the social impacts identified as significant during the scoping phase. Impacts identified in the Phase 2 report will be assigned an overall social risk rating (Low/ Medium/ High/ Very High) based on the expected likelihood and magnitude of identified impacts. The full Phase 2 report will include an overview of:

- the projects background and strategic drivers
- description of the project's social locality and baseline including demographic analysis
- local social issues and trends
- outcomes of community consultation
- further assessment of expected social impacts

- impact mitigation and enhancement recommendations
- proposed monitoring and management framework.

The preliminary social impact assessment along with the scoping checklist is included in **Appendix F**. The preliminary social impact assessment and scoping checklist has been used to inform this Scoping Report and has been prepared by qualified and experienced social science professionals – Ethos Urban’s Social Strategy team, led by Director Allison Heller. The same team will undertake the SIA.

7. Conclusion

The Proponent proposes to develop a large-scale solar farm at Southgate, in the Clarence Valley region of NSW, with the capacity to generate up to 85 MW. The Project is classed as an SSD project under Part 4 of the EP&A Act and SRD SEPP (threshold is \$30 million).

On behalf of Infinergy, ELA has prepared this Scoping Report to identify the potential impacts of the Project. This report provides a description of the Project and summaries the information required by the DPIE, including a preliminary environmental assessment to support an application SEARs to guide the preparation of the EIS for the Project under Part 4 of the EP&A Act.

The Applicant will prepare an Environmental Impact Assessment in line with the commitments made in this document and the parameters set out in the SEAR's which will be reported in an EIS which will be submitted to the DPIE to support a formal application for planning consent.

8. References

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Appendix A Scoping summary table

Level of assessment required	Matter	CIA ⁴	Engagement	Relevant government plans, policies and guidelines	Scoping report reference
Detailed	Biodiversity – terrestrial flora and fauna	No	General	<ul style="list-style-type: none"> • <i>Biodiversity Assessment Method 2020</i> 	Section 6.2.1
Detailed	Biodiversity – aquatic flora and fauna	No	General	<ul style="list-style-type: none"> • <i>DPI Guidelines for Controlled Activities on Waterfront Land (2018)</i> • <i>Why Do Fish Need to Cross the Road? Fish Passage Requirements for Waterway Crossings (DPI 2003)</i> • <i>Policy & Guidelines for Fish Habitat Conservation & Management (DPI, 2013)</i> 	Section 6.2.8
Detailed	Heritage - Aboriginal	No	Specific	<ul style="list-style-type: none"> • <i>Code of Practice for Archaeological Investigations of Aboriginal Objects in NSW (DECCW 2010a)</i> • <i>Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010 (DECCW 2010b)</i> • <i>Guide to Investigating, Assessing and Reporting on Aboriginal Cultural Heritage in NSW (OEH 2011),</i> 	Section 6.2.2
Detailed	Heritage - Historic	No	General	<ul style="list-style-type: none"> • <i>Statements of Heritage Impact Guidelines 2002</i> 	Section 6.2.3
Detailed	Visual (Amenity)	No	General	Refer to Scoping Report for further assessment to be undertaken during EIS.	Section 6.2.4
Detailed	Noise and vibration (Amenity)	Yes	General	<ul style="list-style-type: none"> • <i>Construction Noise and Vibration Strategy (Transport for NSW 2019)</i> • <i>Interim Construction Noise Guideline (DECCW 2009)</i> • <i>NSW Noise Policy for Industry (EPA 2017)</i> • <i>NSW Road Noise Policy (DECCW 2011)</i> • <i>Assessing Vibration: A Technical Guideline (DEC 2006)</i> 	Section 6.2.5

⁴ Cumulative Impact Assessment

Level of assessment required	Matter	CIA ⁴	Engagement	Relevant government plans, policies and guidelines	Scoping report reference
				<ul style="list-style-type: none"> German Standard DIN 4150-3: Structural Vibration – Effects of Vibration on Structures 	
Detailed	Traffic (Access)	No	General	<ul style="list-style-type: none"> Guide to Traffic Generating Developments' (RTA 2002) Road Design Guide and relevant Austroads Standards and 'Austroads Guide to Traffic management' (Austroads No Date). 	Section 6.2.6
Standard	SEPP 33 (Hazards and Risks)	No	General	<ul style="list-style-type: none"> Hazard Industry Planning Advisory Paper No. 6 – Guidelines for Hazard Analysis (DoP 2011) and Multi-Level Risk Assessment (DoP 2011). 	Section 6.2.7.1
Standard	EMF (Hazards and Risks)	No	General	<ul style="list-style-type: none"> International Commission on Non-Ionizing Radiation Protection (ICNIRP) Guidelines (2010) 	Section 6.2.7.3
Detailed	Bushfire (Hazards and Risks)	No	General	<ul style="list-style-type: none"> Planning for Bush Fire Protection (PBP), A guide for councils, planners, fire authorities and developers 2019 (NSW RFS 2019). 	Section 6.2.7.2
Detailed	Water and Soils: <ul style="list-style-type: none"> Flooding (Hazards and Risks) Land contamination (Hazards and Risks) Stability and erosion (Land) Land capability (Land) Hydrology (Water) Water quality (Water) Water availability (Water) 		General	<ul style="list-style-type: none"> Acid Sulphate Soils Assessment Guidelines (Department of Planning, 2008) Managing Urban Stormwater: Soils and Construction Volume 1 (Landcom, 2004) Australian and New Zealand Guidelines for Fresh and Marine Water Quality (ANZECC / ARMCANZ, 2000) Using the ANZECC Guidelines and Water Quality Objectives in NSW (Department of Environment and Conservation, 2006). NSW Government's Floodplain Development Manual (2005) Land Use Conflict Risk Assessment Guide (DPI 2011) 	Section 6.2.8
Detailed	Community (Social)	Yes	Specific	<ul style="list-style-type: none"> Social Impact Assessment Guidelines for State Significant Projects (DPIE 2021c) Undertaking Engagement Guidelines for State Significant Projects (DPIE 2021b) 	Section 6.3

Appendix B Engagement Letters and Newsletter

Information provided to the local community.

1. Introduction letter
2. Second letter
3. Newsletter

1. Introduction Letter



Infinergy Australia Pty Ltd
44 Quayle Street
Sandy Bay, TAS 7001

info@infinergypacific.com E-mail

6th August 2021

Dear Resident,

This is an introductory letter to inform you that Infinergy Australia is currently investigating the feasibility of developing a solar farm on neighbouring land at 58 Boormans Lane, Lower Southgate, NSW. The area we are exploring for the solar farm is shaded in black on the map enclosed.

Infinergy Australia is an independent renewable energy company that has been developing solar farms in Australia since 2016. As a company we are committed to increasing the use of zero-carbon electricity in Australia by identifying, developing and connecting solar projects to the National Electricity Market (NEM).

As part of our investigations to determine the suitability of the proposal site for a solar farm, we would like to discuss our preliminary ideas with neighbouring residents, outlining why we think the location is suitable for solar development and to hear your views, so that these can be considered as part of our assessment.

As such, we would like the opportunity to meet with you to introduce Infinergy Australia and discuss the proposal in more detail. Unfortunately, due to current COVID-19 restrictions it will not be possible to meet in person at this time. Instead, we would like to organise either a virtual meeting via 'zoom', or a telephone meeting during the week beginning 16th of August, while hoping that it will be possible to meet in person in the near future.

If you would like to make a time for a meeting to discuss the proposal with a member of our team, please contact me on 0418 632727 or alternatively email us at info@infinergypacific.com with a preferred method and time (note, we understand that this may need to be outside normal work hours). If you are unavailable during this period, I am happy to organise an alternative time to discuss the proposal.

Lastly, please note that this is the beginning of the consultation process where we first seek to understand the views of close neighbours. Consultation will be extended to the wider community as our assessment progresses and will be conducted in line with COVID-19 requirements.

I look forward to hearing from you.

Yours sincerely,

A handwritten signature in black ink that reads "Jane Ross".

Jane Ross
Development Director



2. Second Letter



Infinergy Australia Pty Ltd
PO Box 38
Sandy Bay, TAS 7006

info@infinergypacific.com E-mail

25th October 2021

Dear Resident,

We, at Infinergy Australia, are reaching out to update you regarding the solar development we are currently investigating in your area at lower Southgate. The proposal will be known as the Clarence Valley Solar Farm (not the Pelican Solar Farm) and is expected to have a generation capacity of approximately 85MW.

The purpose of this letter is to introduce our newsletter (copy attached), which we will circulate periodically to keep the community updated of our progress. The newsletter will provide information regarding the proposal along with our contact details. In addition to this, we have also set up a project website which will provide details about the proposal and its design and will be updated as our assessment progresses. The website can be accessed at www.clarencevalleysolarfarm.com.au.

As we indicated in our introductory letter (dated the 6th August 2021), we are in the early stages of the development process, conducting scoping and feasibility assessments along with initial consultation. While we know that it has been frustrating to some that we have not been able to meet in person, we have appreciated the feedback we have had from neighbouring residents to our initial proposal. Based on feedback that there are concerns regarding the proximity of the proposal to local residences, we have extended the study area to include additional land holdings at Lawrence Rd, Lower Southgate and 100 Dilkoon Rd, Dilkoon. This extended study area (see newsletter), will allow plenty of scope to refine and optimise the design of the solar farm in order to avoid, minimise and mitigate potential impacts.

We have been advised that some households who received our letter would appreciate it if we addressed correspondence to them personally. If you would like us to do this, please forward your preferred details to our email or our postal address (above).

I would like to reconfirm that we have a range of ways that you can contact our team regarding the proposed Clarence Valley Solar Farm:

- Email – info@infinergypacific.com;
- Letter: Infinergy Australia Pty Ltd, PO Box 38, Sandy Bay, 7006, TAS;
- Telephone calls – 0418 632727 (Jane Ross – Project Director); and
- Zoom calls.

If you would like to make a time for a call or a Zoom meeting to discuss the proposal with a member of our team, please contact me on 0418 632727 or alternatively email us at info@infinergypacific.com and we can organise a time.

Further to this, we will be organising a series of face-to-face consultation sessions as we progress the proposal through the development process. We will let you know the timing of these events via our newsletter and on our project website (www.clarencevalleysolarfarm.com.au) or we are happy to email you directly if you would like to provide your details.

Please find the first Clarence Valley Newsletter attached.

Yours sincerely,



Jane Ross
Development Director

3. Newsletter

Clarence Valley Solar Farm

PROJECT INTRODUCTION & UPDATE

INTRODUCTION

We, at Infinergy Australia, are reaching out to inform and update you of a new and exciting solar development proposed in your area at lower Southgate. The map (right) shows the general location of the proposal (approximately 13 km to the northeast of Grafton and 9 km to the southwest of Lawrence), while the plan (overleaf) details the exact location of the area we are investigating for the Solar Farm.

The proposal, if it were to proceed, would be a State Significant Development (SSD) with a generation capacity of approximately 85MW. The location would avoid the need for new 'poles and wires' as it would connect directly into existing National Grid infrastructure via the onsite electricity lines that cross the site.

We are in the early stages of the development, conducting scoping and feasibility assessments. The initial design for the proposal is provided on the plan overleaf. It should be noted that the study area for the proposal has been extended in response to initial feedback from neighboring residences. The large study area will allow us plenty of scope to refine and optimise the design of the solar farm in order to avoid, minimise and mitigate potential impacts.

At this stage of the proposal, the Solar Farm would include the following elements:

Solar Arrays – The largest component of the solar farm would be the solar arrays. Each panel (approximately 2.2m x 1.1m) would most likely be mounted on a single-axis tracking system that follows the sun over the course of the day. At its maximum rotation, the panels would be elevated to a maximum height of 4.0m above the ground. Trackers and panels would be arranged in symmetrical rows aligned north to south.

Screening – A series of native vegetation screens would be planted at visible boundaries of the solar farm to reduce the visibility of the proposal and screen security fencing.

Supporting infrastructure – This would include inverters (which convert the 'DC' electricity produced by the panels into grid friendly 'AC' electricity); a small substation to connect the solar farm to the existing onsite electricity lines; internal access tracks; security fencing; a battery storage facility; and an operations and maintenance building.

OCTOBER 2021 - Newsletter 01



LOCATION



HOW CAN I STAY UP TO DATE?

We will write and circulate newsletters in the local community and will detail all significant project news on the project website: www.clarencevalleysolarfarm.com.au

If you would like to be added to our email news list, please email us at: info@infinergypacific.com

www.clarencevalleysolarfarm.com.au

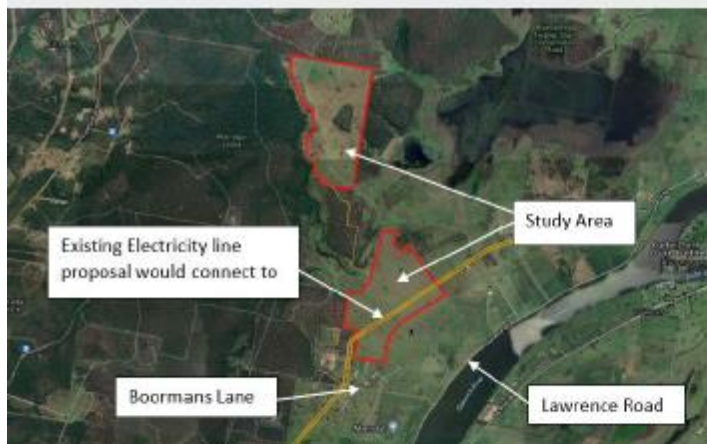
Project Status

The team is currently working on a Scoping Report to submit to the Department of Planning Industry and Environment (DPIE). The DPIE is the consent authority for SSD renewable energy projects in NSW. The graphic below provides a summary of the SSD approval process. The DPIE will use the Scoping Report to issue Secretary's Environmental Assessment Requirements (SEARs) which prescribes the technical studies required to support a formal Development Application for the Proposal.

What is a Scoping Report?

A Scoping Report provides preliminary information on a project and its potential impacts which is used to support a request for SEARs. The lodgment of a Scoping Report is the first step in a long assessment process (see graphic below), that typically takes up to a year, in preparation for a Development Application.

After SEARs have been issued, we will complete the technical assessments identified by DPIE to include in an Environmental Impact Statement (EIS). This is likely to require comprehensive landscape, noise, ecology, cultural heritage, and transport assessments.



HAVE YOUR SAY

We would like to hear your views about the proposal. You can get in touch with us in a range of different ways:

- Email: info@infinergypacific.com;
- Letter: Infinergy Australia Pty Ltd, PO Box 38, Sandy Bay, 7005, TAS;
- Telephone: 0418-632727 (Jane Ross – Project Director);
- Project website: www.clarencevalleysolarfarm.com.au; and
- Zoom calls.

CONSULTATION

We will be hosting a series of face-to-face community consultation sessions throughout the development process. The timing of these events has been delayed due to Covid 19 restrictions, but we will let you know by mail drop, and on our website as soon as these can be scheduled.

As the design process is iterative, consultation is important and ongoing. The team will continue to revise and improve the design of the proposal based on assessment findings and community feedback.

If you would like to speak to us before we host face-to-face consultation sessions, or to find out more, please do not hesitate to get in touch.

CONTACT DETAILS

Jane Ross, Project Director

Email: info@infinergypacific.com

Phone: 0418-632727

Web: www.clarencevalleysolarfarm.com.au

NSW STATE SIGNIFICANT DEVELOPMENT APPROVAL PROCESS



www.clarencevalleysolarfarm.com.au

Appendix C Meeting Confirmation from Council

Magdi, Daniel

From: Jane Ross <J.Ross@infinergy.co.uk>
Sent: Tuesday, 23 November 2021 9:02 AM
To: Magdi, Daniel; Richard Seymour
Subject: FW: Clarence Valley Solar Farm

⚠ CAUTION: This email originated from an external sender. Verify the source before opening links or attachments.



From: Murray Lane <Murray.Lane@clarence.nsw.gov.au>
Sent: Monday, 22 November 2021 5:18 PM
To: Jane Ross <J.Ross@infinergy.co.uk>
Subject: RE: Clarence Valley Solar Farm

Hi Jane,

Thank you for your email and recent phone conversation.

I confirm senior planning officers attended one high-level briefing with representatives from Infinergy and a consultant from Ecological Australia on the date below. The briefing went for one hour and the summary below is generally consistent with my recollection, noting a broad overview was provided by you and the consultant, meaning council officers are broadly aware of the proposal and were able to have a short discussion about basic elements.

I do note that council officers did not express any views that should be taken to be support, or otherwise, for the project (or part thereof), given the early stage of the proposal and noting the SSD/SEARS process to be followed (including providing feedback on the scoping study).

Kind regards,

Murray Lane
Manager Development and Land Use Planning
(02) 6643 0287
0487 046 537
www.clarence.nsw.gov.au



We acknowledge the Bundjalung, Gumbaynggirr and Yaegl people as the Traditional Owners of the land on which we live and work. We honour the First Nations peoples culture and connection to land, sea and community. We pay our respects to their Elders past, present and emerging.



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Think of the environment. Please don't print this e-mail unless you really need to.

From: Jane Ross
Sent: Monday, 22 November 2021 4:36 PM
To: Murray Lane <Murray.Lane@clarence.nsw.gov.au>
Subject: Clarence Valley Solar Farm
Importance: High

Dear Murray,

Further to our discussion on Friday and in response to further discussions with DPIE today, we have been asked to confirm that we have briefed the Council's planning department regarding our proposal for the Clarence Valley Solar Farm.

For ease please find a summary of the briefing meeting we had via 'Teams' on the 14th of October 2021:

1. Brief introduction to Infinergy Australia and who we are;
2. Brief Introduction to Ecological Australia (our lead consultant);
3. Presentation of a map that showed the location of the proposal;
4. Presentation and discussion of a map that showed the extent of the proposal along with constraints in the local area which included:
 - The Project area
 - Proposed Access locations (via Lawrence Rd) and alternative access routes (via Summerland Way)
 - Land use zoning (including rural, forestry, conservation and heritage layers)
 - Bushfire Prone Land
 - Location of the onsite transmission lines that would connect the project to the national electricity network
 - Location of nearby dwellings
 - Flood mapping
 - Water courses
5. General discussion of why the site is suitable for solar development
6. General discussion of our consultation with the local community

During the meeting, several items were brought to Infinergy's attention by Council, including the presence of Bushfire Prone Land and its need to be considered in the development of the project, the NCR Plan and associated mapped Important Agricultural Land and high environmental value areas, along with the Council's newly adopted Community Energy and Emissions Reduction Strategy for Clarence Valley (2021). Questions were raised about strategies that might be employed to manage vegetation within the solar farm during its operational stage (Infinergy confirmed that this is usually achieved using mechanical means but can also be achieved by grazing sheep in the solar farm), and how landscape impacts might be managed (vegetation screens, topography and sensitive siting of infrastructure).

Could I please ask that you confirm that the summary above reflects our Briefing? Please feel free to clarify any points.

Kind regards,

Jane Ross
Development Director
INFINERGY PACIFIC
Mobile: +61 (0) 418 632727
E-mail: j.ross@infinergypacific.com

This message is intended only for use by the addressee. It may contain confidential or privileged information. If you have received this communication unintentionally, please inform us immediately.



Please consider the environment - do you need to print this e-mail?

Appendix D Connection Enquiry Letter

Ref: Enq-02246

15 November 2021

Jane Ross
Pelican Solar Farm Pty Ltd
PO Box 38
Sandy Bay TAS 7006

Dear Jane

Pelican Solar Farm progress

This letter is to advise that Pelican Solar Farm Pty Ltd submitted a preliminary enquiry on the 31/03/2021 to Essential Energy, a Preliminary Enquiry Response was provided to Pelican Solar Farm Pty Ltd on the 14/04/2021.


Pelican Solar Farm Pty Ltd entered into a Connection Service Agreement with Essential Energy on the 30/09/2021 and paid the required retainer fee, a Detailed Enquiry Response is currently in progress with Essential Energy for Pelican Solar Farm.

Yours sincerely

A handwritten signature in blue ink, appearing to read "Dane Eccles-Smith", with a stylized flourish at the end.

Dane Eccles-Smith
Major Network Connections Customer Process Lead

Appendix E Preliminary Landscape and Visual Impact Assessment



Clarence Valley Solar Farm Lower Southgate NSW

Landscape and Visual Impact Assessment

Scoping Report Input



Overview of Preliminary Assessment

Existing Landscape Character

The Project includes two proposed site locations, both within the rural locality of Lower Southgate to the west of the Clarence River, in the Clarence Valley. The Project Sites are referred to as the Northern Site and Southern Site (together the Project Site). The Northern Site is characterised by cleared grazing and modified pasture land, surrounded by vegetation. The Southern Site is characterised by cleared grazing land surrounded by cleared land to the west of the Clarence River. The topography in the area is predominately flat with slight undulations.

Land within the study area is typically characterised by grazing land with the suburbs of Southgate and Lower Southgate on the western side of the Clarence River, and Cowper and Ulmarra on the eastern side. The Southgate State Forest adjoins the Project Site to the west and has a medium to high coverage of vegetation.

Figure 3 illustrates dense vegetation to the west of the Southern Site and surrounding the Northern Site. Scattered vegetation is evident throughout the landscape.

An existing transmission line easement runs through the Southern Site in a generally north east direction.

Potential Visual Impacts

A Zone of Visual Influence (ZVI) diagram has been prepared to provide a preliminary analysis of the potential visibility of the Project Site (refer to **Figure 2**). The ZVI has been developed using the entire development footprints at a height of 4 meters to provide a worst case scenario for preliminary assessment to identify areas from which to undertake detailed assessment. The results of the ZVI illustrate the percentage of the Project likely to be visible. The ZVI is a ‘bare earth’ model based on an assessment of topography alone and does not take into account vegetation and structures and should therefore be viewed as a worst case scenario.

Public Viewing Locations

Generally, the ZVI illustrates limited opportunities to view the Project from publicly accessible land.

Lawrence Road runs along the western edge of the Clarence River to the south east of the Site. Lawrence Road is a main road which runs from Grafton in the south to Lawrence in the north. The road runs along the western edge of the Clarence River and at its nearest point is in excess of 1000 metres from the Project. It is anticipated the Project may be visible from some locations along Lawrence Road, however these would be limited to fleeting views as motorists travel in a north east or south west direction.

Views from the eastern side of the Clarence River are likely to be limited due to vegetation between Big River Way and the River.

The ZVI depicts areas of land to the west of the Southern Site which may have up to 50% visibility of the project footprint. Land in this area is densely vegetated and inaccessible for the most part. Views to the Northern Site are generally limited to uninhabited grazing land, and the ZVI illustrates views would be screened by topography from the majority of Lawrence Road and Big River Way. The ZVI does not take into account the dense vegetation that surrounds the Northern Site which would significantly reduce the potential visibility.

Dwellings

49 dwellings have been identified within 2000 metres of the Project, generally associated with Boormans Lane and Reservoir Road to the south, Lawrence Road and Big River Way to the south east, east and north east. Several dwellings are accessed via Southgate Forest Road, to the west of the Project Site. One dwelling is accessed from Summerland Way.

The following section provides a preliminary overview of the potential visibility of the Project Site from surrounding dwellings.

Results of ZVI:

Figure 1 provides a breakdown of the percentage of the Project that will be visible from dwellings. The figure illustrates the majority of dwellings will have no visibility of the Project, or less than 25%.

The ZVI had the following results:

- Views to the Project will be completely screened by topography from eight (8) of the dwellings.
- Approximately 33 dwellings have the potential to view between 0 - 25% of the Project. The majority of these are located on the eastern side of the Clarence River and will be assessed in detail during the EIS Phase of the Project.
- Four (4) dwellings have potential to view between 25 - 50 % of the Project. These dwellings are located to the west of the Project Site and are surrounded by dense vegetation which is anticipated to screen the Project.
- One (1) dwelling was identified as having potential to view between 50 - 75% of the Project, however this dwelling is surrounded by dense vegetation.
- Three (3) dwellings have potential to view the between 75 - 100 % of the Project. These dwellings are located immediately south of the Project on the northern side of Boormans Lane and will be assessed in greater detail during the EIS Phase of the Project.

It is important to reiterate, the ZVI does not take into account vegetation which is likely to significantly reduce potential visibility of the Project from surrounding dwellings.

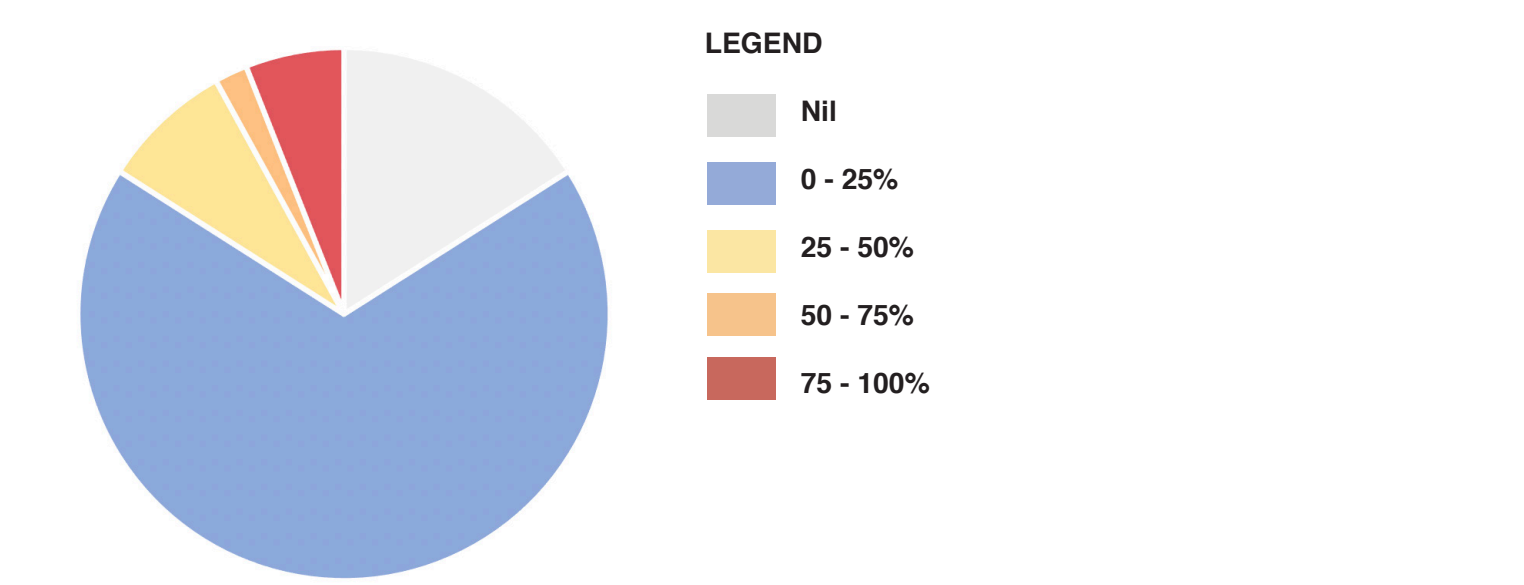


Figure 1 Preliminary ZVI Results on Dwellings (Note: Does not consider intervening vegetation)

Conclusion / Next Steps:

Due to the relatively low height of the Project, the slight undulations that are typical of the existing landscape assist in screening views to the Project from large areas of land surrounding the Project Site. Additionally, vegetation typical of the area is likely to assist in further reducing potential views to the Project.

A Landscape and Visual Impact Assessment (LVIA) will be prepared in the EIS Phase of the Project. During the EIS Phase, detailed site investigations will be undertaken from areas identified in the preliminary assessment as having potential visibility towards the Project.

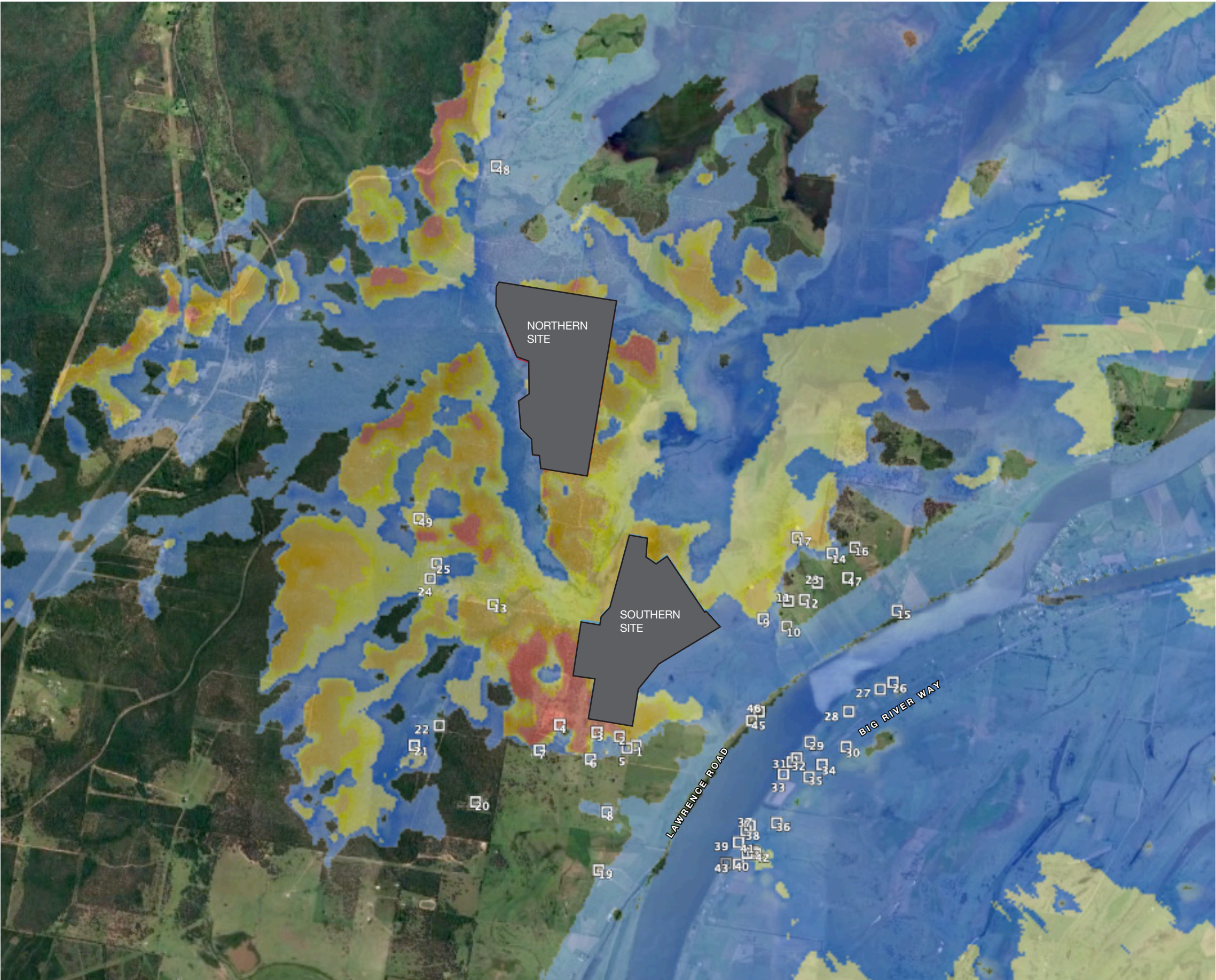
Specialised modeling and visualizations (including photomontages) will be developed to illustrate the Project from key public viewpoints surrounding the Project. In addition to the assessment from key public viewpoints, site inspections will be undertaken from dwellings identified as having potential visibility of the Project. In particular, dwellings within 2000m of the Project will be assessed to determine the level of impact and identify mitigation measures.

The EIS phase will include an assessment of the visual impact resulting from all associated infrastructure and ancillary structures, and consideration of cumulative impacts with nearby infrastructure.

Ongoing community consultation will be undertaken to ensure an understanding of the community's landscape values.

A landscape mitigation strategy will be developed in response to the assessment and community consultation. The purpose of the mitigation strategy is to ensure the Project is integrated into the existing landscape.

Zone of Visual Influence



LEGEND

- Proposed Development Footprint
- Dwelling Location

ZVI (Based on 4.0 m Panel Height)

- No Visibility
- 1 - 25% Visibility
- 25 - 50% Visibility
- 50 - 75% Visibility
- 75 - 100% Visibility

Note:
The ZVI is a preliminary assessment tool that represents a bare ground scenario - ie. a landscape without screening, structures or vegetation. As accurate information on the height and coverage of vegetation and buildings is unavailable, it is important to note the ZVI is based solely on topographic information. Therefore this form of mapping should be acknowledged as representing the worst case scenario.



Figure 2. Preliminary Zone of Visual Influence (ZVI) (Map Source: Google Earth Pro September 2021)

Aerial Image of Site



LEGEND

- Northern Site
- Southern Site
- Dwelling Location



Figure 3. Aerial Image of Site (Map Source: Google Earth Pro September 2021)

Appendix F Preliminary Social Impact Assessment

Social Impact Assessment – preliminary scoping

1.1 Introduction

This document provides an overview of Social Impact Assessment (SIA) Scoping Checklist, that constitutes a preliminary assessment of the project, with a view to informing the comprehensive SIA that is now being prepared. It outlines the following:

- The approach to the SIA scoping process
- The key issues identified and the rationale for their assessments
- Impacts identified for comprehensive assessment
- Assumptions in the approach
- Next steps in the Social Impact Assessment process.

This document has been prepared in response to the DPIE response on the Request for SEARs, which requests that a *Preliminary Social Impact Assessment* be provided.

1.2 Approach to scoping checklist

A scoping checklist is designed to provide a preliminary social impact assessment. It forms Phase 1 of a Social Impact Assessment (SIA) as per the NSW Department of Planning and Environment's Social Impact Assessment Guideline for State Significant Projects (2021). It is used to identify and evaluate the potential social impacts associated with the development, construction and operational phases of the proposed development. The scoping checklist outlines potential social impacts and their possible extent, duration and scale, and suggests which impacts warrant further research, require further information to make an accurate assessment, and are not material (therefore do not need to be investigated further in a full SIA).

The potential social impacts are considered across the following social factors: way of life, health and wellbeing, accessibility, community, culture, surroundings, livelihoods, and decision-making systems.

A scoping checklist is completed primarily through a desktop assessment. The desktop assessment included use of information provided by the proponent (maps of the study area, communication materials for adjacent residents, and project background information), demographic data (from the 2016 ABS Census), Google maps (to identify community infrastructure and transport and accessibility considerations) and was informed by a literature review of research conducted on the social impacts of solar farms.

The scoping checklist has been used to inform the proponent's Scoping Report and has been prepared by qualified and experienced social science professionals – Ethos Urban's NSW Social Strategy team, led by Director Allison Heller. The same team will undertake the full SIA.

1.3 Key impacts and assessment rationale

The scoping checklist identified the following potential key impacts (assessed as moderate or high). Refer to the scoping checklist provided at Section 2 for further detail.

Impact (phase)	Description and rationale	Likely scale	Likely experience
Threat or expectation of change to way of life (development)	Concerns that everyday life is going to change due to this development and construction impacts, and then solar farm operation. Equally, some people may be excited by possibilities of employment opportunities, renewable energy supply.	Moderate	Negative (may be positive for some)

Impact (phase)	Description and rationale	Likely scale	Likely experience
Impacts to wellbeing, such as fear, anger, anxiety (development)	The unknowns and changes proposed may create a variety of feelings, exacerbated by conflict if there is strong opposition. Some residents may have positive wellbeing impacts due to belief they will benefit from employment or business opportunities.	Moderate	Negative (may be positive for some)
Decreased accessibility due to damage to local roads (construction)	Heavy vehicles damage roads local users rely on, impacts how people can get about and the ability of farmers to move farming vehicles.	Moderate	Negative
Social conflict, rivalry and feelings of envy, which disrupt the community cohesion (development)	Development may drive conflict in community, with some supporting and others opposing, creating community groups on opposite sides of spectrum.	Moderate	Negative
Changes to the size and composition of the community (construction)	Changes to the size and composition of the community with the 100 FTE workers, based on the size of the construction workforce	Moderate	Negative
Changed sense of community (operation)	Due to long term conflict if divisions were created in the community due to some supporting and some opposing the solar farm. Alternatively, conflict is mitigated during development and construction, and community cohesion is ensured, resulted in strengthening of the community.	Moderate	Negative or Positive
Disturbance of cultural heritage (construction)	Work crews could discover or damage cultural artifacts during works, leading to feelings of loss	Moderate (to high, depending on event)	Negative
Diminished ability to Connect with Country (operation)	Aboriginal and Torres Strait Islander peoples may have diminished ability to gain sustenance (spiritual or otherwise) from the land.	Moderate	Negative
Changes to vegetation cover and impacts on fauna (construction)	Local biodiversity and ecosystems may be impacted due to land clearing for construction, loss of trees and greenery and potentially some animal species. Concern from community about impact on local species, such as birds.	Moderate	Negative
Changed amenity and visual impacts (look and feel) (operation)	Changed amenity and visual impacts (look and feel) - associated with operation of solar farm, some glare possible. Multiple panels, fencing.	Moderate	Negative (or positive to some)
Increased employment opportunities (construction)	Increased employment opportunities in the area for local and regional workers	Moderate to high	Positive
Increased patronage for local businesses (construction)	Construction workers spend their income in local businesses (e.g., cafés, petrol station, retail) and accommodation	Moderate to high	Positive
Stimulated regional socioeconomic and infrastructure development (construction)	Investment and potential multiplier effects of project, leading to socioeconomic and regional infrastructure development	Moderate	Positive

Impact (phase)	Description and rationale	Likely scale	Likely experience
Creation of business opportunities for local economy (construction)	Creation of business opportunities for local economy - creating an improved socio-economic situation	Moderate to high	Positive
Social exclusion and powerlessness in decision making (development)	Local stakeholders feeling that their possibilities to participate meaningfully in the consultation and decision-making process were limited. Feeling in local community members are not able to influence decisions about their community.	Moderate	Negative

1.4 Impacts identified for comprehensive assessment

The impacts identified for comprehensive assessment are:

- Changes to the size and composition of the community (construction phase)
- Disturbance of cultural heritage (construction phase)
- Changed amenity and visual impacts - look and feel (operation phase).

1.5 Assumptions applied to this approach

The assumptions within the approach to the scoping checklist are that:

- The information available via Clarence Valley Council's website, Google Maps and via the proponent's background documents is accurate.
- The key findings from the review of research conducted on the social impacts of solar farms are accurate and were completed using best practice social science methodologies.
- Socio-economic data on disadvantage within the study area accurately reflects the community demographic profile. However, it is noted that the scoping checklist primarily relies on ABS 2016 Census data. The community composition may indeed have changed since this date, but the 2016 Census represents the most current population demographics available.
- All potential and likely social impacts to the local community and special interest groups that can reasonably be identified have been included in this report. Post-scoping community engagement will enable the project team to test these assumptions and further refine their assessments.

1.6 Next steps

Community engagement will be undertaken once the scoping phase has been completed – to increase understanding of the project, inform key decisions and our understanding of likely social impacts, and build relationships. The Phase 2 report (comprehensive SIA) will further assess the social impacts identified during the scoping phase and will be informed by the other technical assessments being prepared for the project.

2.0 Scoping Checklist

The following section provides a printed copy of the excel spreadsheet forming the Scoping Checklist.

Social Impact Assessment, scoping checklist

The Environmental Planning and Assessment Act 1979 establishes the framework for assessing all types of development in New South Wales. In particular, the objects of the Environmental Planning and Assessment Act 1979 include the need to promote the social and economic welfare of the community and to include social considerations in decision-making about environmental planning and assessment.

Social Impact Assessment is one of a number of technical papers that form part of the Environmental Impact Statement. The Social Impact Assessment Guideline for State Significant Projects (SIA Guideline) was released by the NSW Department of Planning, Industry and Environment in July 2021 to provide a consistent framework and approach to the assessment of social impacts for state significant projects.

As outlined in the SIA Guideline, social impacts vary in their nature and can be positive or negative, tangible or intangible, physically observable, or psychological (fears and aspirations). Social impacts can be quantifiable, partly quantifiable or qualitative. They can also be experienced or perceived differently by different people and groups within a community, or over time.

In majority of cases, the **SIA process** includes two phases that form the process of analysing and responding to likely social impacts.

First phase (Phase 1) is intended to identify and evaluate likely social impacts that may occur as a direct or indirect consequence of the development, identify information gaps, and if required, influence the engagement strategy and project design.

Phase 2 finalises evaluation of the social impacts, develops appropriate responses, and proposed arrangements to monitor and manage impacts over the life of the project.

This document - **Social Impact Assessment scoping checklist** - forms Phase 1 of the Social Impact Assessment required to identify and evaluate the potential social impacts associated with the construction and operational phases of the proposed development. The checklist has been prepared with consideration of the Department's SIA Guideline.

Note that this SIA scoping document is not the full SIA report. The full Phase 2 report includes overview of the projects background and strategic drivers, description of the projects social locality and baseline, local social issues and trends, outcomes of community consultation, further assessment of expected social impacts, impact mitigation and enhancement recommendations, and proposed monitoring and management framework.

This scoping document will inform the development of the full Social Impact Assessment report (Phase 2). The Phase 2 report will further evaluate social impacts deemed as significant during the scoping phase. Impacts identified in the Phase 2 report will be assigned an overall social risk rating (Low/ Medium/ High/ Very High) based on the expected likelihood and magnitude of said impacts.

Social factors and impact scoping criteria

The SIA Guideline (NSW DPIE 2021) defines social impact as changes that can occur as a result of a project on the following social factors:

Way of life: how people live, how they get around, how they work, how they play, and how they interact on a daily basis

Community: composition, character, cohesion, function, and sense of place

Access: how people access and use infrastructure, services and facilities, whether provided by local, state, or federal governments, or by for-profit or not-for-profit organisations or groups

Culture: both Aboriginal and non-Aboriginal culture, including shared beliefs, customs, values, and stories, and connections to country, land, waterways, places, and buildings

Health and wellbeing: physical and mental health, especially for those who are highly vulnerable to social exclusion or substantial change, plus wellbeing of individuals and communities

Surroundings: access to, and use of, services that ecosystems provide, public safety and security, access to and use of the natural and built environment, and its aesthetic value and amenity[3]

Livelihoods: people's capacity to sustain themselves, whether they experience personal breach or disadvantage, and the distributive equity of impacts and benefits

Decision-making systems: whether people experience procedural fairness; can make informed decisions; have power to influence decisions; and can access complaint, remedy and grievance mechanisms

A worksheet scoping impacts by each factor has been prepared.

This scoping document is an adaptation of the criteria outlined in the SIA Guideline Technical Supplement, and considers the following across each of those factors:

Project activities or elements that could cause social impacts.

Potential impacts on people.

Groups or stakeholders likely to be impacted.

Characteristics of each element/impact - i.e. the extent of people affected, duration of impacts, severity/scale of impacts, sensitivity of the people affected, and their level of concern or interest.

Based on the above, evaluation whether the potential social impacts (without mitigation/enhancement) are likely to be significant.

Evaluation if the potential impacts are likely to be experienced as positive or negative.

Whether multiple activities may produce cumulative impacts.

Potential SIA methods to be used (if required above standard level of assessment).

Potential project refinement opportunities and preliminary measures to minimise or mitigate impacts and enhance benefits.

Project activities that could cause social impacts and associated impacts have been listed by rows, by each social factor. Characteristics of each impact have been described across the columns of each page.

Way of life: how people live, get around, work, play and interact with one another on a day-to-day basis

Characteristics

Social factor	Phase of development	Project elements that may have impacts (e.g. drilling, delivery of new amenity/ housing etc, road upgrades, etc)	Potential impacts	Assessed in other reports?	Likely Extent (geographic area of influence)	Likely Duration (time period)	Likely Severity/ Scale (low/moderate/high) (e.g. based on how many people impacted)	Likely Experience (positive/negative)	Likely Sensitivity (People affected vulnerable or more sensitive to change? (E.g. children, older people, low SES, disabilities etc)) (low/mod./ high)	Groups or stakeholders affected	Level of significance (Yes/No/Unkn)	Level of assessment required (Detailed/ Standard/ Minor/ Not relevant)	SIA Methods to assess	Project refinement recommendations
Way of life	Development	Project design, community consultation and approvals	Threat or expectation of change to way of life - concerns that everyday life is going to change due to this development and construction impacts, and then solar farm operation. Equally, some people may be excited by possibilities of employment opportunities, renewable energy supply.	No	Immediate surrounds of the site - neighbouring residents in Southgate	Medium term - until early operation (1-2 years)	Moderate	Negative (or positive for some)	Moderate - ABS data suggests a slightly older population (av. age 47), and average weekly income is low-moderate (\$1,174) in Southgate. Older average age than NSW, and lower incomes than NSW average. Aboriginal and Torres Strait Islander peoples are about 7% of the region's population.	Adjacent landholders in Southgate, Traditional Owners and Aboriginal and Torres Strait Islander peoples	Yes	Standard	Community consultation	Commence proactive community engagement during development phase
Way of life	Construction	Construction activities resulting in dust, vibration, noise.	Inconvenience and disruption, meaning changes to daily living. Possibility to temporary disruption access, normal routines and the ways people access work and amenities. It may generate noise and pollution on a day to day basis.	Air quality assessment; Noise assessment	Immediate surrounds of the site - neighbouring residents in Southgate	Short term - construction (1 year)	Moderate to low	Negative	Moderate - ABS data suggests a slightly older population (av. age 47), and average weekly income is low-moderate (\$1,174) in Southgate. Older average age than NSW, and lower incomes than NSW average.	Southgate residents, surrounding towns including Grafton	Yes	Standard	Review of technical reports	Consult with adjacent landholders to mitigate impacts when ever possible
Way of life	Construction	Increased traffic and truck movements, potential impacts to local roads	Traffic and congestion (by trucks and construction contractors arriving/ leaving the site). Inconvenience, disruption, changes to daily living routines, slightly increased travel times. Estimated 100 FTE construction workers accessing site.	Traffic and transport assessment	Immediate surrounds of the site	Short term - construction (1 year)	Low	Negative	Moderate - ABS data suggests a slightly older population (av. age 47), and average weekly income is low-moderate (\$1,174) in Southgate. Older average age than NSW, and lower incomes than NSW average.	Southgate residents, surrounding towns including Grafton, road users in the LGA	Yes	Standard	Review of technical reports	Consult with local council
Way of life	Construction	Cumulative construction impacts	Construction fatigue - disruption, spatial and temporal cumulative impacts associated with extended works in the area. However, because it's a rural area, there is unlikely to be much development in the area.	No	Immediate surrounds of the site and local government area	Cumulative	Low	Negative	Moderate - LGA, Grafton and Southgate all have lower incomes and higher average ages compared to NSW.	Adjacent landholders in Southgate, residents of Clarence Valley Council and New England Renewable Energy Zone	Yes	Standard	Discussion with Local Council to understand cumulative impact. Reference to NSW State Gov Renewable Energy policy.	Collaborate with Local Council and relevant private sector developers in order to coordinate potential works and mitigate cumulative impacts (if relevant).
Way of life	Construction	Temporary construction workforce (100 FTE)	Strain on regional infrastructure and services - Fears from local stakeholders that the population increase due to construction jobs will put a strain on public infrastructure and services	Yes - economic impact assessment	Immediate surrounds of the site and broader region, including town of Grafton	Short term - construction (1 year)	Moderate to low	Negative	Moderate - LGA, Grafton and Southgate all have lower incomes and higher average ages compared to NSW.	Southgate, Grafton, and surrounding region in LGA	Yes	Standard	Economic impact assessment, discussion with local council, local business owners, and consultation with residents	Community infrastructure review as part of SIA
Way of life	Operation	Site operation and maintenance	Inconvenience to daily living routines due to management and maintenance of solar farm.	Yes - technical documents on site operation (TBC)	The site and surrounds	Long term	Low	Negative	Moderate - ABS data suggests a slightly older population (av. age 47), and average weekly income is low-moderate (\$1,174) in Southgate. Older average age than NSW, and lower incomes than NSW average.	Adjacent landholders in Southgate, road users in the area	Yes	Minor	Review of technical reports	
Way of life	Operation	Site operation and maintenance	Improved employment opportunities for locals due to the need maintenance and operation staff.	Yes - economic impact assessment	Immediate surrounds of the site and broader region, including town of Grafton	Long term (30 years)	Low	Positive	Moderate - ABS data suggests a slightly older population (av. age 47), and average weekly income is low-moderate (\$1,174) in Southgate. Older average age than NSW, and lower incomes than NSW average.	Southgate, Grafton, and surrounding region in LGA	Yes	Standard	Economic impact assessment	

Health and wellbeing: people's physical, mental, social and spiritual wellbeing

Characteristics

Social factor	Phase of development	Project elements that may have impacts (e.g. drilling, delivery of new amenity/ housing etc, road upgrades, etc)	Potential impacts	Assessed in other reports?	Likely Extent (geographic area of influence)	Likely Duration (time period)	Likely Severity/ Scale (low/moderate/high) (e.g. based on how many people impacted)	Likely Experience (positive/negative)	Likely Sensitivity (People affected vulnerable or more sensitive to change? (E.g. children, older people, low SES, disabilities etc)) (low/mod/high)	Groups or stakeholders affected	Level of significance (Yes/No/Unkn)	Level of assessment required (Detailed/ Standard/ Minor/ Not relevant)	SIA Methods to assess	Project refinement recommendations
Health and wellbeing	Development	Project design, community consultation and approvals	Impacts to wellbeing, such as fear, anger, anxiety - the unknowns and changes proposed may create a variety of feelings for adjacent residents, exacerbated by conflict if there is strong opposition. However, some residents may have positive wellbeing impacts due to belief they will benefit from employment or business opportunities.	No	Southgate and neighbouring towns	Medium term - until early operation (1-2 years)	Moderate	Negative or Positive	Moderate - ABS data suggests a slightly older population (av. age 47), and average weekly income is low-moderate (\$1,174) in Southgate. Older average age than NSW, and lower incomes than NSW average. 12.8% of Southgate population aged 14 or under.	Adjacent landholders in Southgate and neighbouring towns (incl. Grafton)	Yes	Standard	Community consultation	Proactive community consultation to provide clear information, build trust
Health and wellbeing	Construction	Dust, vibration, noise	Impacts to wellbeing and health for receivers especially those with existing respiratory conditions, if there was to be pollution, contamination of local air, water and land resources	Air quality assessment; Noise assessment; land assessment	Immediate surrounds of the site	Short term - construction (1 year)	Moderate to Low	Negative	Moderate - ABS data suggests a slightly older population (av. age 47), and average weekly income is low-moderate (\$1,174) in Southgate. Older average age than NSW, and lower incomes than NSW average. 12.8% of Southgate population aged 14 or under.	Adjacent landholders in Southgate	Yes	Standard	Review of technical reports	
Health and wellbeing	Construction	Construction activities and vehicle movements impacting on local traffic	Potential risks to pedestrian, cyclist and vehicle safety - construction vehicles and machinery moving around the area. Safety risk for children, either walking, cycling or waiting for school buses (school bus route S678 Great Marlow-Clarence Valley).	Traffic and transport assessment	Immediate surrounds of the site	Short term - construction (1 year)	Moderate to low	Negative	Moderate - ABS data suggests a slightly older population (av. age 47), and average weekly income is low-moderate (\$1,174) in Southgate. Older average age than NSW, and lower incomes than NSW average. 12.8% of Southgate population aged 14 or under.	Adjacent landholders in Southgate and surrounding small towns	Yes - to be confirmed	Standard	Review of technical reports	
Health and wellbeing	Construction	Cumulative construction impacts	Cumulative impacts to wellbeing associated with prolonged disruption and construction activities in the area due to renewable energy and other development. However, there are no other significant renewable energy projects known in the area according to the proponent.	Yes, in traffic report	Southgate, surrounding towns (incl. Grafton), LGA potentially	Cumulative	Low	Negative	Moderate - ABS data suggests a slightly older population (av. age 47), and average weekly income is low-moderate (\$1,174) in Southgate. Older average age than NSW, and lower incomes than NSW average. 12.8% of Southgate population aged 14 or under.	Adjacent landholders in Southgate and surrounding small towns, Grafton, and possibly LGA	Yes	Standard	Discussion with Local Council to understand cumulative impact. Reference to NSW State Gov Renewable Energy policy and pipeline.	Collaborate with Local Council and relevant private sector developers in order to coordinate potential works and mitigate cumulative impacts (if relevant).
Health and wellbeing	Construction	Construction	Potential impacts to perceptions of safety - nearby residents may feel unsafe in their surroundings due to presence of construction site and unfamiliar workers (100 FTE)	No	Immediate surrounds of the site	Short term - construction (1 year)	Low	Negative	Moderate - ABS data suggests a slightly older population (av. age 47), and average weekly income is low-moderate (\$1,174) in Southgate. Older average age than NSW, and lower incomes than NSW average. 12.8% of Southgate population aged 14 or under.	Adjacent landholders in Southgate	Yes	Standard [Minor?]	Review of technical reports	
Health and wellbeing	Operation	Operation of solar farm	Glare and reflections from the solar panels - sensitive receivers may note changes to light and glare. Perception in a small number of community members that the glare will create safety risks for traffic.	Glint and Glare assessment	Southgate, surrounding towns (incl. Grafton), LGA potentially	Long term	Low	Negative	Moderate - ABS data suggests a slightly older population (av. age 47), and average weekly income is low-moderate (\$1,174) in Southgate. Older average age than NSW, and lower incomes than NSW average. 12.8% of Southgate population aged 14 or under.	Adjacent landholders in Southgate	Yes	Standard	Review of GLINT AND GLARE ASSESSMENT - , review of relevant research literature on visual impacts of solar farms	

Health and wellbeing: people's physical, mental, social and spiritual wellbeing														
Characteristics														
Social factor	Phase of development	Project elements that may have impacts (e.g. drilling, delivery of new amenity/ housing etc, road upgrades, etc)	Potential impacts	Assessed in other reports?	Likely Extent (geographic area of influence)	Likely Duration (time period)	Likely Severity/ Scale (low/moderate/high) (e.g. based on how many people impacted)	Likely Experience (positive/ negative)	Likely Sensitivity (People affected vulnerable or more sensitive to change? (E.g. children, older people, low SES, disabilities etc)) (low/ mod/ high)	Groups or stakeholders affected	Level of significance (Yes/No/Unkn)	Level of assessment required (Detailed/ Standard/ Minor/ Not relevant)	SIA Methods to assess	Project refinement recommendations
Health and wellbeing	Operation	Operation of solar farm	Peace of mind and health benefits from replacing fossil fuels with renewable energy and knowing that this is helping to combat climate change	No	Southgate, surrounding towns, Grafton	Long term	Low	Positive	NA	Adjacent landholders in Southgate and surrounding small towns, Grafton	Yes	Standard	Community consultation	
Health and wellbeing	Operation	Operation of solar farm	Positive impacts to health due to more vegetation cover in the area, meaning that less dust and dirt may be kicked up into the air. Solar farm will increase level of vegetation cover once in operation.	Environmental Assessment	Southgate	Long term	Low	Positive	Moderate - ABS data suggests a slightly older population (av. age 47), and average weekly income is low-moderate (\$1,174) in Southgate. Older average age than NSW, and lower incomes than NSW average. 12.8% of Southgate population aged 14 or under.	Adjacent landholders in Southgate	Yes	Standard	Environmental Assessment	Landscape plan to ensure enough vegetation coverage

Accessibility: how people access and use infrastructure, services and facilities

Social factor	Phase of development	Project elements that may have impacts (e.g. drilling, delivery of new amenity/ housing etc, road upgrades, etc)	Potential impacts	Assessed in other reports?	Likely Extent (geographic area of influence)	Likely Duration (time period)	Likely Severity/ Scale (low/moderate/high) (e.g. based on how many people impacted)	Likely Experience (positive/negative)	Likely Sensitivity (People affected vulnerable or more sensitive to change? (E.g. children, older people, low SES, disabilities etc)) (low/mod./ high)	Groups or stakeholders affected	Level of significance (Yes/No/Unkn)	Level of assessment required (Detailed/ Standard/ Minor/ Not relevant)	SIA Methods to assess	Project refinement recommendations
Accessibility	Construction	Increased traffic and truck movements	Potential increased travel times, inconvenience, frustration, as normal routes are busier or slower. Getting children to school in Grafton or other towns becomes a bit harder.	Traffic and transport assessment	Southgate and neighbouring towns	Short term - construction (1 year)	Low-moderate	Negative	Moderate - ABS data suggests a slightly older population (av. age 47), and average weekly income is low-moderate (\$1,174) in Southgate. Older average age than NSW, and lower incomes than NSW average.	Adjacent landholders in Southgate and neighbouring towns (incl. Grafton)	Yes	Standard	Review of technical reports	
Accessibility		Cumulative construction impacts	Decreased regional accessibility and ease of travel due to cumulative impacts - extended disruption in the area. Projects nearby TBC - may not apply.	Traffic and transport commulative assessment	Southgate, surrounding region, and possibly LGA	Cumulative	Unknown	Negative	Moderate - LGA, Grafton and Southgate all have lower incomes and higher average ages compared to NSW.	Adjacent landholders in Southgate and surrounding small towns, Grafton, and possibly LGA	Unknown	Standard	Discussion with Local Council to understand cumulative impact. Reference to NSW State Gov Renewable Energy policy and pipeline.	Collaborate with Local Council and relevant private sector developers in order to coordinate potential works and mitigate cumulative impacts (if relevant).
Accessibility		Increased traffic and truck movements	Decreased accessibility due to damage to local roads - heavy vehicles damage roads local users rely on, impacts how people can get about and the ability of farmers to move farming vehicles.	Traffic and transport assessment	Southgate and neighbouring towns	Short term - construction (1 year)	Moderate	Negative	Moderate - regional communities rely heavily on cars as means of transport.	Adjacent landholders in Southgate and neighbouring towns (incl. Grafton)	Yes	Standard	Review of technical reports	
Accessibility	Operation	Operation of solar farm	Decreased ease of travel due to presence of vehicles accessing site for maintenance/operations	Traffic and transport assessment	Southgate and neighbouring towns	Long term	Low	Negative	Moderate - regional communities rely heavily on cars as means of transport.	Adjacent landholders in Southgate and neighbouring towns (incl. Grafton)	Possibly no (confirm)	Unknown	Review of technical reports, info from other solar farms	

Community: its composition, cohesion, character, how it functions, and sense of place

Social factor	Phase of development	Project elements that may have impacts (e.g. drilling, delivery of new amenity/ housing etc, road upgrades, etc)	Potential impacts	Assessed in other reports?	Likely Extent (geographic area of influence)	Likely Duration (time period)	Likely Severity/ Scale (low/moderate/high) (e.g. based on how many people impacted)	Likely Experience (positive/negative)	Likely Sensitivity (People affected vulnerable or more sensitive to change? (E.g. children, older people, low SES, disabilities etc)) (low/mod./ high)	Groups or stakeholders affected	Level of significance (Yes/No/Unkn)	Level of assessment required (Detailed/ Minor/ Not relevant)	SIA Methods to assess	Project refinement recommendations
Community	Development	Project design, community consultation and approvals	Social conflict, rivalry and feelings of envy, which disrupt the community cohesion - Development may drive conflict in community, with some supporting and others opposing, creating community groups on opposite sides of spectrum.	No	Southgate and surrounding towns	Short-term (1-2 years)	Moderate	Negative	Moderate - ABS data suggests a slightly older population (av. age 47), and average weekly income is low-moderate (\$1,174) in Southgate. Older average age than NSW, and lower incomes than NSW average. 12.9% of Southgate population aged 14 or under. Almost 7% ATSI population.	Adjacent landholders in Southgate, Traditional Owners and Aboriginal and Torres Strait Islander peoples	Yes	Standard	Community and stakeholder engagement outcomes	Establishment of clear community engagement strategy and then regular community engagement with transparent communication,
Community	Construction	Increased number of construction workers in the area	Changes to the size and composition of the community (100 FTE workers), based on the size of the construction workforce	Economic Impact Assessment	Immediate surrounds of the site - Southgate and Grafton	Short term - construction (1 year)	Moderate	Negative	Moderate - ABS data suggests a slightly older population (av. age 47), and average weekly income is low-moderate (\$1,174) in Southgate. Older average age than NSW, and lower incomes than NSW average. 12.9% of Southgate population aged 14 or under. Almost 7% ATSI population.	Southgate residents, surrounding towns including Grafton	Yes	Detailed	Demographic analysis of the study area	
Community	Construction	Increased number of construction workers in the area	Presence of perceived 'strangers' in the area, which may lead to potential impacts on perceptions of safety and the safety of the community	No	Southgate, Grafton and surrounds	Short term - construction (1 year)	Low	Negative	Moderate - ABS data suggests a slightly older population (av. age 47), and average weekly income is low-moderate (\$1,174) in Southgate. Older average age than NSW, and lower incomes than NSW average. 12.9% of Southgate population aged 14 or under. Almost 7% ATSI population.	Southgate residents, surrounding towns including Grafton	Yes	Standard	Community and stakeholder engagement outcomes	
Community	Construction	Establishment of construction site	Temporary change to the size and composition of the local resident population based on the 100 FTE construction workers in the area	No	Southgate, Grafton and surrounds	Short term - construction (1 year)	Moderate	Negative	Moderate - LGA, Grafton and Southgate all have lower incomes and higher average ages compared to NSW.	Southgate residents, surrounding towns including Grafton	Yes	Standard	Demographic analysis of the study area	
Community	Construction	Establishment of construction site, changed appearance of the site	Loss of collective memories and cultural values - whilst the site is vacant, some people may have memories associated with the site, the appearance of which will be significantly altered. Potential impacts to sense of place associated with Aboriginal heritage, if any associated with the site	Yes, Heritage Report	Southgate and surrounding lands of the Bundjalung (Traditional Owners)	Permanent	Low	Negative	Moderate - High - About 7% of local population are ATSI. Bundjalung are Traditional Owners.	ATSI people, Traditional Owners, residents of Southgate and surrounding area	Yes	Standard	Review of Heritage Report; Community and stakeholder engagement outcomes	Engagement with Traditional Owners and Aboriginal and Torres Strait Islander and broader community
Community	Construction	Cumulative construction impacts.	Loss of sense of community due to long-term presence of temporary workers - prolonged increased number of construction workers in the area, feelings that the area has changed	No	Southgate and surrounding area	Cumulative	Low	Negative	Moderate - LGA, Grafton and Southgate all have lower incomes and higher average ages compared to NSW.	Southgate residents, surrounding towns including Grafton	Yes	Standard	Discussion with Local Council to understand cumulative impact. Reference to NSW State Gov Renewable Energy policy and pipeline.	Collaborate with Local Council and relevant private sector developers in order to coordinate potential works and mitigate cumulative impacts (if relevant).

Community: its composition, cohesion, character, how it functions, and sense of place				Characteristics										
Social factor	Phase of development	Project elements that may have impacts (e.g. drilling, delivery of new amenity/ housing etc, road upgrades, etc)	Potential impacts	Assessed in other reports?	Likely Extent (geographic area of influence)	Likely Duration (time period)	Likely Severity/ Scale (low/moderate/high) (e.g. based on how many people impacted)	Likely Experience (positive/negative)	Likely Sensitivity (People affected vulnerable or more sensitive to change? (E.g. children, older people, low SES, disabilities etc)) (low/mod./ high)	Groups or stakeholders affected	Level of significance (Yes/No/Unkn)	Level of assessment required (Detailed/ Standard/ Minor/ Not relevant)	SIA Methods to assess	Project refinement recommendations
Community	Operation	Operation of solar farm	Changed sense of community (positive or negative) - Due to long term conflict if divisions were created in the community due to some supporting and some opposing the solar farm. Alternatively, conflict is mitigated during development and construction, and community cohesion is ensured, resulted in strengthening of the community, meaning most community members feel happy with the result and aligned with their neighbours.	No	Southgate and surrounding area	Permanent	Moderate	Negative or Positive	Moderate - LGA, Grafton and Southgate all have lower incomes and higher average ages compared to NSW.	Southgate residents, surrounding towns including Grafton		Standard	Community and stakeholder engagement outcomes	Consultation to ask about wellbeing and how the community could become stronger
Community	Operation	Operation of solar farm	Sense of community pride - the community hosting a solar farm in their locality that will increase the amount of renewable energy in the NSW energy mix displacing fossil fuel use and reducing green house gas emissions.	No	Southgate and surrounding area		Low	Positive	Moderate - LGA, Grafton and Southgate all have lower incomes and higher average ages compared to NSW.	Southgate residents, surrounding towns including Grafton	Yes	Standard	Community and stakeholder engagement outcomes	Consultation on attitudes towards renewables and support for solar farm

Culture: people's shared beliefs, customs, values and stories, and connections to Country, land, water, places and buildings
Characteristics

Social factor	Phase of development	Project elements that may have impacts (e.g. drilling, delivery of new amenity/ housing etc, road upgrades, etc)	Potential impacts	Assessed in other reports?	Likely Extent (geographic area of influence)	Likely Duration (time period)	Likely Severity/ Scale (low/moderate/high) (e.g. based on how many people impacted)	Likely Experience (positive/negative)	Likely Sensitivity (People affected vulnerable or more sensitive to change? (E.g. children, older people, low SES, disabilities etc)) (low/mod./ high)	Groups or stakeholders affected	Level of significance (Yes/No/Unkn)	Level of assessment required (Detailed/ Standard/ Minor/ Not relevant)	SIA Methods to assess	Project refinement recommendations
Culture	Construction	Construction of solar farm	Potential changes to connection to site and heritage resulting in cultural or spiritual loss. Whilst the site has been used for agricultural uses a long period of time, some people or groups of people including Aboriginal and Torres Strait Islander peoples may have memories associated with the site. Potential impacts to sense of place associated with Aboriginal heritage, if any associated with the site	Aboriginal Cultural Heritage Assessment; Historic Heritage report	The site and surrounds	Semi Permanent (30 years)	Unknown	Negative	Moderate - High - About 7% of local population are Aboriginal and Torres Strait Islander people. Bundjalung are Traditional Owners. Locally, older population, meaning some will have long term connection to the area	Local residents, Aboriginal and Torres Strait Islander peoples and Traditional Owners, Local Council	Unknown	Standard	Review of technical reports, outcomes of community engagement	
Culture	Construction	Construction of solar farm	Accidental disturbance of heritage or non-found heritage - crews could accidentally discover or damage cultural artifacts during works, leading to feelings of loss in people of Aboriginal and Torres Strait Islander peoples	Aboriginal Cultural Heritage Assessment; Historic Heritage report	The site and surrounds	Short-term (construction 1 year), or ongoing depending on incident	Moderate (to high, depending on event)	Negative	Moderate - High - About 7% of local population are Aboriginal and Torres Strait Islander people. Bundjalung are Traditional Owners.	Aboriginal and Torres Strait Islander peoples and Traditional Owners, Local Council, Heritage NSW	Yes	Detailed (through Heritage report)	Review of technical reports	
Surroundings	Operation	Operation of solar farm	Diminished ability to Connect with Country - Aboriginal and Torres Trait Islander peoples may have diminished ability to gain sustenance (spiritual or otherwise) from the land.	Aboriginal Cultural Heritage Assessment; Historic Heritage report	The site and surrounds	Semi Permanent (30 years)	Moderate	Negative	Moderate - High - About 7% of local population are Aboriginal and Torres Strait Islander people. Bundjalung are Traditional Owners.	Aboriginal and Torres Strait Islander peoples and Traditional Owners	Yes	Standard	Review of technical reports, outcomes of community engagement	

Surroundings: access to and use of natural and built environment, including ecosystem services, public safety and security, as										Characteristics				
Social factor	Phase of development	Project elements that may have impacts (e.g. drilling, delivery of new amenity/ housing etc, road upgrades, etc)	Potential impacts	Assessed in other reports?	Likely Extent (geographic area of influence)	Likely Duration (time period)	Likely Severity/ Scale (low/moderate/high) (e.g. based on how many people impacted)	Likely Experience (positive/negative)	Likely Sensitivity (People affected vulnerable or more sensitive to change? (E.g. children, older people, low SES, disabilities etc)) (low/mod./ high)	Groups or stakeholders affected	Level of significance (Yes/No/Unkn)	Level of assessment required (Detailed/ Minor/ Not relevant)	SIA Methods to assess	Project refinement recommendations
Surroundings	Construction	Establishment of construction site	Temporary changes to visual amenity, presence of hoardings/fencing, machinery.	Landscape and Visual Impact assessment,	Immediate surrounds of the site	Short term - construction (1 year)	Low	Negative	Moderate - ABS data suggests a slightly older population (av. age 47), and average weekly income is low-moderate (\$1,174) in Southgate. Older average age than NSW, and lower incomes than NSW average. 12.9% of Southgate population aged 14 or under.	Adjacent landholders in Southgate and road users	Yes	Standard	Review of technical reports	
Surroundings	Construction	Land clearing	Changes to vegetation cover and impacts on fauna - local biodiversity and ecosystems may be impacted, loss of trees and greenery and potentially some animal species. Concern from community about impact on local species, such as birds.	Biodiversity Assessment	Immediate surrounds of the site	Short term - construction (1 year) or permanent if no revegetation occurs	Moderate	Negative	Moderate - ABS data suggests a slightly older population (av. age 47), and average weekly income is low-moderate (\$1,174) in Southgate. Older average age than NSW, and lower incomes than NSW average. 12.9% of Southgate population aged 14 or under.	Adjacent landholders in Southgate and neighbouring towns, environmental groups and agencies, CMA, Local Council	Yes	Standard	Review of technical reports, and community engagement outcomes	
Surroundings	Construction	Use of land for solar farm	Loss of some agricultural land, with potential for concern about decreased supply of farming land. Some people may believe this will lead to increased land prices.	Economic assessment; Agricultural Assessment	Southgate and surrounding towns	Ongoing - 30 years	Low	Negative	Moderate - ABS data suggests average weekly income is low-moderate (\$1,174) in Southgate. Lower incomes than NSW average.	Adjacent landholders in Southgate and neighbouring towns, environmental groups, Local Council, farming peak bodies	Yes	Standard	Review of technical reports, and community engagement outcomes	
Surroundings	Operation	Operation of solar farm	Changed amenity and visual impacts (look and feel) - associated with operation of solar farm, some glare possible. Multiple panels, fencing.	Landscape and Visual Impact assessment,	Immediate surrounds of the site	Ongoing - 30 years	Moderate	Negative (or positive - depending on the receiver)	Moderate - ABS data suggests a slightly older population (av. age 47), and average weekly income is low-moderate (\$1,174) in Southgate. Older average age than NSW, and lower incomes than NSW average. 12.9% of Southgate population aged 14 or under.	Adjacent landholders and Southgate	Yes	Detailed	Review of technical reports	Screening; and sensitive design to minimise impacts on landscape in the local area

Livelihoods: Including impacts on employment or business, experience of personal breach or disadvantage, and the distributiv

Characteristics

Social factor	Phase of development	Project elements that may have impacts (e.g. drilling, delivery of new amenity/ housing etc, road upgrades, etc)	Potential impacts	Assessed in other reports?	Likely Extent (geographic area of influence)	Likely Duration (time period)	Likely Severity/ Scale (low/moderate/high) (e.g. based on how many people impacted)	Likely Experience (positive/negative)	Likely Sensitivity (People affected vulnerable or more sensitive to change? (E.g. children, older people, low SES, disabilities etc)) (low/mod./ high)	Groups or stakeholders affected	Level of significance (Yes/No/Unkn)	Level of assessment required (Detailed/ Standard/ Minor/ Not relevant)	SIA Methods to assess	Project refinement recommendations
Livelihoods	Construction	Establishment of construction site, generating 100 FTE construction related jobs	Increased employment opportunities in the area, for local and regional workers	Economic assessment	Southgate, surrounding town, Grafton, LGA	Short term - construction (1 year)	Moderate to high	Positive	Moderate - LGA, Grafton and Southgate all have lower incomes compared to NSW.	Contractors, local businesses, job seekers	Yes	Standard	Review of technical report, procurement policy at local and state level	Social and local procurement opportunities to create local jobs and good will in community
Livelihoods	Construction	Increased number of people (construction workers) in the vicinity	Increased patronage for local businesses - construction workers spend their income in local businesses (e.g. cafe, petrol station, retail) and accommodation	Economic assessment	Southgate, surrounding town, Grafton	Short term - construction (1 year)	Moderate to high	Positive	Moderate - LGA, Grafton and Southgate all have lower incomes compared to NSW.	Local businesses	Yes	Standard	Review of technical report	
Livelihoods	Construction	Construction	Stimulated regional socioeconomic and infrastructure development - investment and potential multiplier effects of project, leading to socioeconomic and regional infrastructure development	Economic assessment	Southgate, surrounding town, Grafton, LGA	Cumulative	Moderate	Positive	Moderate - LGA, Grafton and Southgate all have lower incomes compared to NSW.	Local community, businesses, Traders Associations, Local Council	Yes	Standard	Review of technical report	
Livelihoods	Construction	Hire of local firms / labour	Creation of business opportunities for local economy - creating an improved socio-economic situation	Economic assessment	Southgate, surrounding town, Grafton, LGA	Short term - construction (1 year)	Moderate to high	Positive	Moderate - LGA, Grafton and Southgate all have lower incomes compared to NSW.	Local community, businesses, Traders Associations, Local Council	Unknown	Standard	Review of technical report, procurement policy at local and state level	Social and local procurement opportunities to create local jobs and good will in community
Livelihoods	Operation	Community benefit program operation (TBC)	Financial or in-kind benefits via community benefit program - details TBC	Community benefit strategy	Southgate	Medium-long term (2-5 years)	Unknown	Positive	Moderate - ABS data suggests a slightly older population (av. age 47), and average weekly income is low-moderate (\$1,174) in Southgate. Older average age than NSW, and lower incomes than NSW average.	Adjacent landholders	Unknown	Standard	Community consultation outcomes	Engagement with community on wellbeing and what they need for their community.
Livelihoods	Operation	Operation of solar farm	Strengthened capacity of local firms - project experience on the construction allows local firms to build their experience and gain further work	Economic assessment	Southgate, surrounding town, Grafton, LGA	Medium-long term (2-5 years)	Low	Positive	Moderate - LGA, Grafton and Southgate all have lower incomes compared to NSW.	Local businesses, Traders Associations	Yes	Standard	Review of technical report	Social and local procurement opportunities to create local jobs and good will in community
Livelihoods	Operation	Operation of solar farm	Perception that property values will decrease due to presence of solar farm nearby, impacting amenity and deterring potential buyers	No	Southgate	Long term (5+ years)	Low	Negative	Moderate - incomes in the area are below NSW average	Southgate residents	Yes	Standard	Community consultation, review of research literature on impact of renewable energy development on property values	Economic assessment, review of relevant research on impact of renewable energy development on property values

Decision-making systems: the extent to which people are able to participate in decisions that affect their lives, procedural fairn

Characteristics

Social factor	Phase of development	Project elements that may have impacts (e.g. drilling, delivery of new amenity/ housing etc, road upgrades, etc)	Potential impacts	Assessed in other reports?	Likely Extent (geographic area of influence)	Likely Duration (time period)	Likely Severity/ Scale (low/moderate/high) (e.g. based on how many people impacted)	Likely Experience (positive/negative)	Likely Sensitivity (People affected vulnerable or more sensitive to change? (E.g. children, older people, low SES, disabilities etc)) (low/mod./ high)	Groups or stakeholders affected	Level of significance (Yes/No/Unkn)	Level of assessment required (Detailed/ Standard/ Minor/ Not relevant)	SIA Methods to assess	Project refinement recommendations
Decision-making systems	Development	Project design, community consultation and approvals	Social exclusion and powerlessness in decision making - local stakeholders feeling that their possibilities to participate meaningfully in the consultation and decision-making process were limited. Feeling in local community members are not able to influence decisions about their community.	No	Southgate and greater area, Grafton	Development to construction (8-12 months)	Moderate	Negative	Moderate - ABS data suggests a slightly older population (av. age 47), and average weekly income is low-moderate (\$1,174) in Southgate. Older average age than NSW, and lower incomes than NSW average. Aboriginal and Torres Strait Islander people represent about 7% of the region's population.	Adjacent landholder, Southgate residents and Grafton area	Yes	Standard	Community consultation outcomes	Proactive engagement critical for building trust, informed by clear community engagement strategy. Provide information to the community how they feedback, including through the project team and via statutory processes.
Decision-making systems	Development	Project design, community consultation and approvals	Suspicion towards the project - local stakeholders may feel they were not sufficiently informed and engaged, leading to discontent and opposition to the project and suspicion towards the developers	No	Southgate and greater area, Grafton, LGA	Development to construction (8-12 months)	Low	Negative	Moderate - ABS data suggests a slightly older population (av. age 47), and average weekly income is low-moderate (\$1,174) in Southgate. Older average age than NSW, and lower incomes than NSW average. Aboriginal and Torres Strait Islander people represent about 7% of the region's population.	Adjacent landholder, Southgate residents, Local Council, residents groups, community groups	No	Standard	Community consultation outcomes	Proactive engagement critical for building trust, informed by clear community engagement strategy.
Decision-making systems	Construction	Construction	Inability to influence and manage the disruptions and amenity impacts near their own homes - community don't know how to make a complaint about construction noise	Yes, noise impact assessment	Southgate	Short term - construction (1 year)	Low	Negative	Moderate - ABS data suggests a slightly older population (av. age 47), and average weekly income is low-moderate (\$1,174) in Southgate. Older average age than NSW, and lower incomes than NSW average. Aboriginal and Torres Strait Islander people represent about 7% of the region's population.	Adjacent landholder, Southgate residents	No	Standard	Community consultation outcomes	Set up clear residents communication channels for residents so they know how to register complaints when they are experiencing issues

With coordinated, genuine and ongoing community engagement, these impacts can be mitigated

Glossary of Categories

CATEGORIES	MEANING FOR WORKSHEET PURPOSE
way of life	how people live, how they get around, how they work, how they play, and how they interact on a daily basis
community	composition, character, cohesion, function, and sense of place
access	how people access and use infrastructure, services and facilities, whether provided by local, state, or federal governments, or by for-profit or not-for-profit organisations or groups
culture	both Aboriginal and non-Aboriginal culture, including shared beliefs, customs, values, and stories, and connections to country, land, waterways, places, and buildings
health and wellbeing	physical and mental health ⁽¹⁾ , especially for those who are highly vulnerable to social exclusion or substantial change, plus wellbeing of individuals and communities
surroundings	access to, and use of, services that ecosystems provide ⁽²⁾ , public safety and security, access to and use of the natural and built environment, and its aesthetic value and amenity ⁽³⁾
livelihoods	people's capacity to sustain themselves, whether they experience personal breach or disadvantage, and the distributive equity of impacts and benefits
decision-making systems	whether people experience procedural fairness; can make informed decisions; have power to influence decisions; and can access complaint, remedy and grievance mechanisms

FURTHER EXPLANATION AND EXAMPLES

Impacts on people's daily routines caused by construction activities and/or operational arrangements. Impacts on people's commuting/travelling times, their experience of travel, and their ability to move around freely. Impacts on people's experience of privacy, peace, and quiet enjoyment, especially if affected by increased noise. Impacts on people's general experience of life in their community, especially if the project might cause a 'tipping point' of cumulative impacts on their lives, e.g. through property acquisitions, severance of communities, or major disruption during construction.

Composition - impacts on demographic characteristics and community structure. Can be changed by in-migration and out-migration over time, including the presence of newcomers and loss of longer term residents or sections of the community. Also inflow/outflow of temporary residents, e.g. during construction. Character - impacts on a community's shared identity and attributes, and natural and built features that people value. Can be affected by changes to buildings, vegetation, landscapes, land uses/industries, or land ownership and management. Cohesion and function - impacts on social connections, interrelationships, networks and interactions, trust and cooperation, participation in community activities and institutions, and the potential for harmony or conflict. Lack of cohesion can result in social dislocation, alienation, division, dispossession, tensions, impoverishment, and crime. Sense of place - impacts on feelings of belonging in a place, or identity with a place, which may derive from cultural or historical connections.

Impacts on how people use roads and other access routes; severance, restrictions, and/or improvements in access. Impacts of project (including project-related transport) on pedestrian routes and people's access to schools, medical services, community services, and businesses. Impacts on capacity of services to respond to in-migrating residents.

Impacts on people's values, customs, and beliefs associated with (or embedded in) the site or locality, e.g. as secondary effects of changes to scenic quality, landforms, or water flows. Strengthening of community values and culture through project design elements.

For Aboriginal cultural heritage, also consider potential for intangible harm through 'cultural or spiritual loss' (i.e., loss or diminution of traditional attachment to the land or connection to country, or loss of rights to gain spiritual sustenance from the land).

Health impacts, and well-founded concerns/fears about health impacts, associated with noise, dust, odour, vibration, lighting, and toxic materials. Stress, anxiety, and uncertainty - or hopes - about a proposal, about changes to adjacent uses, and about cumulative change to a neighbourhood. Psychological stress and fears/hopes for the future. Potential impact of the project on social behaviours such as alcohol/drug use, domestic or other violence. Impacts of project elements on ability to sleep, people's general health and wellbeing, and overall community health.

Impacts on anything provided by the environment and that is useful for people, e.g. food and clean water supply, flood or fire defences. Impacts on safety of pedestrians, children, drivers, and cyclists. Impacts on levels of crime and violence, perceptions of crime, safety, and security, especially for women. Loss or enhancement of public spaces. Impacts on the perceived quality and uses of a natural or built area. Impacts on the valued features, the soundscape, and aesthetics of a place and how people use or appreciate it.

Impacts on people's livelihoods, e.g. from new employment and business opportunities (positive), or from disruption during construction (negative). For Aboriginal people, rights to land and to gain spiritual and cultural sustenance from the land.

Capacity of affected people to influence project decisions, including elements of project design. Extent to which they can navigate large amounts of technical material and make informed decisions. Effectiveness of engagement mechanisms at enabling all groups (especially vulnerable or marginalised groups) to participate in the assessment process. Levels of trust in the rigour and impartiality of the assessment process. Extent to which people feel empowered to determine their futures, including after a project closes. Opportunities for people to have a say in the project's community investment decisions. Accessibility and effectiveness of complaint and remedy procedures.

NSW DPIE SIA GUIDELINE 2021

DIMENSIONS		DETAILS NEEDED TO ENABLE ASSESSMENT
CONSEQUENCE	<i>extent</i>	Which location(s) is/are affected? (e.g. near neighbours, local, regional)
	<i>duration</i>	Will the impact be time-limited (e.g. over particular project phases) or permanent?
	<i>severity or scale</i>	What is the likely scale or level of change? (e.g. mild, moderate, severe)
	<i>sensitivity or importance</i>	How sensitive/vulnerable (or how adaptable/resilient) are people to the impact, or (for positive impacts) how important is it to them? This might depend on: the value they attach to the matter; whether it is rare/unique or replaceable; the extent to which it is tied to their identity; and their capacity to cope with or adapt to change.
	<i>level of concern/interest</i>	How concerned/interested are people, according to the findings from research and engagement? Sometimes, concerns may be disproportionate to findings from technical assessments of likelihood, duration, and/or severity. Concern itself can lead to negative impacts, while interest can lead to expectations of positive impacts.

NSW DPIE SIA GUIDELINE 2021
CATEGORIES

A social impact may be physically observable or it may manifest as rational or justified fears (of negative impacts in the future) or aspirations (of positive impacts in the future).

A social impact may be experienced positively by some people, and negatively by others.

A social impact may be tangible or intangible.

Social impacts may be direct or indirect. They may also combine with other impacts from a single project or be cumulative with impacts from other projects.

A social impact may be best assessed using quantitative methods or qualitative methods.

A social impact may be experienced differently within a community, by different communities, and at different times/stages of the project.

EXAMPLES
Physically observable impacts
<i>More paths and cycleways</i>
<i>Acquisition of residential properties</i>
Rational or justified fears
<i>Psychological stress regarding the future personal and community impacts of compulsory property acquisition</i>
Positive
<i>Improved livelihoods owing to more work opportunities</i>
Negative
<i>Increased prevalence of adverse health conditions</i>
Tangible
<i>Availability of affordable housing</i>
Intangible
<i>Community cohesion</i>
Direct
<i>Sleep disturbance caused by construction noise</i>
Indirect
<i>Strain on family relations and health from sleep disturbance caused by construction noise</i>
Combined
<i>Sleep disturbance due to increased noise and restricted access because of significantly reduced street parking caused by a single project</i>
Cumulative
<i>Sleep disturbance due to increased noise and restricted access because of significantly reduced street parking from one project. In addition, poor air quality creating health conditions and strained family relations from another project</i>
Directly quantitative
<i>Changes in population demographics</i>
Partially/indirectly quantitative
<i>Incidence of voluntary work among a community as a proxy indicator of community cohesion</i>
Qualitative (measurable through perception surveys or oral story telling, for example)
<i>Cultural values</i>
<i>Sense of place</i>
<i>Connection to Country</i>
Different experiences within a community
<i>An increase in the value/cost of housing may be positive for homeowners wanting to rent out or sell their properties, but negative for individuals and families wanting to buy or rent.</i>
Different experiences for different communities
<i>People living near a project may experience most of the noise and dust impacts, while people in the region's nearest town may benefit from most of the job opportunities.</i>
Different experiences over time
<i>People's experiences of impacts during project construction may be quite negative, whereas experiences during operation may be more positive.</i>

NSW DPIE SIA GUIDELINE 2021

LEVEL OF ASSESSMENT FOR EACH SOCIAL IMPACT	LEVEL	MEANING FOR WORKSHEET PURPOSE	Secondary data	Primary data
	Detailed assessment	The project may result in significant social impacts, including cumulative impacts.	Required	Broad consultation, Targeted research
	Standard assessment	The project is unlikely to result in significant social impacts, including cumulative impacts.	Required	Targeted consultation, Potentially targeted research
	Minor assessment	The project may result in minor social impacts.	Required	Limited - if required (e.g. by local council). Targeted research not required.
	Not relevant	The project will have no social impact, or the social impacts of the project will be so small that they do not warrant consideration.	Required	