Energy Development Corporation Pty Ltd ABN 59 666 768 654
Head Office: 8 Maroochydore Road, Maroochydore QLD 4558
www.energydevcorp.com

DEVELOPMENT APPLICATION

Material Change of Use – Renewable Energy Facility (Solar PV Farm)

Bullyard Solar Project

143 Gastons Road Queensland 4670
Being Lot 183 on CK271, Lot 73/CK281 & Lot 2/RP868537

Prepared by Energy Development Corporation Pty Ltd
For EE Australia Pty Ltd (ABN: 79 656 465 959)
(European Energy Australia)
c/ Energy Development Corporation Pty Ltd

EDC ref: 24002SF01
18 September 2024

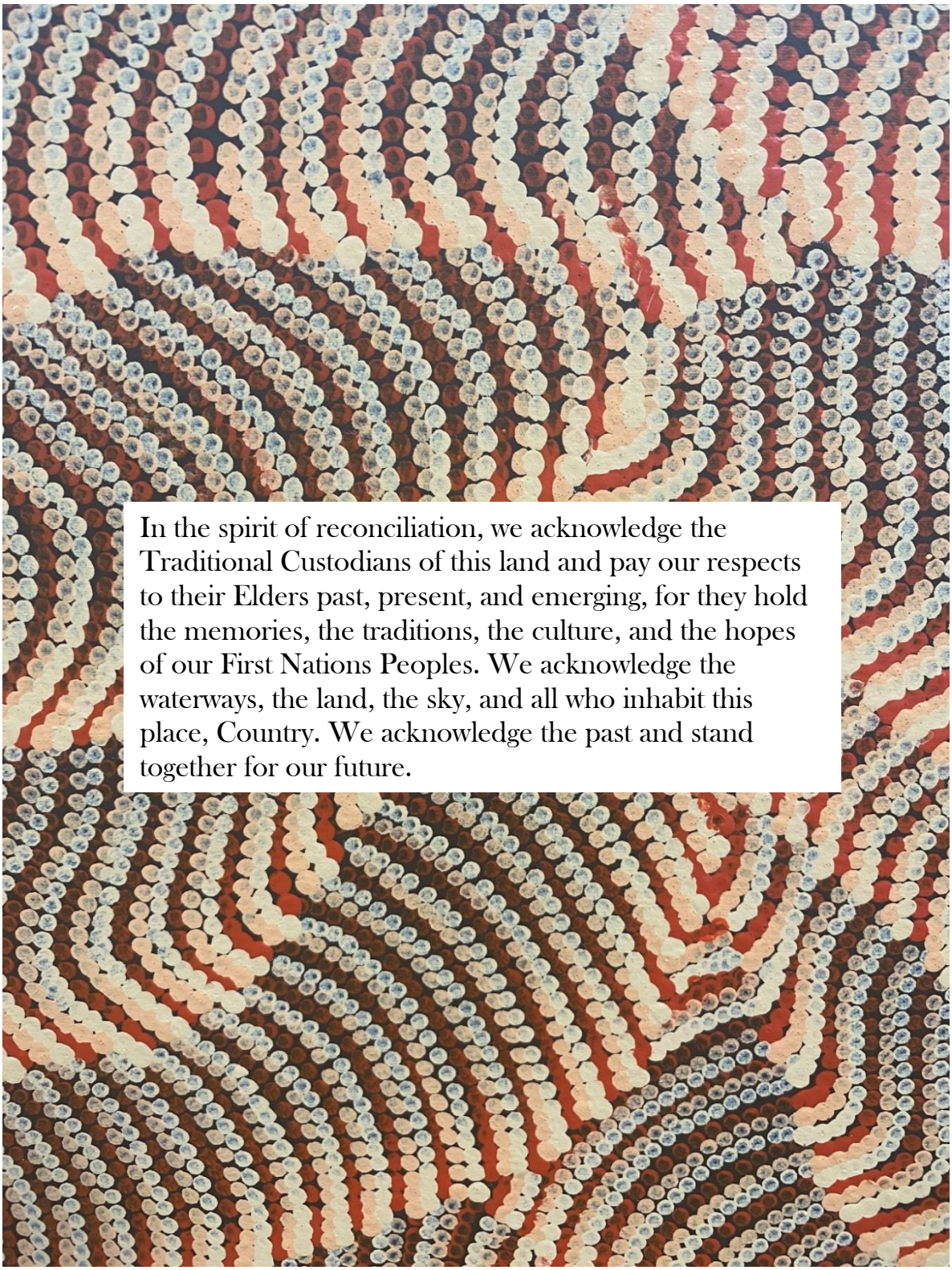
DOCUMENT CONTROL SHEET

Control	Details
Prepared for	EE AUSTRALIA PTY LTD (ABN: 79 656 465 959) European Energy Australia
Project	Bullyard Solar Project
Report	Material Change of Use - Renewable Energy Facility (Solar PV Farm)
Author(s)	TRP
Current version	01
Date	19 July 2024
Approved by	WD
Signed	

Version	Date	Details	Approval
01 TRP	19 July 2024	Fourth DRAFT	WD
01-B TRP	6 August 2024	Adjusted for BRC request: site plan (additional dimensions and extents added), Solar panel elevation (Appx U), elaborate Biodiversity and Fire Hazard overlays not relevant due to design elements.	WD
01-C TRP	18 September 2024	Amend plan with internal road location and crossings Figs 25a,b&c; update figure No.s and references; Stream Order mapping Fig.11a&b; 6.7.3 Steep Land Overlay Code AO1; 8.1 remove Watercourse SE corner Lot 183; add details 8.4. Visual Amenity and Landscaping; adjust S.6.5.2 & 6.5.5 for traffic/parking clarifications; adjust Utility Code Appx K; Add Biodiversity Areas Overlay Code Appx. V; Gen. treatment Crossings Appx W; Redleaf Group Technical Memorandum (Appendix X) Internal Access Tracks Environmental Input.	WD
01-DTRP	5 November 2024	Revised Solar Array	WD

This document has been prepared solely for the benefit of the party above and is issued in confidence for the purposes only for which it is supplied. Unauthorised use of this document in any form whatsoever is prohibited. No liability can be accepted by Energy Development Corporation or any employee, contractor, or sub-consultant of this company with respect to its use by any other party.
This disclaimer shall apply notwithstanding that the document may be made available to other persons for an application for permission or approval to fulfil a legal obligation. See also Limitations Advice following.

ACKNOWLEDGEMENT OF COUNTRY



In the spirit of reconciliation, we acknowledge the Traditional Custodians of this land and pay our respects to their Elders past, present, and emerging, for they hold the memories, the traditions, the culture, and the hopes of our First Nations Peoples. We acknowledge the waterways, the land, the sky, and all who inhabit this place, Country. We acknowledge the past and stand together for our future.

Name of Painting: *Sand Dune Country*
Artist: *Maureen Nampijimpa Hudson*

LIMITATIONS ADVICE

Purpose and Use

a. This document (hereinafter referred to as "the Report") has been prepared by Energy Development Corporation Pty Ltd (hereinafter referred to as "EDC") exclusively for EE Australia Pty Ltd (hereinafter referred to as "the Client") and is intended solely for the specific purpose outlined and agreed upon between EDC and the Client.

b. It is essential to understand that the information contained within the Report may not cover all conceivable scenarios or purposes beyond the agreed purpose. Therefore, EDC will not be liable for any loss, damage, liability, or claim if the Report or its contents are used or relied upon for any purpose beyond its agreed purpose.

Limitations and Assumptions

a. The contents of the Report, including opinions, conclusions, and recommendations, are confined to the terms of the contractual agreement between EDC and the Client. These are shaped by prevailing circumstances and assumptions made during the preparation process.

b. The Client acknowledges and agrees that the limitations and assumptions made in the Report are understood and accepted. This acknowledgment helps mitigate any potential disputes regarding the Client's understanding of the Report's scope and limitations**.**

c. The Client acknowledges the dynamic nature of knowledge and the potential for evolving circumstances. While every effort has been made to ensure accuracy, EDC does not assume responsibility for changes occurring after the Report's preparation and has no obligation to update the Client with respect to changes in the prevailing information occurring after the date the Report was prepared.

d. While EDC strives for accuracy, certain assumptions underpin the Report, EDC does not have any reason to believe those assumptions are incorrect. Despite efforts, EDC refrains from independent investigations into these assumptions and cannot be held liable for any inaccuracies.

e. Information provided to EDC by the Client and other entities forms the basis of the Report and has not been independently verified by EDC. EDC does not accept any liability for errors or omissions in this supplied information, including errors and omissions in the Report that were caused by errors or omissions in the Supplied Information.

Liability and Indemnification

a. Liability within this disclaimer encompasses direct or indirect losses, damages, liabilities, costs, expenses, or claims.

b. EDC excludes all implied warranties to the extent permitted by law and shall not be held liable for any reliance placed upon such implied warranties.

c. EDC shall not be liable for interpretations, opinions, or conclusions drawn by the Client based on the Report.

d. The Client acknowledges and agrees that the maximum aggregate liability of EDC for the preparation and provision of the Report is limited to the consideration paid or payable by the Client to EDC for its services.

e. EDC shall not be liable for any special, indirect, consequential, economic loss, or loss of profit, revenue, business, contracts, or anticipated savings arising or incurred by the Client or any other person arising out of or in connection with the provision of the Report.

Third-Party Usage

a. The Report may not be disclosed to any third party without the prior written consent of EDC.

b. EDC does not assume a duty of care to any third party in relation to the Report and shall not be liable for any third-party usage, publication, or reliance on it.

c. To ensure the enforceability of restrictions on third-party usage, publication, or reliance on the Report, the Client agrees that EDC will not be liable to a Third Party for any liability arising out of or incidental to the Report or any publication of use of, or reliance on it. The Client and any third party agree to release, indemnify, and hold EDC harmless from any liabilities arising from third-party usage, publication, or reliance on the Report.

Updates and Revisions

a. EDC reserves the right to update or revise the Report after its preparation, particularly if there are changes in circumstances or new information becomes available or as required by legislative requirements. This is essential for maintaining the accuracy and relevance of the Report over time or in response to requests from responsible authorities.

b. Any updates or revisions made to the Report will be communicated to the Client in a timely manner. However, EDC does not assume an obligation to provide ongoing updates or revisions unless otherwise specified in the contractual agreement between EDC and the Client.

c. The Client acknowledges and agrees that while every effort will be made to ensure the accuracy of any updates or revisions, EDC cannot guarantee that the Report will be error-free or completely up to date at all times.

Table of Contents

1. EXECUTIVE SUMMARY

This document presents an evaluation of the town planning considerations pertinent to a proposed Solar Farm development situated at 143 Gastons Road, Bucca, QLD 4670, encompassing Lot 183 on CK2771, Lot 73 on CK281, and Lot 2 on RP868537. The project aims to establish a solar facility leveraging the existing 132kV overhead Transmission Lines (x2) passing south of lot 183, managed by Ergon Energy.

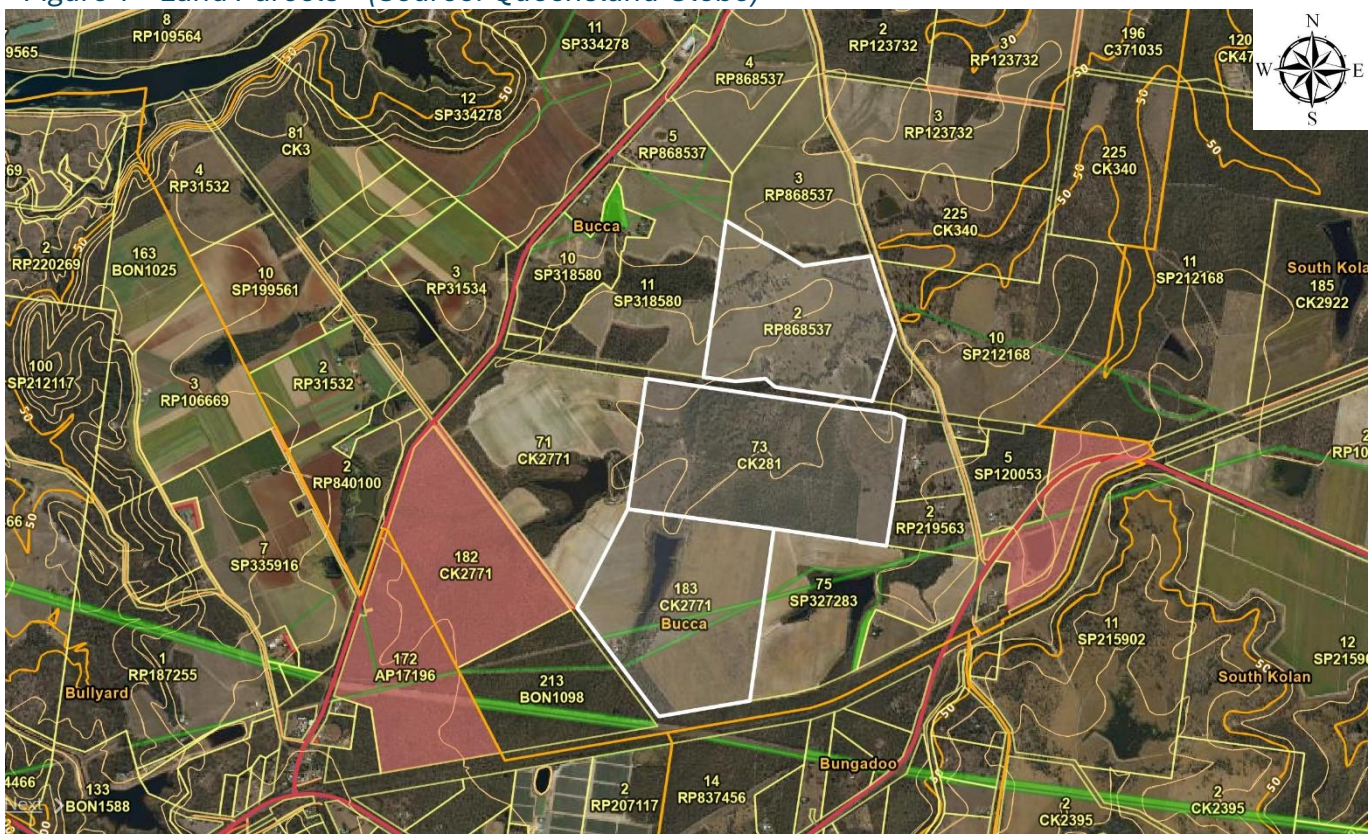
Parcel 183 on CK2771 fronts the Gastons Road whilst Lot 2 on RP868537 has frontage to Goondoon Road. An unnamed, unconstructed road reserve approximately 60m wide, and running between Bucca Road and Goondoon Road, separates Lot 2 RP868537 & Lot 73 CK281.

Defined as a 'Renewable Energy Facility', the proposed site falls within the 'Rural' zone as delineated by the Bundaberg Regional Council Planning Scheme 2015. Consequently, the development necessitates a Code Assessable application. Additionally, consultation with Ergon Energy is mandatory due to the presence of an electricity transmission easement on Lot 183/CK2771. This has been completed and grid connection agreements with Ergon and AEMO have been executed.

The proposal largely aligns with the relevant assessment criteria outlined in the planning scheme and remains compliant with State Legislation. Positioned within the Rural zone, the development represents a suitable utilisation of land, offering a sustainable energy solution to consumers while delivering broader community benefits.

The assessment concludes that sufficient grounds support the approval of the application, considering the benchmarks outlined in the planning scheme and other pertinent factors. Consequently, this evaluation recommends approval contingent upon reasonable and pertinent conditions.

Figure 1 – Land Parcels – (Source: Queensland Globe)



2. INTRODUCTION

This Town Planning Report has been prepared on behalf of EE Australia Pty Ltd, also known as European Energy Australia (the Proponent) to provide supporting information for a development application to Bundaberg Regional Council under the Planning Act 2016.

The application seeks approval from the assessment Manager (Bundaberg Regional Council) for:

- Development Permit for Material Change of Use for a Renewable Energy Facility (Solar Farm) as described in the following section.

2.1. The Proposal

European Energy Australia is proposing to develop a 125 megawatt (MWp) solar farm in Bucca, Queensland, the Bullyard Solar Project, approximately 33 km south-west of Bundaberg (via Gin Gin Road). The project site is approximately 329 Ha in size encompassing 3 land parcels.

Key elements of the proposed infrastructure include photovoltaic (PV) modules mounted on standard array structures and containerised inverters housing electrical switchgear and an electrical substation for connection to the National Electricity Market (NEM) (the Project). A brief overview of the proposed project at Bullyard includes:

- Construction planned to commence Q2 2025
- Construction period circa 18 months
- Approximately 208,000 photovoltaic solar modules (600 watt modules)
- Approximately 18 containerised Power Conversion Stations containing electrical switchgear, inverters and medium voltage transformers (PCS)
- Onsite electrical switchyard and substation (substation – Lot 183/CK2771)
- Operational Control building including site office, operation and maintenance facilities, spare parts supervisory control and data acquisition (SCADA) systems and staff amenities serviced by septic systems and rainwater tanks, to be located at the existing house site off Gastons Road entrance (Lot 183/CK2771)
- Car park adjacent to control building
- Internal underground DC and AC cabling in trenches for electrical reticulation
- Internal all-weather access tracks
- Internal fire trail and bushfire asset protection zones (APZ)
- Security fencing around the solar farm
- Vegetation screening – plantings along the site boundaries where required
- Meteorological stations
- Hardstand/portable site office for construction/carparking (Lot 2/RP868537)

2.2. The Proponent

The Proponent, EE Australia Pty Ltd, also known as European Energy Australia, is a subsidiary of European Energy A/S, a Danish company recognised globally for its contributions to the renewable energy sector. Established in 2004, European Energy A/S has been at the forefront of developing, constructing, and operating renewable energy projects for 18 years. The company's operations span over 15 countries, showcasing its extensive experience and capabilities in the renewable energy industry.

European Energy Australia is committed to unlocking the significant clean energy potential within Australia. The Australian team is dedicated to delivering innovative and sustainable solutions in collaboration with industry partners, communities, and government entities. This collaborative approach ensures that the projects not only meet but exceed the diverse clean energy needs of the region.

European Energy has a strong track record of successful projects globally. The parent company has engineered and installed more than 1,000 Megawatts (MW) of wind and solar energy projects, demonstrating its expertise and commitment to using state-of-the-art technology. This extensive experience positions European Energy Australia as a leading entity in the renewable energy market, capable of contributing significantly to Australia's clean energy transition.

The company's approach integrates environmental stewardship with economic growth, aiming to create long-term value for all stakeholders involved. By leveraging its international experience and local knowledge, European Energy Australia is well-equipped to drive the adoption of renewable energy solutions across the country, supporting Australia's goals for a sustainable and resilient energy future.

2.3. Locality Details

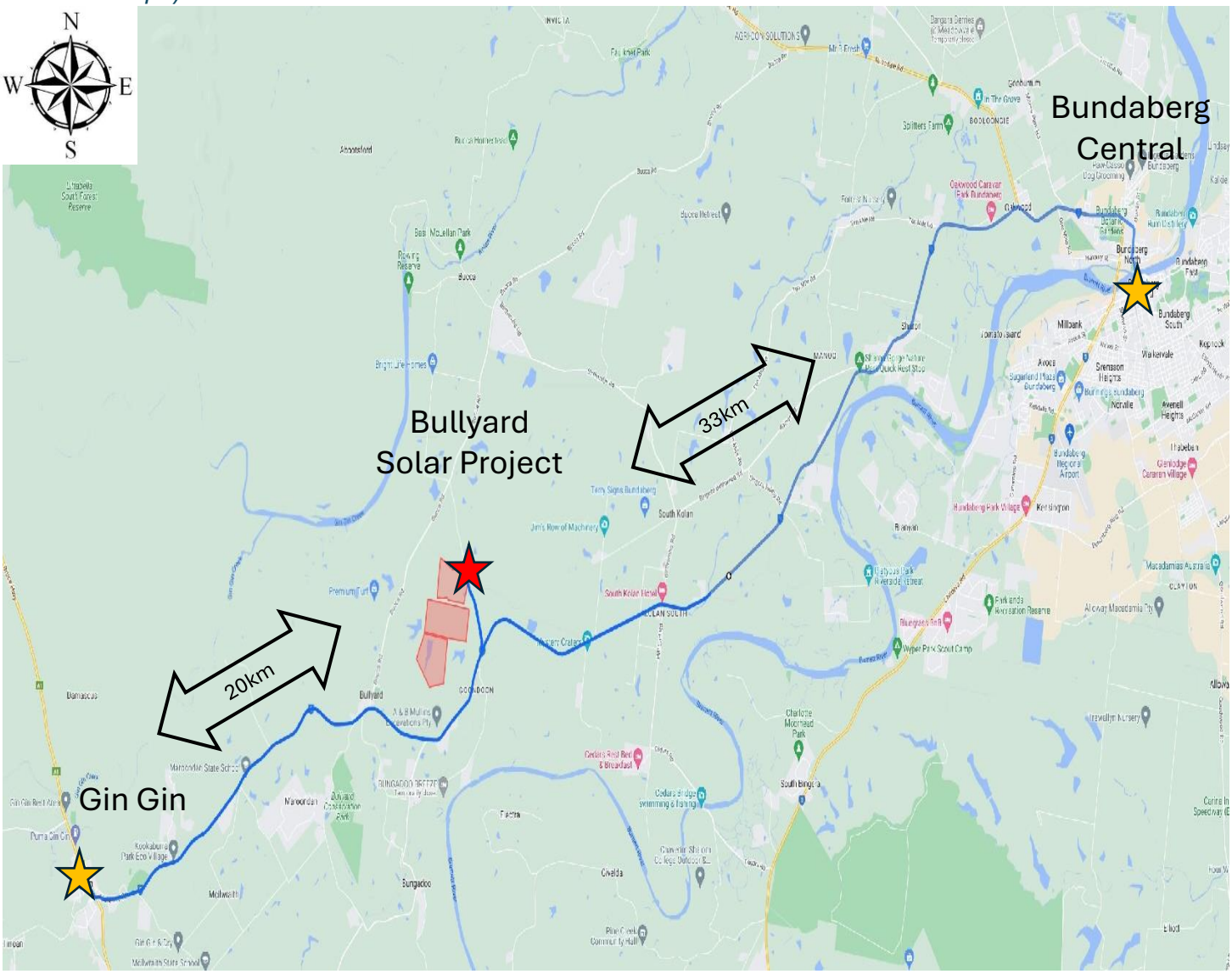
The subject site comprises three parcels (Figure 1 & Table 2.1) described as 143 Gastons Road, Bucca with road frontages to both Gastons Road (lot 183/CK2771) and Goondoon Road (lot 2/RP RP868537).
Lot 73 CK281 has no formally constructed road frontage; the northern boundary of lot 73 and the southern boundary of lot 2 RP868537 both abut and are separated by an unmade, undescribed road reserve.

Table 2.1: Lots Subject to the Material Change of Use Application

Lot Description	Area (Ha)
Lot 183 on CK2771	110.5
Lot 73 on CK281	129.525
Lot 2 on RP868537	89.11
Total Area	329.135

The proposed main property access into Lot 2 Goondoon Road is approximately 33km from Bundaberg Central along the Gin Gin Road and approximately 20km from Gin Gin, south-west of the site along the Gin Gin – Bundaberg Road. (Figure 2)

Figure 2 – Locality sketch – (Source: Compiled from Google Maps)



3. PURPOSE OF THIS REPORT

This Town Planning Report will evaluate the development proposal against the *Bundaberg Council Regional Planning Scheme 2015,* and the *Planning Act 2016*. The report provides significant detail on the intent and execution of the proposal, and an assessment against the intent and requirements of the applicable statutory planning instruments.

The *Bundaberg Regional Council Planning Scheme 2015,* identifies the site as within the Rural Zone (Part 6: Schedule 2 (Mapping)). The Assessment Table for the Rural Zone (Part 5 (Table of assessment)) refer Appendix I – 5.4 CATEGORIES OF DEVELOPMENT, classes the proposal as Code Assessable and therefore the application is not required to undergo public notification.

Layout considering sensitive ecological areas: The solar farm layout has been designed to minimise disturbance to protected vegetation areas, including incursions into watercourse buffers and MSES protected areas, as outlined in the Overlay Codes (Table 9.8). The necessary incursions, where internal road crossings occur, utilise existing farm roads to minimise new disturbances. These crossings are addressed under the Biodiversity Areas Overlay Code in PO1, PO5, PO7, PO9, and PO14, ensuring biodiversity, habitat connectivity, and fauna movement are preserved. Further mitigation details are provided in Appendix W – General Treatment for Watercourse and Mapped Vegetation Crossings, which also outlines compliance with relevant legislative requirements and engagement with the State Assessment and Referral Agency (SARA). Additional ecological input is provided in Appendix X – Redleaf Group Technical Memorandum - Internal Access Tracks Environmental Input.

Assessment of the impacts of the proposal are summarised below and within this report and the details for required studies are provided in the appended technical reports. The following summary is provided in relation to the key Matters of State Environment Significance (MSES):

- An Ecological Impact Assessment (Appendix Q) has been completed by Redleaf Group of Bundaberg, and this report details the site assessment against biodiversity and Matters of State Environmental Significance (MSES) regulations.
- Revision provided by Ecologists to consider the internal road positions and watercourse/MSES mapped area crossings is provided in Appendix X – Redleaf Group Technical Memorandum - Internal Access Tracks Environmental Input.
- A Bushfire Risk and Management Report, after consultation with the Planning Manager at BRC has not been completed at this stage as the planned solar farm array is located on land defined as medium bush fire risk. It is proposed that a Fire Management Plan for the site will be completed as part of the detailed designs required for the Operational Works approval phase.
- A Traffic Impact Assessment Report (Appendix P) has been completed by RMA Consulting Engineers of Bundaberg. The Summary and Recommendations commence on page 32 of the report, and conclude with:

  "With consideration of the above findings, no adverse traffic and transport engineering matters have been identified that should preclude approval of the proposed development at this location."

- A Storm Water Management Plan was determined to be unnecessary at the advice of Richard Jenner (Council - Manager Development Assessment), however this report does address Watercourses and Drainage to facilitate the consideration of site hydrology management as discussed with Mr Jenner (refer Section 6.6 Watercourses and Drainage). It is envisaged that a site drainage plan will be required as part of the detailed design works for the Operational Works approval phase.

- An Indigenous Heritage Assessment and Indigenous Heritage Management Plan does not form part of the requirements for this development application documentation. However, the Proponent proposes to undertake this study post development approval. Management measures for any indigenous heritage sites or objects identified in the assessment will be developed in consultation with First Nations stakeholders and implemented through the envisaged Indigenous Heritage Management Plan.

- A plan of the proposed solar array layout for the development is included in figures 25a, 25b & 25c. this may be subject to minor changes post detailed engineering design with any such changes to be highlighted in the Operation Works application.

Table 3.1: Site and Application details Summary

Site and Application Details		
Proponent	EE Australia Pty Ltd (ABN:79 656 465 959) Level 17, 1 Nicholson Street, East Melbourne VIC 3002 (Development Assessment Form, DA Form 1)	DA Form 1 Refer Appendix A
Location	Bucca, QLD 4670	Refer Figure 2
Address	143 Gastons Road, Bucca, QLD 4670 (also frontage at Lot 2 Goondoon Road)	Refer Figure 1
Description of Lots	Lot 183 on CK2771, Lot 73 on CK281, Lot 2 on RP868537	Refer Figure 3 (Cadastral Plan, SmartMap)
Site Area	329.135 ha	Refer Figure 3
Landowners	Lot 183 CK2771 (Title Ref: 17767067) Trifecta Estate Pty Ltd ACN 677 233 617 Lot 73 CK281 (Title Ref: 14820196) Luinn Pty Ltd Lot 2 RP868537 (Title Ref: 50116231) Luinn Pty Ltd	Proof of owners Refer Appx. E
Tenure	Freehold - refer Appendix E, titles as proof of owners and tenure	Proof of Tenure Refer Appx. E
Local Authority	Bundaberg Regional Council	

Table 3.2: Overview of proposal

Overview of Proposal
The proposed development is for the construction and operation of a renewable energy facility (solar photovoltaic). The proposal includes photovoltaic modules assembled on fixed rack structures. DC electricity generated by the modules is reticulated back to inverters, where aggregated cable runs flow back to the centralised power conversion station (PCS) for transformation up to 66kV AC. Power then flows from the PCS back to the onsite substation and switchyard for connection to the National Electricity Market (NEM) at a 132kVAC connection.

Ancillary facilities include a site office and control building, meteorological stations, security fencing, internal cabling, internal roads and fire trails, supervisory control and data acquisition system (SCADA). The site is currently used for cattle grazing.		
Development Approval Sought		
Development Permit for a Material Change of Use for a Renewable Energy Facility (Solar Photovoltaic (PV) Farm)		
Development Approval Authority (Assessment Manager)		
Bundaberg Regional Council		
Pre-lodgement Meeting		
9th of April 2024 at Bundaberg Regional Council (Refer to Appendix F)		
Planning Scheme Zone and Level of Assessment		
Rural Zone and Code Assessment (No Public Notification Required)		
Planning Scheme	Bundaberg Regional Council 2015	
Zone	Rural Zone	
Overlays	• Acid Sulphate Soils • MSES Watercourse Buffer • MSES Wildlife Habitat • MSES Regulated Vegetation • Bushfire Hazard Area • Steep Land – BRC mapped area • Agricultural Land Classification (ALC) • CBD Parking Area • Third Party Advertising Devices Exclusion Area • Preliminary Planning Approval • Charges Resolution (No.1) 2021 • High Density Residential Zone – Bargara Building Height Control Area • State Development Area • Development Footprint Plan Provision • Priority Infrastructure Area (PIA) • Future Trunk Infrastructure • Existing trunk Infrastructure	
Applicable Codes	Refer S.9.1 Local Planning Interests: S.9.1.2. Level of Assessment Table 9.1 Level of Assessment S.9.1.3. Rural Zone, Table 9.2 Summary Response Rural Zone Table 9.3 Summary Response Utility Code Table 9.4 Summary Response Landscaping Code Table 9.5 Summary Response Nuisance Code Table 9.6 Summary Response Transport and Parking Code	

	Table 9.7 Summary Response Works, Services & Infrastructure Code S. 9.1.4. Overlay Codes, Table 9.8 Table 9.9 Summary Response Biodiversity Areas Overlay Code	
Key Contacts	Tim Pumpa (Energy Development Corporation) Email: tpumpa@energydevcorp.com Wayne Drinkwater (Energy Development Corporation) Email: wayned@energydevcorp.com	

4. PROPOSAL JUSTIFICATION

4.1. Supporting Regional Development, Employment, and Industry

4.1.1. Supporting Local Industry

Renewable energy projects like the proposed solar farm offer significant benefits for local industries in Queensland. Rising energy costs have been a substantial concern for businesses, impacting their profitability and competitiveness. According to the Australian Industry Group's 2024 report, energy prices have severely impacted industries like primary metals manufacturing, which have faced significant profitability challenges due to rising electricity and gas costs. Data from the Australian Bureau of Statistics (ABS) confirms:
(https://cdn.aigroup.com.au/Reports/2018/AiGroup_Report_Eastern_Australian_Energy_Prices_July_2018.pdf).

Businesses in the Bundaberg region can benefit from power-purchase agreements (PPAs) with energy retailers who source from the proposed solar farm. PPAs allow users to contract power from the solar farm through energy retailers, which transmit the energy from the solar farm to the local load using the existing electrical network. This mechanism provides a stable and lower-cost energy source, enabling businesses to secure energy at predictable rates and improving their financial stability. The project will also help put downward pressure on energy prices through increased supply into the Queensland region of the National Electricity Market (NEM) (https://arena.gov.au/).

Reducing the carbon intensity of local energy supply will benefit Bundaberg's businesses by improving the sustainability of their operations, products, and reputation. Organisations like Business Queensland and Accenture emphasise the importance of companies adopting environmental responsibility and sustainable supply chains in boosting a firm's competitive advantage (https://www.business.qld.gov.au/running-business/environment/environment-business/benefits; https://www.accenture.com/au-en/insight-outlook-why-sustainable-supply-chain-is-good-business). Sustainable supply chains can cut costs, manage risks, generate new revenue sources, and boost brand value. For instance, leading companies such as Apple have introduced sustainable supply chain initiatives to source lower-carbon materials. Aluminium, for example, contributes approximately 30% of Apple's manufacturing carbon footprint, making this a particular focus for improving the company's sustainability
(https://images.apple.com/environment/pdf/Apple_Environmental_Responsibility_Report_2017.pdf).

4.1.2. Contribution to Regional Development and Employment

The project is expected to significantly contribute to regional development and employment in Bundaberg. The Bundaberg Region Economic Development Strategy outlines a vision for an ecosystem of diverse and innovative industries in the region, embracing new technologies for economic growth while respecting the environment (https://www.bundaberg.qld.gov.au/homepage/101/economic-development).

With a potential investment between $140 million and $160 million, the project will create up to 300 jobs during the construction phase. Once completed, the solar farm will serve as a vital component of the region's industry ecosystem, supplying a low-cost, sustainable power source for the benefit of Bundaberg's industry. The project will improve the skills and training of workers involved, better enabling them to make further contributions to the rapidly growing renewables sector. It will support the Council's vision for more diverse and innovative industries and provide positive environmental outcomes, positioning Bundaberg as a hub for renewable energy innovation.

4.2. Alignment with Government Energy and Climate Change Policy Objectives

There is a growing global recognition of the mounting imperative to mitigate the environmental impacts associated with fossil fuel-based energy generation. This growing realization has manifested into international, national, and state-wide commitments from government and industry in support of the development of clean renewable energy projects.

In addition to the environmental imperative for reducing energy sector-related emissions, the economic benefits of renewable energy projects have also been highlighted. Federal, state, and local governments understand the importance of regional investment and job creation offered by renewable energy projects, which will also help to put downward pressure on the soaring energy prices currently impacting household budgets and industry.

4.2.1. National Electricity Supply

Australia has historically relied heavily on fossil fuels, with approximately 70% of electricity generation coming from these sources as of 2023 (https://www.cleanenergyregulator.gov.au). This marks a reduction from previous years, reflecting a significant shift towards renewable energy sources. The reliance on aging coal-fired power plants has posed risks to energy security, highlighted by frequent outages and failures. For instance, the failure of four coal units in a single week in December 2017 underscored the vulnerability of relying on outdated infrastructure (http://reneweconomy.com.au/intermittent-another-big-coal-unit-trips-thats-four-in-a-week-47037/).

Recent examples continue to illustrate this challenge. Queensland's Eraring Power Station, Australia's largest coal-fired power plant, had its operational life extended to 2025 to maintain energy stability (https://www.abc.net.au/news/2022-02-16/eraring-power-station-to-close-2025/100836648). Similarly, the Callide C coal plant experienced catastrophic failures in 2021, causing widespread power outages and emphasizing the need for a more resilient and modern energy system (https://www.abc.net.au/news/2021-05-25/callide-coal-power-plant-explosion-queensland-energex-outages/100162148).

The Queensland Government has actively pursued renewable energy projects to address these issues. The state's renewable energy portfolio includes significant investments such as the Western Downs Green Power Hub, Australia's largest solar farm, and the MacIntyre Wind Precinct. These projects not only contribute to energy security but also

support the state's ambitious target of achieving 50% renewable energy by 2030, 70% by 2032, and 80% by 2035 https://www.epw.qld.gov.au/about/initiatives/renewable-energy-targets

Investments in infrastructure to support these projects are substantial. For example, Powerlink Queensland has allocated $594 million in 2023-24 to develop the CopperString 2032 high voltage link, which will unlock new renewable energy and mining projects (https://www.powerlink.com.au/copperstring-2032). Additionally, Energy Queensland's $2.042 billion capital program includes efforts to support network reliability and renewable hosting capabilities, essential for integrating large-scale renewable projects into the grid (https://www.energyq.com.au/what-we-do/projects).

These initiatives align with the Queensland Energy and Jobs Plan, aiming to create 100,000 jobs and support the transition to a low-carbon economy (https://www.energyandclimate.qld.gov.au/energy-and-jobs-plan). The comprehensive plan and substantial investments demonstrate a commitment to transforming Queensland's energy landscape and reducing reliance on fossil fuels.

For more details, you can refer to the Queensland Government's renewable energy progress and plans on their official sites:

- Project aligns with Queensland Government Renewable Energy Targets: https://www.energyandclimate.qld.gov.au/about/initiatives/renewable-energy-targets
- Ministerial Media Statements: https://statements.qld.gov.au/statements/83040
- Department of Energy and Climate: https://www.energyandclimate.qld.gov.au/

4.2.2. State and Local Government Renewable Energy Policy

A broad range of state and local government policies and initiatives concerning renewable energy have been developed by the Queensland Government and Bundaberg Regional Council. The Bundaberg Regional Council Renewable Energy Strategy emphasises the important role that the Council must play in minimising the environmental footprint of the Bundaberg Region. By reducing their energy consumption and drawing energy from renewable sources, the Council aims to be a positive role model for the region and ensure that future generations continue to enjoy our great lifestyle. The strategy notes that the continued falls in the cost of renewables make this both a financially viable option as well as an environmental decision.

The Queensland Government has implemented a broad range of initiatives to facilitate its goal of transitioning to a low-carbon energy sector. Recognising the promise of the growing renewable energy industry in Queensland, the government has embarked on the following measures:

- **Powering North Queensland Plan:** Since January 2016, North Queensland has seen an unprecedented level of renewable energy investment activity—over 830 megawatts of large-scale projects are either under construction or finalising commercial arrangements. These projects will deliver $1.6 billion of infrastructure spending, over 1,400 jobs, and strong prospects for further renewable investment. Visit: https://www.dews.qld.gov.au/__data/assets/pdf_file/0003/1253541/Fact-sheet-Powering-North-Queensland-Plan.pdf.

- **50% Renewable Energy by 2030:** In 2016, the Queensland Government undertook a renewable energy study to investigate the development of a renewable energy economy in the state. The Minister for Energy, Biofuels, and Water Supply launched an independent Renewable Energy Expert Panel on 27 January 2016 to assist this process and to consider a credible pathway to achieving the 50% renewable energy target by 2030. The expert panel's final report was delivered to the Queensland Government on 30 November 2016, with the Government accepting the majority of the recommendations. The Government has since acted with the establishment of the Renewables 400 auction program. Visit: https://www.energyandclimate.qld.gov.au/about/initiatives/renewable-energy-targets.
- **Renewables 400 Program:** This program involves a reverse auction for up to 400MW of renewable energy capacity in Queensland, including 100MW of energy storage. The aim of the Government's auction process is to diversify the sources of Queensland's electricity generation, support system security and reliability, accelerate the deployment of energy storage in Queensland, and support local businesses and employment.

  Visit: https://www.business.qld.gov.au/industries/mining-energy-water/energy/renewable/renewables-400.
- **Solar 150: Large-Scale Solar Investment:** The Queensland Government is supporting 150MW of solar generation to create a stronger environment for large-scale solar generation and investment in Queensland. The Solar 150 initiative, run in collaboration with the Australian Renewable Energy Agency (ARENA), has helped fund the development of four local, large-scale solar projects which have started or will soon start construction. For more details, visit: https://arena.gov.au/funding/solar150/.
- **Western Downs Green Power Hub:** Currently under construction as of August 2023, this 1500-hectare solar farm will be the largest in Australia, capable of powering approximately 235,000 Queensland homes. This project exemplifies the state's commitment to large-scale renewable energy investments. For more details, refer to: https://www.qld.gov.au/about/newsroom/renewable-energy-initiatives.
- **MacIntyre Wind Precinct:** This significant wind energy project includes Australia's tallest wind turbines and will generate enough energy to power over 54,000 homes. The MacIntyre project is a crucial part of Queensland's renewable energy strategy.

  Visit: https://www.qld.gov.au/about/newsroom/renewable-energy-initiatives.

The Queensland Government's commitment to updated targets of 50% renewable energy by 2030, 70% by 2032, and 80% by 2035. This commitment is reinforced by the **Energy (Renewable Transformation and Jobs) Act 2024**, which supports these targets through substantial investments and ongoing projects, building on previously established initiatives.

These initiatives demonstrate the Queensland Government's dedication to transitioning to a low-carbon energy sector, fostering economic growth, and ensuring long-term energy security.

4.2.3. Australian Renewable Energy Target

The Australian Renewable Energy Target (RET) has been pivotal in driving the development and adoption of renewable energy across the country. This federal government policy aims to reduce greenhouse gas emissions in the electricity sector and increase the generation of electricity from renewable sources.

Large-scale Renewable Energy Target (LRET)

The LRET requires that large-scale renewable energy power stations, such as wind farms and solar plants, generate large-scale generation certificates (LGCs). These certificates are then sold to high-energy users who must surrender them to meet their renewable energy obligations. The LRET initially aimed to generate 33,000 gigawatt-hours (GWh) of renewable energy annually by 2020, a target that was successfully met. The scheme will continue to require high-energy users to meet their obligations under the policy until 2030 (https://www.cleanenergyregulator.gov.au/RET).

Small-scale Renewable Energy Scheme (SRES)

The SRES provides financial incentives for individuals and businesses to install small-scale renewable energy systems, such as rooftop solar panels and solar water heaters. Small-scale technology certificates (STCs) are issued based on the expected power generation of these systems and are also traded to meet renewable energy obligations. The SRES is set to continue until 2030, with subsidies decreasing annually until the scheme's end (https://www.cleanenergyregulator.gov.au/RET).

Progress and Current Status

Australia met its LRET target of 33,000 GWh in 2019, more than a year ahead of schedule. Since then, the generation of renewable energy has continued to increase, contributing significantly to the reduction of carbon emissions. By 2022, renewable energy sources accounted for 32% of Australia's total electricity generation, with solar (14%), wind (11%), battery energy storage and pumped hydro (6%) being the primary contributors (https://www.energy.gov.au/data/australian-energy-statistics).

Future Projections

The RET remains a critical driver for renewable energy investments in Australia. Although the initial targets have been met, the scheme continues to support the transition towards a more sustainable and less carbon-intensive energy system. The oversupply of LGCs is expected to reduce their market value over time, yet the continued production of renewable energy will ensure Australia stays on track to meet and exceed its long-term climate goals (https://assets.cleanenergycouncil.org.au/documents/Clean-Energy-Australia-Report-2023.pdf).

2024-25 Federal Budget Contributions

The 2024-25 Federal Budget has reinforced Australia's commitment to renewable energy by allocating $22.7 billion to create clean energy industries, including $2 billion for the

extension of the Hydrogen HeadStart program and $6.7 billion for the Hydrogen Production Tax Incentive. These initiatives aim to accelerate the development of renewable hydrogen, critical minerals value-adding, battery manufacturing, and solar panel manufacturing. The budget also includes a $91 million commitment to develop a clean energy workforce (https://utilitymagazine.com.au/budget-2024-25-pathway-to-a-clean-energy-future).

These ongoing efforts underscore the importance of the RET in fostering a robust renewable energy sector in Australia, promoting both environmental sustainability and economic growth.

4.3. Environmental and Social Benefits

The proposed solar farm will deliver numerous environmental and social benefits to the Bundaberg region and beyond. These benefits align with Australia's commitment to reducing greenhouse gas emissions and promoting sustainable development.

Reduction in Greenhouse Gas Emissions

Renewable energy projects like the proposed solar farm are pivotal in reducing greenhouse gas emissions, thereby helping to mitigate climate change. By displacing fossil fuel-based electricity generation, the solar farm will significantly lower the carbon footprint of the energy sector. This initiative is crucial for Australia to meet its international climate commitments under the Paris Agreement, which aims to limit global warming to well below 2 degrees Celsius above pre-industrial levels (https://www.dfat.gov.au/international-relations/themes/climate-change/climate-change-agreements/paris-agreement).

Improvement in Air Quality

Switching to renewable energy sources such as solar power helps reduce air pollution. Fossil fuel power plants are major contributors to air pollutants, including sulphur dioxide (SO2), nitrogen oxides (NOx), and particulate matter, which can have severe health impacts. Renewable energy generation produces electricity without emitting these harmful pollutants, thus improving air quality and health outcomes for local communities (https://ama.com.au/health-in-the-news/air-pollution).

Water Conservation

Conventional power plants, particularly coal and nuclear, require substantial amounts of water for cooling processes. In contrast, solar photovoltaic systems use minimal water for electricity generation, thereby conserving valuable water resources. This is especially important in regions prone to droughts and water scarcity (https://arena.gov.au/projects/).

Community Engagement and Development

The proposed project is Code Assessable and as such does not require a Public Notification period. However, the Proponent intends to actively involve local neighbours and the surrounding Bullyard community in regular communication sessions and newsletters, commencing prior to construction on site. Refer to Section 5 for detail.

These environmental and social benefits highlight the importance of the proposed solar farm in contributing to a sustainable and resilient energy future for Queensland and Australia.

4.4. Technological Advancements and Innovation

The implementation of the Project will likely spur technological advancements and innovation in the renewable energy sector, including:

- **Grid Integration and Storage Solutions**: Advancing technologies for integrating renewable energy into the grid and developing efficient battery and other storage solutions to manage energy supply and demand fluctuations are critical for addressing intermittency issues and contributing to grid stability (https://arena.gov.au/funding-and-programs/battery-storage/).
- **Efficiency Improvements**: Ongoing research and development efforts aimed at improving the efficiency and cost-effectiveness of renewable energy technologies. (https://www.cleanenergycouncil.org.au/resources/technologies).
- **Smart Grid Technologies:** Deployment of smart grid technologies will improve the stability, reliability and efficiency of the electrical grid (https://www.aemo.com.au/initiatives/major-programs/smart-grid-program).
- **Hybrid Systems:** Combining different renewable energy sources, such as solar, wind, and hydro, will optimise energy production and reliability (https://arena.gov.au/projects/hybrid-systems/).

Conclusion

The Project is well-positioned to support regional development, aligns with government energy and climate change policy objectives, and deliver significant environmental and social benefits. By leveraging the robust framework provided by the Australian Renewable Energy Target and other supportive policies, the Project will contribute to the transition towards a sustainable and resilient energy future for Queensland and Australia.

References (A full list of references for this section appear in Appendix S)

5. COMMUNITY AND STAKEHOLDER ENGAGEMENT

5.1.1 the Proponent's vision is to deliver an innovative, flexible and authentic engagement process with all landowners, government and community stakeholders relevant to a project, throughout the life cycle of the project.

5.1.2 Whilst Public Notification is not required for a Code Assessable development application, in line with its Engagement Strategy the Proponent will:

- Provided information in writing (by both letter and flyer) to the adjoining neighbours and other local Bullyard community members and landowners about the proposed project to include the following:
    i. details as to European Energy and its partners,
    ii. the proposed size and location of the project

iii. its approach to community engagement
iv. its methods of community engagement
v. the date, time and place of its first Community Information Drop-In session ("Community Information Session")
vi. The proposed development area
vii. The proposed traffic routes for the construction vehicles
viii. An indicative construction timeline
ix. A location map for the site
x. Information as to the benefits that will flow from the project into the community
xi. Ongoing operational phase considerations

5.2 The Proponent will continue to engage transparently and widely with local community groups, aboriginal groups, local businesses, industry leaders, government departments, emergency services and state and federal members throughout the life cycle of the facility and:

- Maintain and update the project website as to the details and status of the project.
- Issue community newsletters providing project updates; and
- Hold more community events including 'open days' during the construction of the project.

5.3 The proposed development will assist Bundaberg Regional Council in:

- Delivering reduced greenhouse gas emissions via large scale, reliable renewable energy production
- Providing energy cost savings to the Bundaberg Region over the life of the project, and thereby a degree of comfort to businesses and people considering a move to the region
- Attracting major industries to the Bundaberg State Development Area
- Attracting further investment in renewable energy projects into the future
- Demonstrating innovative and sustainable uses within the Rural Zone
- Positioning Bundaberg as a major centre for innovation in energy and industry in Australia

6. SITE CHARACTERISTICS

6.1 Site Description and Selection

General Overview

The properties consist of three parcels totalling 329.1 hectares: Lot 183 on CK277, Lot 73 on CK281, and Lot 2 on RP868537. Over 90% of the land has been extensively cleared, primarily for cattle grazing for at least 20 years. A Property Map of Assessable Vegetation (PMAV) exists over Lot 73 and Lot 2 (see table 6.1 “Other (Administrative Advice)” and Appendix E – Copies of Title). The site backs onto rural properties (macadamia farms) and adjoin a State Forest adjacent to Gastons Road. Notably, Lot 183 already holds approval for a Renewable Energy Facility (116MW PV).

The site features two road frontages, Gastons Road and Goondoon Road. Gastons Road is primarily gravel-based, extending from Bucca Road to our Lot 183 frontage. Beyond Lot 183, Gastons Road remains unconstructed for the entire 837-meter frontage. A track, parallel to the road reserve, runs within the property past the existing dwelling for the full length of the Gastons Road frontage. Goondoon Road features 483 meters of gravel road frontage. Additionally, the northern frontage of our central parcel, Lot 73, is an unmade, undescribed road reserve 60 meters wide (opposite Lot 2). Access to this parcel is achieved from the adjacent lots within our proposal. The unconstructed road runs east-west between Goondoon Road and Bucca Road.

Infrastructure includes a house on Lot 183, rural sheds, and gravel access driveways, serving as the two main existing site entries to lots 2 & 183. Additionally, Lot 2 features an unused cane train rail line to the north.

A key feature of the site infrastructure is an existing Ergon Energy 66kV overhead transmission line, together with a Sunwater pipeline crossing Lot 183. An Ergon 132kV overhead twin transmission line runs east-west below the southern corner of Lot, avoiding site intersection.

The site's topography is generally gently sloping and suitable for solar panel installation within the proposed development footprint. Notable water features include a sizable dam on Lot 183 and several minor dams and watercourses across the whole site. These watercourses, particularly Splitters Creek, play a crucial role in directing stormwater flow through the site, contributing to its overall hydrology.

Site Selection

In determining the site for this project, critical factors were carefully considered to ensure its suitability for the proposed solar farm. These factors included:

- **Solar Potential:** The region's solar irradiation levels and climatic conditions, including annual rainfall, cloud coverage, and temperature patterns, were assessed to ensure optimal energy generation potential.
- **Grid Connection:** Proximity to a suitable grid connection point with sufficient capacity to accommodate the solar farm's output was crucial in site selection. Solar farms typically need to be located within 5 kilometres of a suitable grid connection point to optimise connectivity and minimise infrastructure costs. The

existing 132kV Ergon Energy overhead transmission lines passing immediately south of lot 183 is a significant asset. The proximity to the Ergon Substation at McLeod's Road, Bullyard, approximately 2km SW of the site, eliminates the need for an on-site substation, resulting in significant cost savings.

- **Land Characteristics:** The site's topography, characterised by gently graded terrain with minimal flood risk and suitable geological conditions for construction and maintenance, was essential.
- **Environmental Impact:** The consideration of ecological values and environmental factors that could be easily addressed.

Upon detailed evaluation, this location emerged as the preferred choice due to its alignment with these criteria. Subsequent assessments refined the development footprint to minimise environmental impact and optimise operational efficiency.

A preliminary layout plan has been developed, serving as a basis for our design team to tailor and optimise according to the specific requirements of this project (see figures 25a, 25b & 25c.

In summary, this site offers a combination of favourable attributes, including solar potential, grid connectivity, land characteristics, and minimal environmental impact, making it an ideal location for our proposed renewable energy project.

6.2. Site Features (Summary Table)

The following table (Table 6.1) provides an overview of the key characteristics of the Bullyard Solar Project Site. A cadastral plan (Smart Map, Qld Globe) of the site and general aerial photograph (BRC) provided in Figure 3. An aerial view of the site including contours is provided in Figure 4.

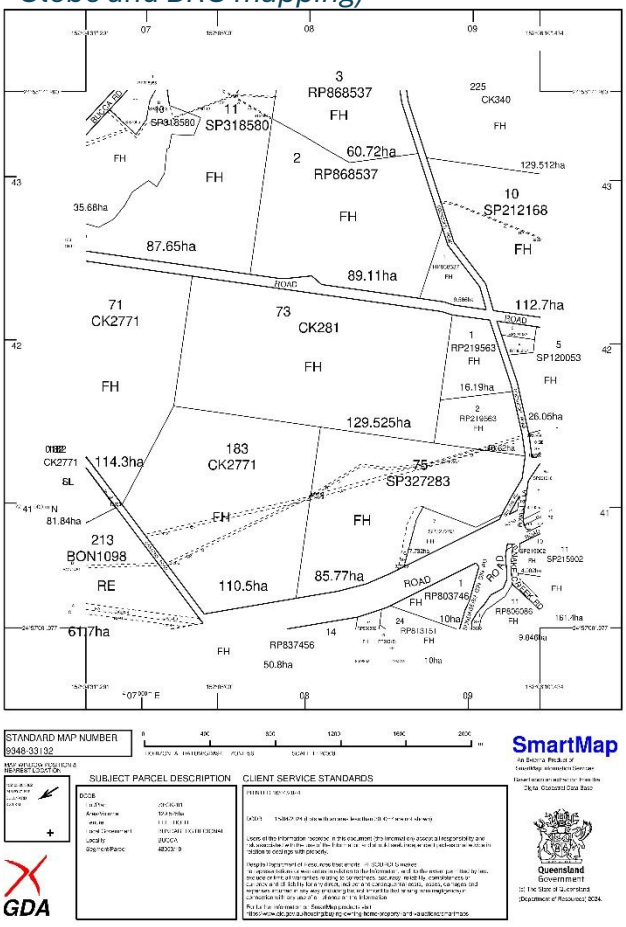
Table 6.1: Site Characteristics and Features (Summary Table)

Characteristics	Commentary
Easements	**Lot 183 CK2771 (Title Re. No.17767067)** 1. EASEMENT IN GROSS No 700839777 burdening the land to The Wide Bay Burnett Regional Electricity Board over Easement A on CK2413 under Section 458 (2) of the Land Act 1994. 2. EASEMENT IN GROSS No 700858632 burdening the land to The Commission of Water Resources over Easement B on CK3266 under Section 458 (2) of the Land Act 1994. (**Sunwater).** **Lot 2 RP868537 (Title Ref. No. 50116231)** 1. STATUTORY EASEMENT General request (Access Right) No. 710041471 **(Cane Rail)**
Leases	**Lot 2 RP868537 (Title Ref. No. 50116231)** 2. LEASE No. 601655730 of part of the land to Gibson& Howes Limited for 99 years commencing 01 July 1942. (**Cane Rail)** 3. Access Right No. 709129190, Bundaberg Sugar Ltd.

	Note: Lease allows the Lessor to cross the rail line (in at least one location known at time of execution) Lease No.601655730, S.6.
Other (Administrative Advice)	**Lot 2 RP868537 & Lot 73 CK281** 1. Vegetation Management Notice No.709687047, under the "Vegetation Management Act 1999" affects both lots 2 & 73. 2. (Lot 2 only) Access Right No. 70912919, Bundaberg Sugar Ltd.
Road Frontages/Connections	Bullyard SP has two main frontages and points of entry: Entry 1 on Goondoon Road to lot 2 RP868537 and Entry 2 on Gastons Road to lot 183 CK2771. The Goondoon Road entry is approximately 2km north of the Gin Gin Road and Goondoon Road intersection. The entry is approximately 33km from Bundaberg Central along the Gin Gin Road and approximately 20km from Gin Gin along the Gin Gin-Bundaberg Road.
Flooding	Flood Property Reports, Appendix H, indicate that neither of the 3 parcels are within the Flood Hazard Area.
Topography	The site has generally gentle sloping topography, with more variation adjacent to existing watercourses. The general landform has the parcels sloping south to north, with site contours ranging from 65.5m AHD to 50m AHD over some 2.8km. See Figure 4 EDC Plan 240002-00-AA Contours (Sourced: BRC mapping) and Figure 8 Steep Land (Source: BRC/DNRM mapping). A large dam resides on our lot 183 with watercourses as shown in Figure 10 (section 6.6).
Culture and Heritage	The site is not listed as a heritage place under SPP mapping. European Energy Australia, intend for a full Indigenous Heritage Management Plan to be completed for the site prior to commencement of construction.
Services	The properties are rural zoned and all services, with the exception of a low voltage electrical connection, must be independently provided for.
Current Land Uses	The properties comprising the site are currently used for small scale grazing and cattle breeding. Abutting Lots 75/SP327283, 71/CK2771, 11/SP318580 and 3/RP868537 are Macadamia Farming interests. The eastern abutting parcels fronting Goondoon Road may be described as hobby farms, Lots 1/RP868537, 1/RP219563 & 2/RP219563. Lot 10 SP212168 on the eastern side of Goondoon Road, opposite our Lot 2, is used for cattle grazing.
Wetland	The site is not identified as essential wetland requiring protection.

Vegetation	Whilst the greater part of the site is clear of any vegetation restrictions, there are some areas to be considered, including: • MSES Wildlife habitat (endangered or vulnerable) • MSES Regulated Vegetation (Category B) • MSES Regulated Vegetation (Category C) • MSES Regulated Vegetation (Category R) • MSES - Regulated vegetation (essential habitat) • MSES - Regulated vegetation (intersecting a watercourse) For details of the above refer to Appendix Q "Ecological Assessment Report".
Wildlife Habitat	There are some areas of MSES Wildlife Habitat (endangered or vulnerable) within the site. The solar farm proposed layout is clear of these areas. Refer to Appendix Q "Ecological Impact Assessment Report" for details.
Visual Amenity	The selected site is isolated with no neighbouring dwellings having direct visual contact with the site.

Figure 3 – Cadastral Plan (Smart Map) and general Aerial overview – (Sources: Qld Globe and BRC mapping)



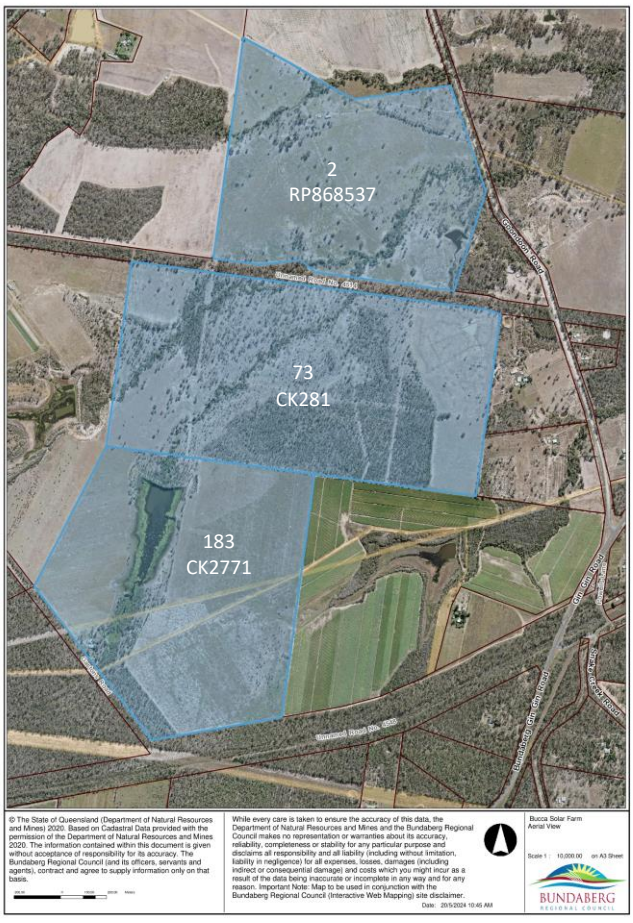
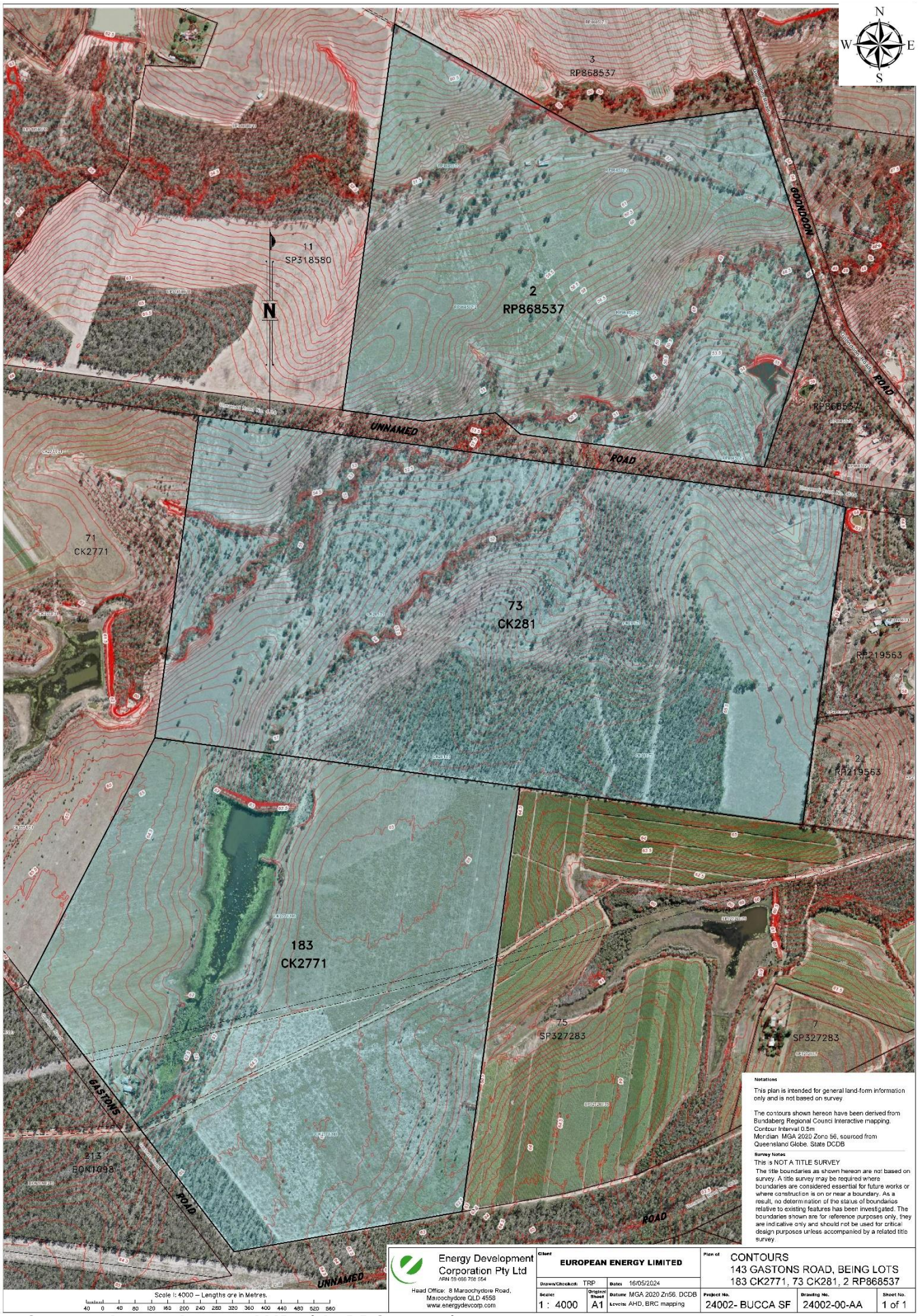


Figure 4 – EDC Plan 24002-00-AA Contours (Sourced: BRC mapping)



Contour Interval 0.5m, AHD vide BRC mapping

Figure 5 – Extract Cane Rail Corridor – (Source: BRC mapping)

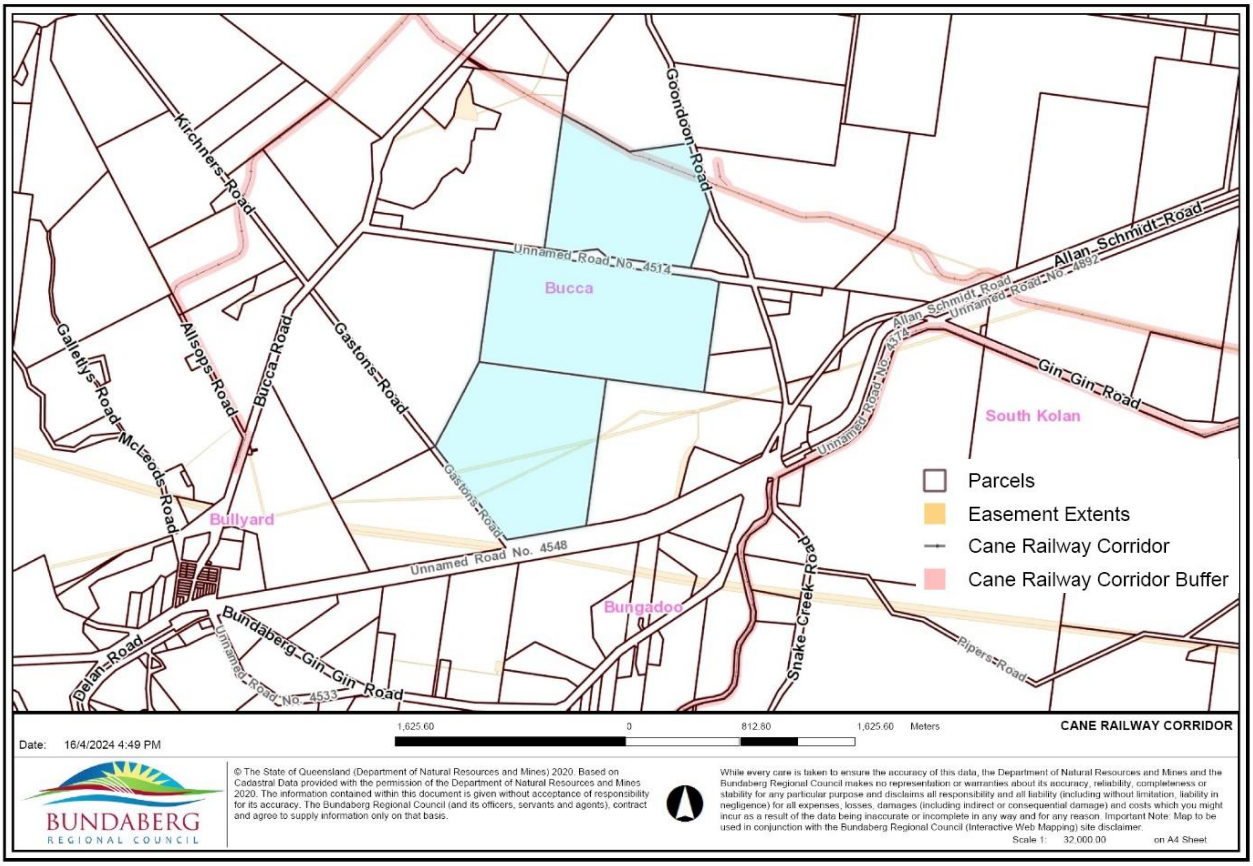


Figure 6 – Extract Major Infrastructure available to site – (Source: SPP mapping)

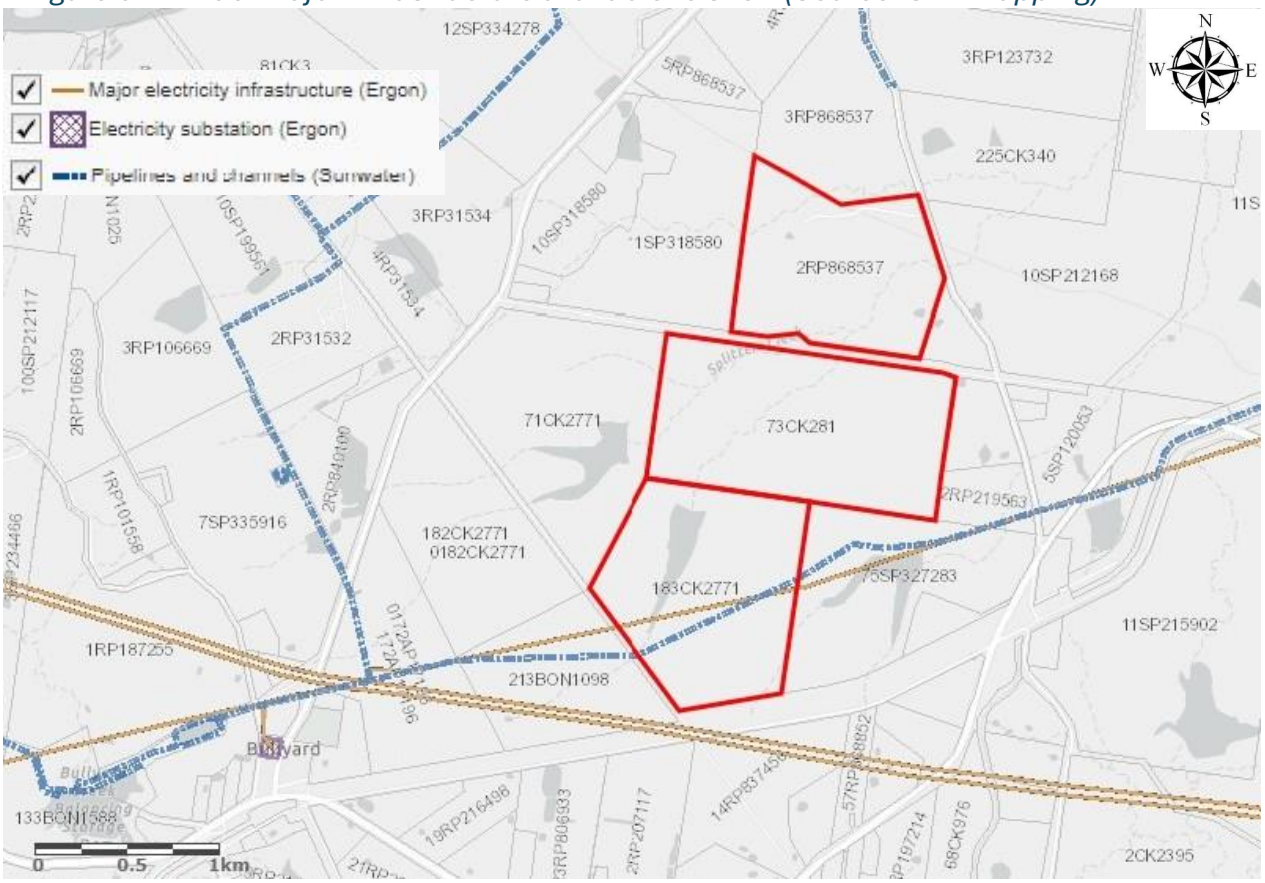


Figure 7 – Extract Existing Powerline Infrastructure – (Source: LUAL)

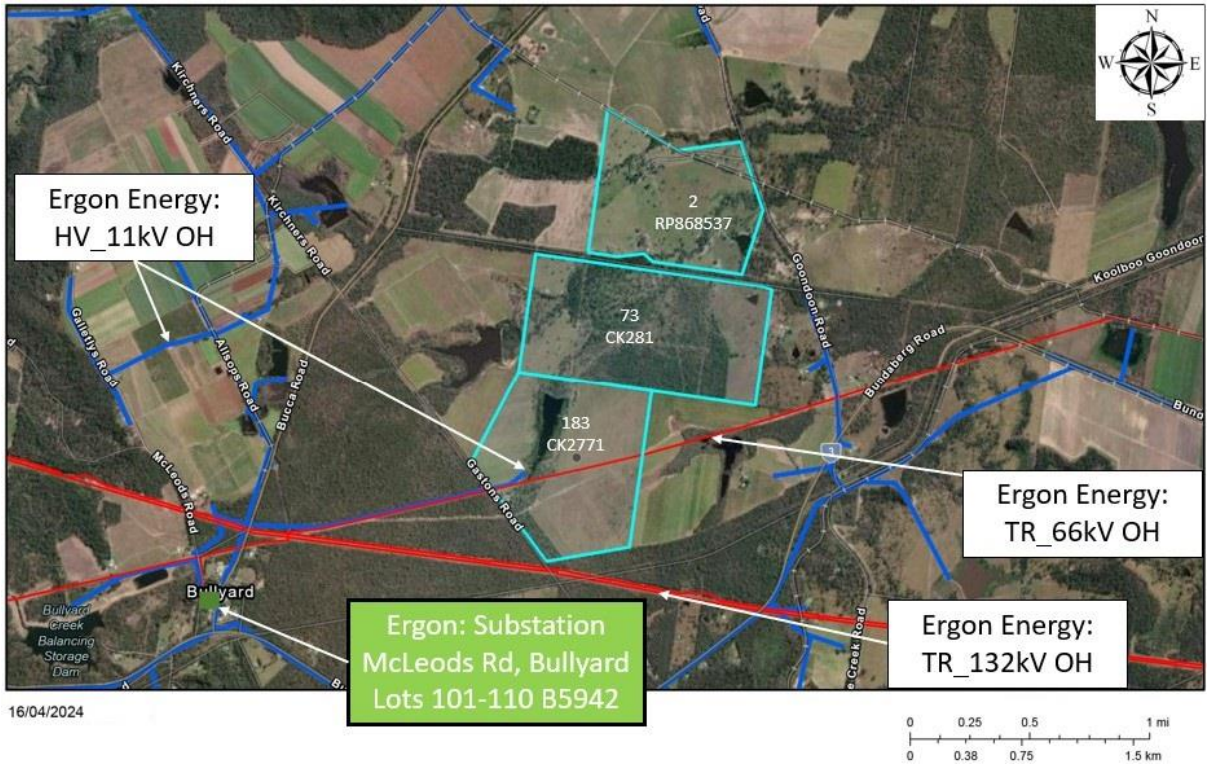
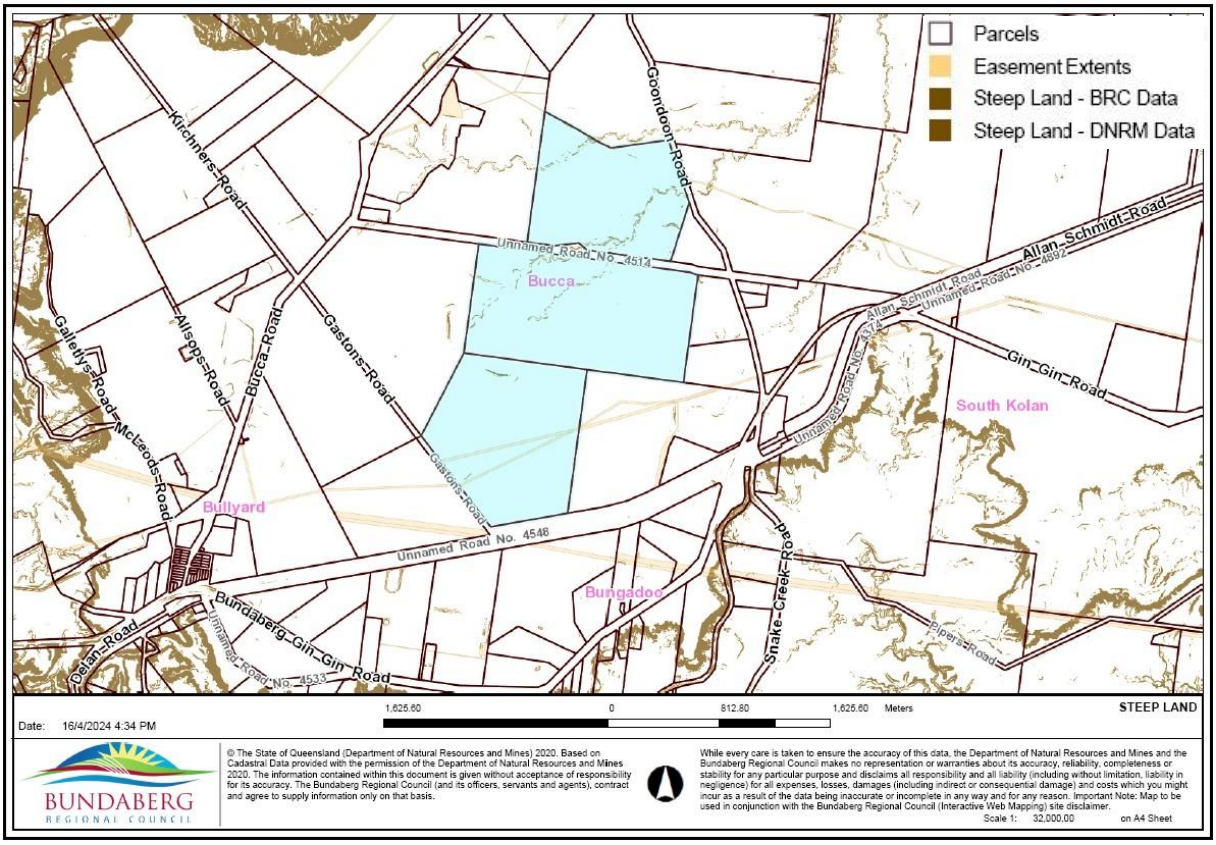


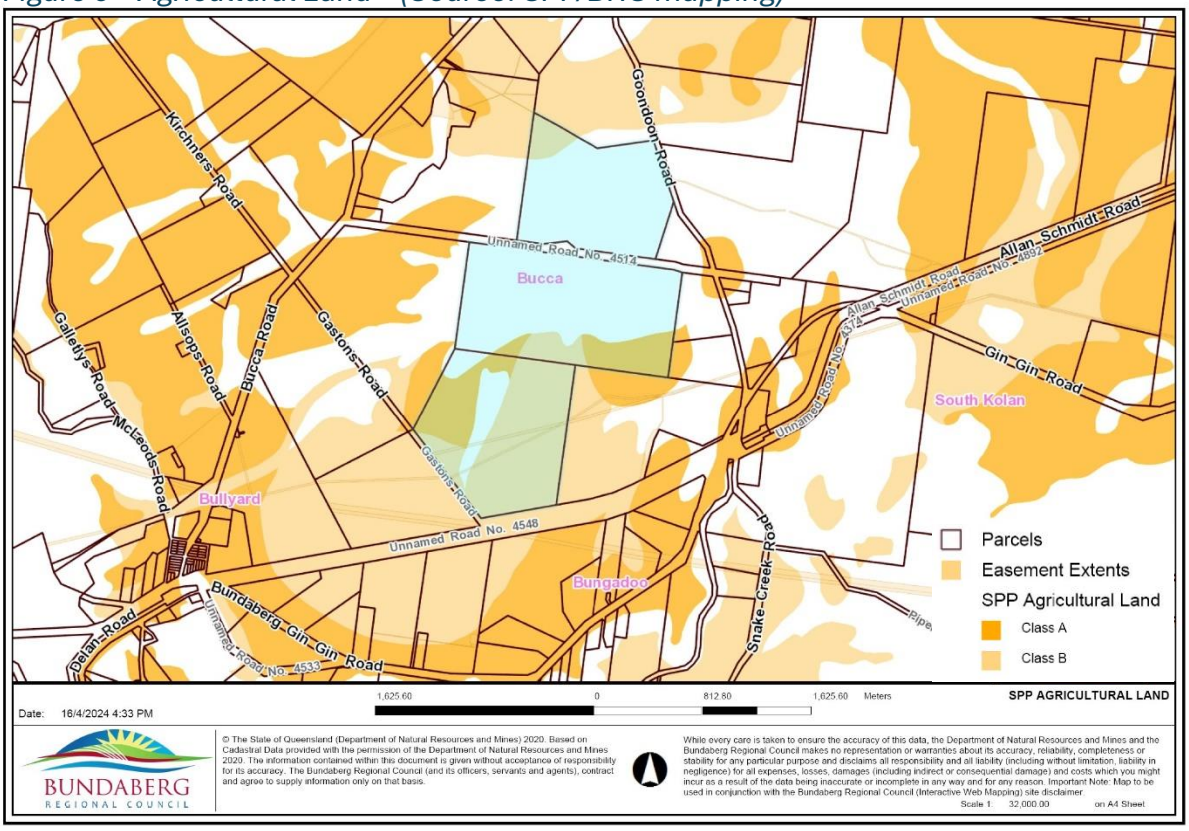
Figure 8 – Steep Land – (Source: BRC/DNRM mapping)



6.2.1. Agricultural Classification

The selected site is partially affected by the State Planning Policy's (SPP) mapping for Classes A or B Agricultural Land, as delineated in Figure 9. The parcels are considered low quality for any agricultural use. The mapping is inconsistent with the current and previous 20-year usage of the sites for cattle grazing. The DNRM land use category for all three parcels is designated as: Cattle-breeding & fattening (Source: BRC interactive mapping, parcel information panel). The construction of a solar farm on this site does not impact agriculture, given the current and historical land use, and the low-grade land quality is inconsistent with high-grade agricultural use. The solar farm's design ensures minimal ground disturbance by using non-invasive installation methods, avoiding extensive excavation for footing support and concrete foundations. This approach

Figure 9 – Agricultural Land – (Source: SPP/BRC mapping)



facilitates easier rehabilitation of the site to its natural state upon cessation of use. The temporary nature of the solar farm, with a decommissioning period of 25-30 years, ensures that the land can be restored. (Refer Appendix J – 6.2.17 Rural Zone, Table 6.2.17.3.1 Benchmarks for assessable development PO).

6.2.2. Landforms on Site (Site Levels, Topography and Vegetation):

The greater part of the site comprises cleared grazing land and sparse vegetation due to the nature of cattle grazing. The site has generally gentle sloping topography, with more variation adjacent to existing watercourses (discussed further Section 6.6). A sizable dam resides on Lot 183, and a number of minor dams and crossing watercourses are noted upon each of the three subject parcels (Figure 4 & 10).

Council "Steep Land" mapping (Figure 8) is concentrated generally around the existing watercourses, while the majority of the site, especially within the development footprint, is considered relatively flat for PV solar panel site development (See also

Section 6.7.3, Steep Land Overlay Code discussion). Contours of the site from Council mapping show that the site drains typically into the catchments of the four featured watercourses described in more detail following (S.6.6) and more particularly as they drain into Splitters Creek. Site contours range from 65.5 metres AHD at Gastons Road to 50 metres AHD at the minor Unmapped watercourse through the northern boundary of the property described as lot 2 on RP868357.
The details can be seen in our extract of Council mapping Contours shown in figure 4, more particularly described as EDC plan 24002-00-AA Contours and as accompanying this proposal.

6.2.3. Proposed Solar Farm Infrastructure and Access:

Potable Water

There is no existing potable water connection on site. The site and surrounding properties rely on rainwater harvesting.

There is no existing sewerage service to the site. A Home Sewerage Treatment Plant (HSTP) system will be required for the site post commissioning to service up to 8 people.

The Operational Works application will present the proposed potable water and wastewater/sewage treatment solutions during the construction phase.

One house (Lot 183), rural sheds, and associated farming structure reside on each of Lots 2 & 183, with all-weather gravel road access to Goondoon Road (existing site access 1) and Gastons Road (existing site entry 2). The Gaston Road house site is serviced by overhead electricity supplied by Ergon Energy. The existing house site is not connected to Council's reticulated services and rely on site sewerage treatment plants.

The Goondoon Road parcel, Lot 2, has an unused cane train rail line shown on BRC mapping as a cane rail corridor; the corridor passes through the northern part of the parcel (see Figure 5).

Ergon Energy and Sunwater, and existing site associated Infrastructure: Lot 183/CK2771 has an existing ERGON Energy 66kV OH Transmission Line covered by a Registered Easement and a Sunwater pipeline both crossing from east to west (Figures 1 & 6). There is no intention at this time to draw down from the Sunwater pipeline for the project, however it's surveyed position will be required to make suitable allowance for its consideration in the final detailed engineering design and proposed construction. The 66kV line feeds into an existing Ergon substation at Bullyard approximately 2 kilometres southwest of the site (Figures 6 & 7). An Ergon Energy 132kV OH Twin Transmission Line runs east-west below the southern corner of Lot 183, crossing Gastons Road (Figure 7).

The project aims to leverage the existing 132kV line under agreement with Ergon Energy.

6.3. Land Tenure

The Certificates of Title show the registered freehold title owners as: Refer Appendix E for Titles

- Lot 183 CK2771 (Title Ref: 17767067) – Trifecta Estate Pty Ltd
- Lot 73 CK281 (Title Ref: 14820196) - Luinn Pty Ltd
- Lot 2 RP868537 (Title Ref: 50116231) - Luinn Pty Ltd

6.4. Surrounding Land Uses

- The properties, comprising the site, are currently used for small scale grazing and cattle breeding.
- Abutting Lots 75/SP327283 (east), 71/CK2771 (west), 11/SP318580 (west) and 3/RP868537 (north) are Macadamia Farming interests.
- The eastern abutting parcels fronting Goondoon Road may be described as hobby farms; Lots 1/RP868537, 1/RP219563 & 2/RP219563.
- Lot 10 SP212168 on the eastern side of Goondoon Road, opposite our Lot 2, is used for cattle grazing.
- The southern road frontage Gastons Road is unconstructed and the opposite parcel, Lot 213 BON1098, is Reserve.

6.5. Transport Network & Access

6.5.1. Site Access and Transport Routes

The proposed Bullyard Solar Project will utilise existing transportation infrastructure to facilitate both the construction and operational phases of the project. This includes the use of B-double trucking routes 25/26 along the Gin Gin-Bundaberg Road from the Gin Gin direction, intersecting with the Goondoon Road. The intersection with Goondoon Road is approximately 1.6 kilometres south of the Goondoon Road frontage of Lot 2 /RP868537, with a further 370 meters north to the proposed Goondoon Road site entry. This intersection will provide heavy vehicle access into the site's precinct during construction. The transport route will continue through to the end of Goondoon Road, left turn into Bucca Road and a left turn into Gastons Road; this aspect of the is intended primarily for the delivery of transformers to this part of the site to avoid heavy vehicle deliveries passing over limited internal traffic routes not intended for that purpose. (Refer Appendix P – RMA - TRAFFIC IMPACT ASSESSMENT REPORT)

6.5.2. Construction Phase Traffic Impact

During the construction phase, the site will experience an increase in traffic volume primarily due to the delivery of construction materials and equipment. It is anticipated that the construction phase will generate up to 8 heavy vehicle trips per day, including B Double/Semi-trailers for standard deliveries delivering large components such as transformers and switch rooms, deliveries spread across shift period over 7 months and multi-axle platform trailers on average, 10 deliveries per day spread across the shift, up to a peak of 20 for certain days – all deliveries coming from the west from Gin Gin. Additionally, up to 20 construction vehicles will be active on-site daily. The construction workforce, estimated to peak at around 300 workers, will predominantly arrive and depart outside of peak traffic hours, specifically between 6am and 6pm from Monday to Saturday; An average of 100 workers/day for majority of the construction program.

To accommodate the peak workforce, the client has advised, based on their construction experience, that car-pooling and shared transport arrangements are expected to reduce the total number of vehicles to approximately 150 maximum. The proposed parking area shown on the layout plan (fig.25) accommodates up to 200 vehicles, providing 50 contingency spaces. Offload and pickup hardstand areas are provided in the logistics area in the north and a second in the southern part of the site near the existing house in Lot 183, these will accommodate B-Doubles and rigid body trucks as necessary.

The increase in traffic volume on the Gin Gin – Bundaberg Road and Goondoon Road is expected to be within the capacity of these roads. The existing road network has been assessed and found capable of handling the additional load without significant upgrades. A dilapidation inspection and report will be completed prior to commencement of construction, with a post-construction survey to identify any required rectifications to road structures.

6.5.3. Operational Phase Traffic Impact

Once operational, the solar farm will have minimal impact on local traffic volumes. The facility will operate with a minimal staff presence on average of three to five staff on any given day, and generally requiring only periodic visits for a site maintenance team. It is estimated that there will be no more than two maintenance visits per month, involving light utility vehicles.

6.5.4. Traffic Management Plan/Construction

A comprehensive Traffic Management Plan (TMP) will be developed and implemented to manage traffic flow and ensure safety during the construction phase. This TMP will include measures such as:

- Scheduling heavy vehicle movements outside of peak traffic hours to minimise disruption.
- Ensuring that all vehicles enter and exit the site in a forward gear without crossing the road centreline.
- Implementing traffic control measures at critical points, such as narrow sections of the access roads.

The above TMP will form part of the Proponent's detailed Operational Works application for proposed construction phase and will encompass recommendations made in the Traffic Impact Assessment report.

6.5.5. Parking and Internal Access

The development provides ample on-site parking and manoeuvring areas to meet the needs of both the construction and operational phases. Parking is designed to accommodate both construction vehicles and personnel vehicles, with additional capacity included to address potential peak demands, as discussed earlier in Section 6.5.2.

Internal access roads will be constructed to all-weather standards, allowing for year-round access and minimising disturbance to the surrounding environment. The internal road network includes unsealed tracks between solar arrays for maintaining infrastructure. These roads also provide essential access for the delivery of solar array panels and stand infrastructure. Larger items, such as transformers, will be delivered via Gastons Road due to their size and weight, as outlined in Section 6.5.1, to avoid using internal routes not designed for heavy vehicles. The final layout and treatment of the internal road network have been critiqued by ecological experts to ensure compliance with the Biodiversity Areas Overlay Code and minimise impacts on Matters of State Environmental Significance (MSES).

Existing farm roads have been utilised wherever possible to reduce the need for new road alignments, and necessary watercourse and MSES area crossings have been designed in accordance with the General Treatment for Watercourse and Mapped Vegetation Crossings (Appendix W). While this document serves as a guiding

framework, the final designs are developed to comply with statutory processes outlined in the Planning Regulation 2017 and will be reviewed with SARA where vegetation removal or crossings impact MSES areas.
The layout plan (Figures 25a, 25b, and 25c) provides further details on the parking and internal road layout, which connects all parts of the solar array. Necessary ingress into watercourse buffers and MSES-protected areas occurs at designated crossings and fire breaks, designed in accordance with the General Treatment for Watercourse and Mapped Vegetation Crossings (Appendix W), which outlines guidelines for environmental management during the operational works phase, ensuring compliance with regulatory requirements.

6.5.6. Safety and Road Use

Safety is a key consideration in the transport planning for the Bullyard Solar Project. The selected transport routes and internal road designs will ensure that the additional traffic does not compromise the efficiency or safety of the existing road network. Measures will be taken to monitor and mitigate any potential risks, ensuring the safety of both construction personnel and the general public.

6.6. Watercourses & Drainage

Four watercourses (figures 10 & 11a) hold significance within the properties due to their positioning and role in the site's hydrology. These watercourses fall within Drainage Division 1 North East Coast, Drainage Basin 136 Burnett, and Drainage Basin Sub-area 1360 Lower Burnett River.

A. The main watercourse, Splitters Creek, flows through lots 73 and 2, defined as a Watercourse under the Water Act 2000.

B. **a)** A second significant watercourse runs fairly central through lots 183 and 73, connecting to Splitters Creek in the southern end of lot 2.
b) The third watercourse crosses the southeast corner of lot 183 at Gastons Road, flows into the dam on the eastern parcel (lot 75 SP327283), and then continues downstream to join Splitters Creek, some 4.8km to the north-east of lot 183. This drainage catchment includes our south east site corner, part of the adjacent lot 75, and parts of the southern unmade road and lots. These two drainage lines are defined as a Drainage-Features under the Water Act 2000.

C. The fourth watercourse of minor significance, passes diagonally from west to east across the north-western part of lot 2. Described as an Unmapped watercourse within Queensland Globe mapping; it eventually joins with Splitters Creek north-east of lot 2 on the eastern side of Goondoon Road.

Additionally, there are other smaller water features present on the site, although less significant in scale compared to the main four mentioned above. These water features, while not as prominent, still contribute to the overall hydrological dynamics and environmental characteristics of the area. (See Figure 10).

These water features play a vital role in directing stormwater flows through the site, ultimately discharging into Splitters Creek.

In summary, the watercourses, site levels, and topographical characteristics of Lots 183, 73, and 2 are crucial for understanding the terrain and hydrology necessary for the planning and development of the renewable energy project.

Figure 10 – Extract Watercourses – (Source: Queensland Globe)

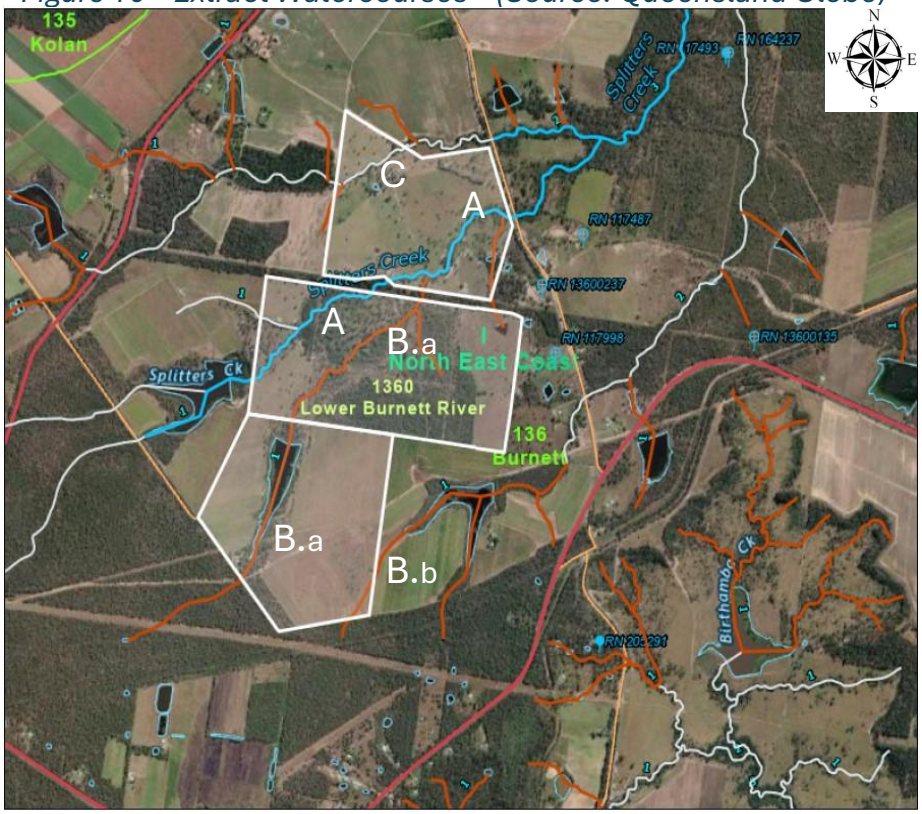
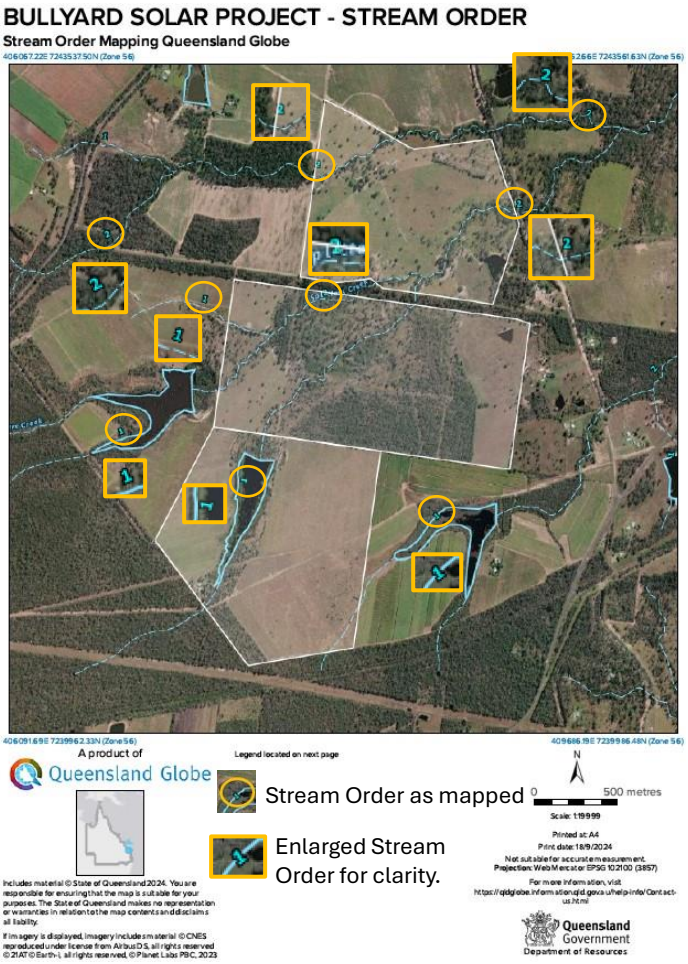


Figure 11a – Stream Order Mapping Queensland Globe



Biodiversity Areas Overlay Code AO9.1, the buffer requirements are specified in the editor's note:

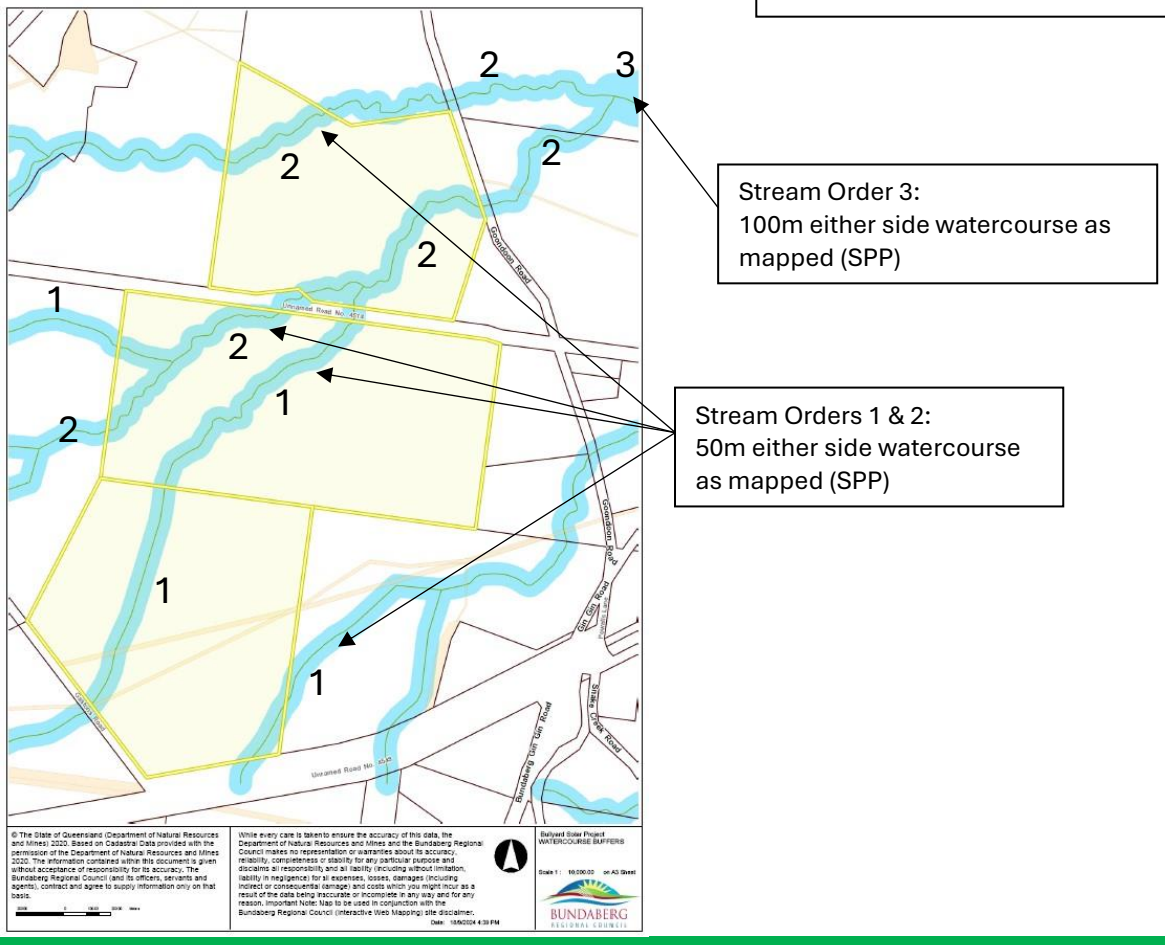
"Editor's note—watercourse buffer distances on either side of a mapped watercourse are 50m in an urban or rural residential zoned area or for a stream order 1 or 2 and 100m elsewhere."

- A 50m buffer on either side is required for watercourses in an urban or rural residential zoned area **or for Stream Orders 1 or 2**.
- The SPP mapping already reflects these requirements showing 50m buffer either side, suggesting the correct application of buffer zones across the development land.
- The **Stream Order** has been made available in the **Queensland Globe** "Layer>Inland Waters>Water Feature>Watercourse Stream Order"

Definition of Stream Order (Strahler System):

- **Order 1:** A stream with no tributaries.
- **Order 2:** Formed by the confluence of two order 1 streams.
- **Order 3:** Formed by the confluence of two order 2 streams.

Figure 11b – MSES Watercourse buffer – (Source: BRC)



6.7.1. Ecological Impact Assessment

An Ecological Impact Assessment (Appendix Q – Review of Environmental Factors Report – Redleaf Group) has been conducted by Redleaf Group to identify and mitigate potential impacts on the local ecosystem. The assessment includes a comprehensive survey of flora and fauna, identification of threatened species, and evaluation of habitat conditions. Mitigation measures will include maintaining buffer zones, implementing erosion and sediment control plans, and using native plantings for landscaping.

Redleaf Group were complimentary of the Proponent for the sensitive ecological design considerations adopted when creating the solar array layout. Ground truthing by Redleaf confirmed that the design adopted effectively works around designated protected vegetation and habitat, minimising any possible disturbance to native fauna or flora.

A summary of the fundings of this assessment are presented in Section 8 of this report.

A full copy of the field assessment results are contained within the Ecological Impact Assessment in Appendix Q.

6.7.2. Bushfire Hazard Assessment and Management Considerations

Bushfire Hazard identified in (BRC/SPP) mapping as: No Bushfire Hazard, Medium Potential Bushfire Intensity with a very small part being High Potential Bushfire Intensity (approximately 4,400sqm).

Refer Figure 12 – Bushfire Hazard (page 32) and Figure 21 (page 80) – Bushfire Hazard with Proposed Solar Array Layout

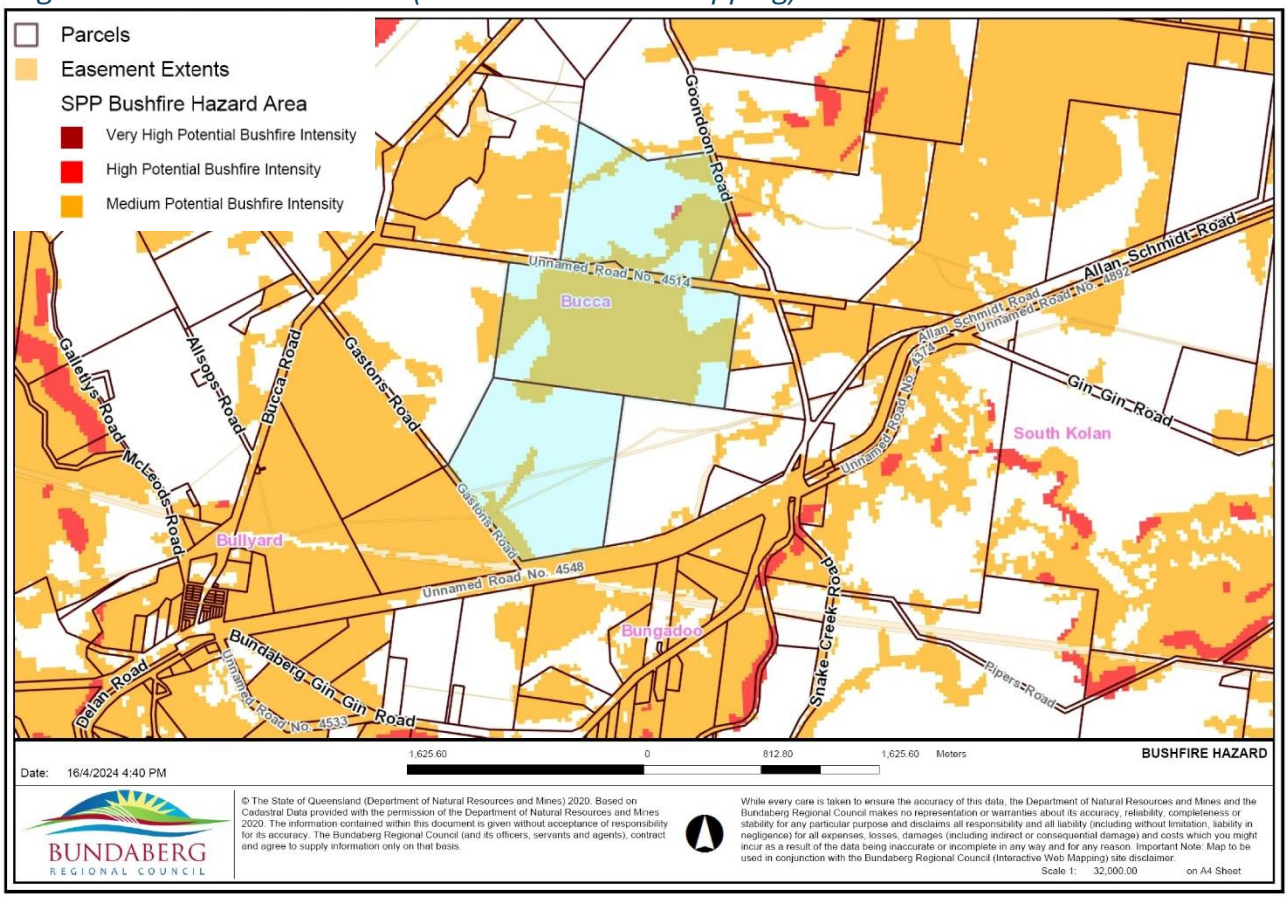
Site inspection suggest the smaller High Intensity Bushfire potential of 4,400sqm may have been misidentified given its location, terrain and sparse vegetation not too dissimilar from the immediately abutting no hazard and Medium Intensity mapping.

The solar farm layout has been designed to generally not disturb any of the Medium potential bushfire intensity areas present and the High Potential Bushfire Intensity is not within the development footprint, any overlap of Medium Intensity will be addressed and mitigated by preparation and adherence to a Fire Management Plan to be prepared and submitted with the Operational Works Application prior to commencement of construction on site.

After examination of the level of Bushfire Hazard it was determined to have minimal impact. Preparation of a Bushfire Hazard Assessment and the Bushfire Hazard overlay code was not considered relevant. Noting also that these were not required in the previous application 522.2018.108.1, in particular the *“The proposal is not assessable against the Bushfire hazard overlay code as the proposal is part of the ‘other activities’ activity group”*. A Fire Management plan prepared at the time of construction is anticipated to be a condition of the approval.

Although BRC/SPP mapping indicates areas of bushfire hazard, the solar farm layout ensures no disturbance to the High Potential Intensity zone, and any overlaps with Medium Intensity areas will be effectively managed through a comprehensive Fire Management Plan. The combination of these planned mitigation measures and the site’s classification under "other activities" aligns with the scheme's provisions for utility installations. This approach supports the strategic importance of the development and provides reasonable justification for exemption from the Bushfire Hazard Overlay Code.

Figure 12 – Bushfire Hazard – (Source: SPP/BRC mapping)



6.7.3. Steep Land Overlay Code discussion (AO1)

Steep Land Overlay Code and Watercourse Crossings:

Brief Overview AO1: The Steep Land Overlay Code PO1/AO1 seeks to ensure that development in areas with significant slopes is carefully managed to prevent landslide hazards, erosion, instability, and environmental degradation. It requires that developments avoid impacts on steep land wherever possible and, where unavoidable, include measures such as slope stabilisation, minimal changes to natural landforms, and compliance with geo-technical assessments to maintain the integrity of the site.

Context and Response:

- The internal roads within the development will intersect the steep land overlay only at watercourse crossings. These crossings will utilise existing farm roads, which have experienced degradation due to existing farm vehicle use (including light trucks and 4x4 vehicles). As part of the project, we will formalise and improve these crossings to enhance stability and reduce erosion, ensuring long-term durability and environmental protection.
- Through the **General Treatment for Watercourse and Mapped Vegetation Crossings Appendix W, Section 2 Watercourse Crossings through Steep Land Overlay**, the project will provide significant improvements to the steep land areas by implementing measures such as:

  - **Erosion and sediment control**, including the use of riprap and other stabilisation techniques to reduce runoff and protect the surrounding environment.
  - **Rehabilitation of degraded areas**, ensuring that crossings are better protected against landslide risks and maintain long-term functionality.
  - **Vegetation restoration** and reinforcement to further stabilise slopes and reduce the impact of vehicular movement on steep land.
- **A site-specific geotechnical assessment** will be conducted during the operational works phase, confirming that the stability of the site and the infrastructure will be maintained throughout the construction and operational life of the project. This proactive approach ensures compliance with AO1 of the Steep Land Overlay Code and will provide an overall improvement in the condition of steep land areas within the development.
- The **General Treatment document** notes that the existing farm roads intersecting steep land have likely experienced degradation, particularly due to vehicle use, and may no longer exhibit their natural steepness. As part of the project, formalising these crossings will include restoring the land's natural stability while reducing long-term erosion.
- The project will ensure that these improvements are not only structural but also environmental, by restoring degraded slopes to their natural condition wherever possible, reinforcing them through vegetation and other stabilisation techniques to prevent further degradation.

By formalising these crossings and addressing potential issues from past degradation, the project contributes positively to the site's environmental sustainability, ensuring that steep land is better protected, more stable, and less prone to erosion or landslide risk.

7. INFRASTRUCTURE DEVELOPMENT

7.1. Overview

The infrastructure development for the Bullyard Solar Project includes the installation of photovoltaic panels and inverters. The design and layout of the infrastructure have been planned to minimise environmental impacts and integrate with the existing landscape. Key components of the infrastructure development include:

- Access Roads: Construction of new site access entrance for heavy vehicles for construction purposes to be created at the Goondoon Road entrance (Lot 2/RP868537) with regular inspection and maintenance of the existing road to facilitate construction and operational traffic. The property entrance to Lot 183/CK2771 on Gastons Road to be improved to allow for regular light truck and vehicle traffic during construction and operations. Gastons Road will undergo further work prior to the delivery of the transformers for the substation to be located on the corner of Lot 183/CK2771(circa Q2 2026). Details will form part of the Operational Works application.
- Solar Panels: Installation of circa 208,000 photovoltaic panels on fixed-tilt racks to maximize solar exposure and energy generation.
- Inverters: Installation of circa 18 inverters to convert DC power generated by the solar panels to AC power, and substation and switching gear to step up the voltage for transmission to the Ergon Energy power structure.
- Fencing and Security: Installation of perimeter fencing and security measures to protect the site and ensure public safety.

- Landscaping: Implementation of landscaping plans to mitigate visual impacts and enhance biodiversity.

The application seeks approval from the Assessment Manager (Bundaberg Regional Council) for:

- **Development Permit for Material Change of Use for a Renewable Energy Facility (Solar PV Farm)**

The development application is seeking approval for a Solar Farm facility of initially 125 MWdc in capacity. The solar array is expected to have a 30 year life span, with the option to extend subject to permitting and commercial considerations. The location of the solar field has been designed so as to not require the removal of any regulated native vegetation located on site or habitat for threatened species. The facility is also designed so as not to not impede on any of the natural waterways mapped across the site.
(Appendix D provides the indicative "Development Plan" for the project.)

7.2. Proposed Solar Array and Plant

Key system metrics for the Project:

- Solar Farm Power Rating 125MWp
- Internal DC system voltage 1500V
- Internal AC voltage 66kV
- Grid voltage at point of interconnection 132kV
- Number of Modules (approximately) 208,000
- Number of inverter stations (approximately) 18

7.2.1. Modules

The primary components of the solar farm are the photovoltaic modules. The modules convert incident photons into electric current and are the principal power generating part of the facility.

The final selection of modules will likely be Longi LR7-72HGD 585-620M modules as presented in Appendix T – Solar Panel Modules. Longi is a Tier 1 panel manufacturer.

7.2.2. Reticulation (Internal Cabling)

DC Cabling
The DC cabling will run along the back of the modules/array in cable trays or fixings flush against the modules. DC cabling from each string will run to a combiner box which will contain fuses/circuit breakers. The combiner box will then have a consolidated run of DC cabling back to the block power station. This cable run will most likely be via buried underground cabling. The final buried cable depth will be subject to detailed design; however, the likely buried depth is 600mm. All DC cabling is anticipated to be between 4mm and 10mm thick. The maximum DC system voltage will be 1500V.
AC Cabling
The AC cabling will run between the power stations and the onsite substation. The internal AC voltage is likely 33kV, however subject to final design the voltage may also be 11kV or 22kV.

AC cabling will be buried, with all junctions and turning points clearly marked with HV markers. Depth of cabling will be determined during detailed design but is indicatively 900mm.
AC cable thickness will be subject to final design, but indicatively up to 240mm.

7.2.3. Power Conversion Stations (PCS)

The project will utilise centralised inverters and power stations for the collection, inversion and stepping up of the output 1500V DC electricity from the module strings to the 33kV AC electricity for reticulation to the substation.
The preliminary design consists of 5.5MVA power station blocks. Each power station contains two inverters and a single MV transformer. Each power station container will also contain the tracker NCU, SCADA system and other components which form the information nervous system of the solar farm.
Below is an indicative power station solution from SMA. This configuration consists of two 2750CE inverters and a single 5.5MVA MV Transformer. This containerised solution is mounted on a concrete pad or piles.
Each power station will be interlinked via a buried 33kV circuit for reticulation to the solar farm substation and switchyard.

7.2.4. Substation & Switchyard

The project will facilitate interconnection of the solar farm into the NEM via a new substation and switchyard to be built on site on Lot 183/CK2771, adjoining the two Ergon 132kV lines in the south east corner of the lot. The substation and switchyard design is currently being developed with Ergon (EQL) however, the indicative footprint will be in the order of 60m x 60m
Each of the site power conversion stations will be interlinked via the underground MV cables back to the onsite substation and switchyard for connection to the existing Powerlink feeder F819 (Wurdong to Gin Gin). The incoming MV feeders will terminate within 33kV switchgear at the substation.
A transformer will be utilised within the on-site substation to step this internal 33kV Medium Voltage to the point of interconnection voltage of 275kV. The transformer will be the largest single piece of plant on the site. The likely final transformer design will be an oil filled unit, and appropriate bunding will be in place to contain the oil in the unlikely event of a leak.

7.2.5. Site Entry & Gates

Two site entries are proposed:
Goondoon Road to Lot 2/RP868654 – the main entry point for the construction phase with all heavy vehicle access and putdown accommodated on Lot 2
Gastons Road to lot 183/CK2771 for earthmoving machinery, light truck and small vehicle access during construction phase and operational staff vehicles pots commissioning
Both entrances will be gated in keeping with the security fencing to be constructed around the perimeter of all three lots.

7.2.6. Ancillary Services

Water Supply and Sewer

During the construction and operational phases, the development will not require any connection to sewer mains. Rain water harvesting will be used for potable supplies where

possible. A Portable Hire Toilet service will be used during the construction phase. A Home Sewerage Treatment Plant (HSTP) servicing up to eight people will be used during the operational phase. Fresh water may need to be trucked in during drought periods. Dust suppression during construction will be detailed in the Operational Works application for the construction phase. It is noted that Lot 183/CK2771 possesses a large rural dam

Electricity and Telecommunications

Both domestic electrical and telecommunications infrastructure are available on this site (Lot 183 residence). It is not proposed to that the development will require connection to further electrical services.

Control Building

The control building (post commissioning) footprint will be approximately 15m x 30m and stand approximately 3 metres high depending on final design and plant requirements. The control building will contain both the site office and warehouse/workshop facilities and will consist of a steel structure like that shown below in figure X.
The site office will contain:

- IT systems and primary interface with the site SCADA system.
- Staff amenities including bathrooms and kitchen.
- First aids kits etc.
- Potable water supply
    i. Exact volume to be determined in collaboration with firefighting requirements
    ii. Anticipated somewhere in the range of 20,000L, filled via rainwater and delivered water
- Static water supply for firefighting/bushfire management (may be part of above water supply)
- Home sewage treatment plant (HSTP)
- Control building power will be provided either from a direct connection to the local distribution network (11kV or SWER) or via the auxiliary supply of the HV transformer.
- Permanent parking facilities will be provided adjacent to the control building to facilitate up to 10 cars and light vehicles on site. The parking ground cover will be formed of crushed granite or similar.
- Adequate rubbish waste/facilities will be established via on site skip bin, which will be emptied weekly or as required. No permanent or long-term storage of rubbish or waste will be on site.

The warehouse/workshop facilities will include:

- O&M workshop facilities.
- Spare parts.
- First aid kit, safety equipment and personnel protective equipment.
- Emergency solar blankets and firefighting equipment.

Meteorological stations

The solar farm will have several spatially distinct metrological stations on site to monitor local climatic conditions and for performance monitoring.
The metrological stations will monitor:

- Horizontal irradiation

- Incident irradiation
- Diffuse irradiation
- Solar radiation flux density
- Wind speed
- Rainfall
- Ambient temperature
- Reference cell temperature.

All data streams will be collected and retained by the Solar Farm SCADA system. Additional anemometers will be situated around the site perimeter to measure prevalent and gusting wind speeds. In the event of extreme wind events, the SCADA system will instruct the trackers to move into stow position to avoid system damage.

7.3. Construction

7.3.1. Construction Stages

Construction of RBSF is expected to take between 18 and 24 months. An indicative timeline is given in Section 0 showing the main stages of construction. Note that many stages occur in parallel with different activities taking place on different parts of the site at the same time. The main construction stages are:

- Detailed design of the solar farm and submission of the Operational Works Application for approval
- Procurement of all necessary equipment and materials, and the awarding of sub-contracts for the different packages of work. Procurement on longer lead items will continue throughout the project.
- Early works including preliminary civil works, access road construction, fencing and the establishment of a construction compound with temporary offices, facilities and a laydown area for delivered equipment and materials.
- Installation of steel posts in the ground to form the foundation of the solar tracking system. Posts are normally driven directly into the ground (piled) without the use of concrete.
- Installation of electrical and communications cables in underground trenches that run from the combiner boxes to power conversion stations and the onsite substation.
- Panel mounting racks assembly which involves the installation of frames on top of the vertical steel posts. Solar modules are then mounted on the frames using brackets and wired to ‘combiner boxes’ located at the end of the panel arrays.
- Installation of power conversion stations on piles or concrete pads.
- Construction of the onsite substation including transformers, switchgear, control building, backup diesel generator, fencing and lighting protection. The operations and maintenance building may be installed adjacent to the substation or another part of the site.
- Commissioning of the solar farm which includes testing of all equipment and commissioning tests required under the electrical connection agreement.

Images are provided below of actual projects the Proponent is currently constructing in Victoria.

Figure 13. Indicative early works and site establishment

Figure 14. Mounting post insertion

Figure 15. Mounting posts ready for frame assembly

Figure 16. Installation of trenches for cabling with indicative boundary security fencing

Figure 17. Indicative assembled solar array

Figure 18. Power Conversion Station pad preparation

Figure 19. Indicative substation under construction

7.3.2. Indicative Construction Timeframe

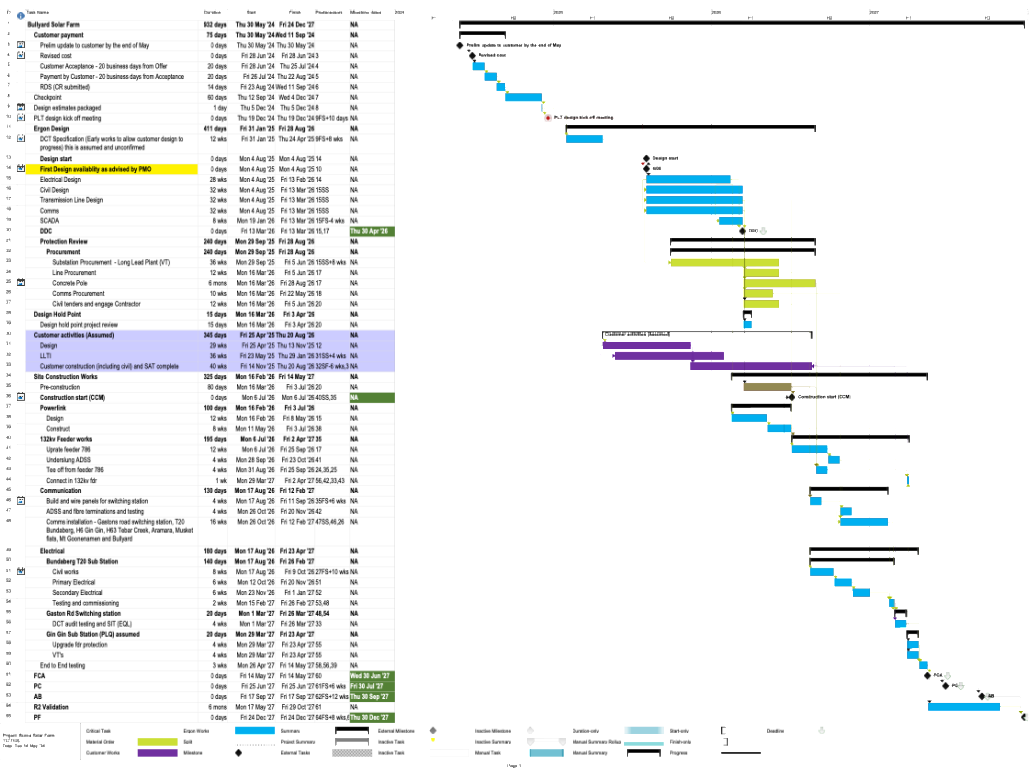


Figure 19: Proposed construction phase is from Q2 2025 to Q2 2027.

Delivery of equipment and materials will be made throughout the construction period with the peak of deliveries commencing just prior to piling (circa Q4 2025 through Q1 2026) and finishing at the start of commissioning (Q4 2026). More details on deliveries can be found within the Traffic Assessment.

Ground disturbance and earthworks during construction would be kept to a minimum through the selected ground levelling in planned array areas only. Ground cover will be maintained where possible and disturbed areas will be rehabilitated post construction.

7.3.3. Hours of Construction

Most construction work, including piling, trenching and deliveries, will be undertaken during standard construction hours. Planned Construction hours are:
Monday to Friday: 6:30am to 5:00pm
Saturday: 7.00am to 1.00pm

The following construction activities may be undertaken outside of standard construction hours:

- Frame and assembly and panel module installation using hand tools
- Distribution of materials within the site
- Commissioning and testing activities; and
- Other quiet works including survey work, office work and general mechanical assembly.

Exceptions to Normal Construction Work Hours
Given the proximity to neighbouring residential buildings along the eastern boundary of Lot 73/CK281 (closest is 150 metres), construction work hours will be:
Monday to Friday: 7.00am to 5.00pm
Saturday: 8.00am to 1.00pm
Monday to Friday and will be between 7.30am and 1.00pm on Saturdays for this section of the solar farm.

7.4. Operational Hours

7.4.1. Operation hours and days per year

The solar farm will be in operation 365 days a year during daylight hours. Operation and maintenance (O&M) activities may occasionally extend beyond daylight hours for corrective and preventative maintenance activities.

Standard Operating Hours for the solar farm are anticipated as:
Monday to Friday: 6.00am to 6.00pm
Weekends: 7.00am to 5.00pm

Potentially noise generating outdoor scheduled maintenance activities will be limited to the hours of 8.00am to 5.00pm, and wherever possible, Monday to Friday.

The site will also be remotely monitored 24 hours a day, every day of the year.

7.4.2. Operational workforce size

The operational workforce will consist of approximately 3-5 full time positions, and up to 5-10 full time positions during the initial defect liability period of operation (estimated 2 years).

The workforce is likely to include a site manager, high voltage electrician and maintenance staff. There will also be periodic asset management staff and contractors.

7.4.3. Scheduled Maintenance tasks

Planned maintenance activities will likely include:

- Weekly and monthly inspections (electrical, civil and environmental)
- Vegetation management (in line with various management plans)
- Cleaning activities (modules, meteorological station etc.)
- Other activities as defined in the O&M management plans.

Corrective maintenance activities will likely include:

- Testing and replacing of faulty plant components (modules, fuses etc.)
- Any other corrective actions within O&M scope.

8 ENVIRONMENTAL IMPACT ASSESSMENT

8.1 Ecological Assessment

Redleaf Group was appointed by the Proponent to conduct an ecological assessment of the proposed solar farm site and surrounding habitats. EDC also conducted a pre-lodgement call with the Bundaberg office of State Assessment Referral Agency (SARA) to discuss the project and the possible triggers for State referrals based on the site values, Ecological Assessment and Traffic Impact Study.

An Ecological Assessment was conducted by Redleaf Group to determine the ecological values of the site (refer Appendix Q “Ecological Impact Assessment”). This included:

i. confirming ecological attributes within the site as mapped by various governmental bodies (BRC, MSES and MNES) determining the potential impacts from the proposed development; and
ii. providing appropriate mitigation measures to minimise identified ecological impacts.

Figure 20 (below) shows the current mapped protected vegetation and habitat values in relations to the proposed solar array layout design. Redleaf Group were complimentary to the sensitive design strategy adopted.

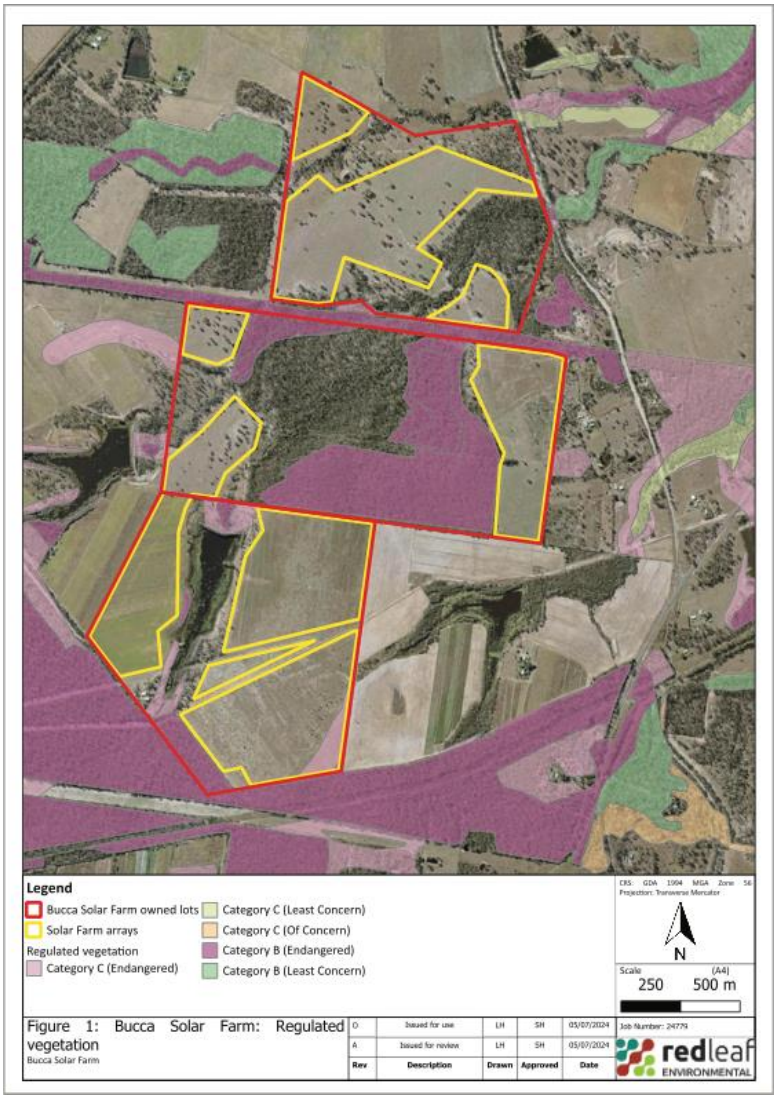
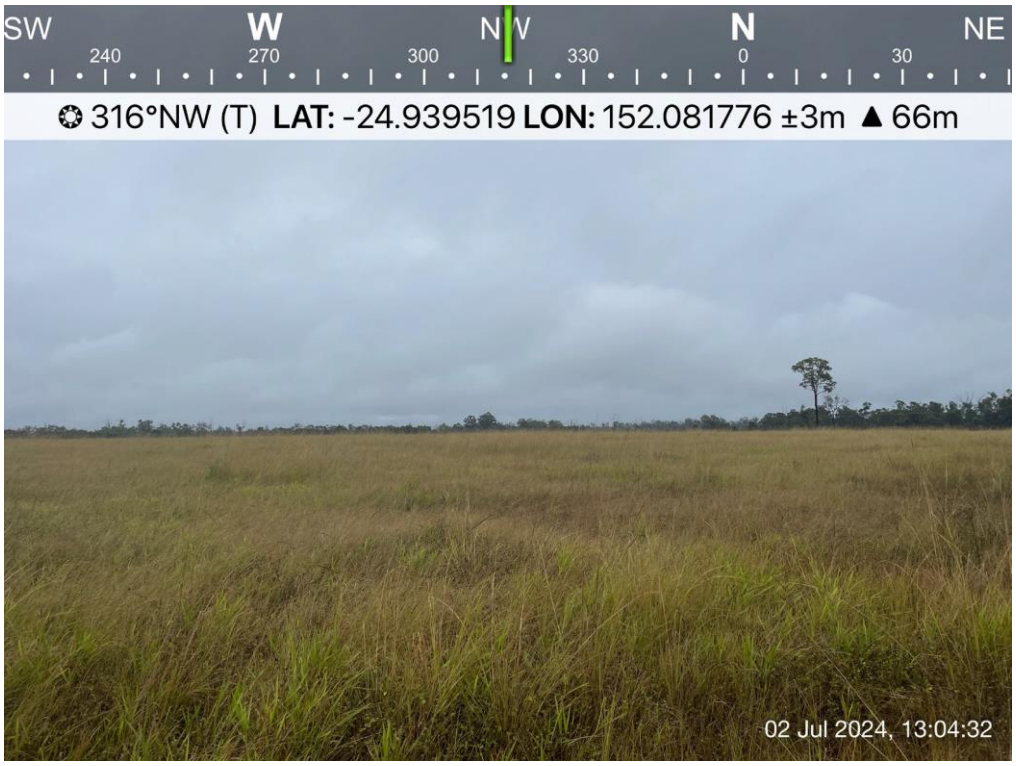


Figure 20: Ecological Assessment Regulated Vegetation Mapping (Redleaf)

Site Description (Redleaf)

i. The study area is located at 143 Gastons Road, Bucca, QLD within the Bundaberg Region on Lot Plans 183CK2771, 73CK281 and 2RP868537.
ii. The study area is zoned Rural under the Bundaberg Regional Council Planning Scheme 2015 and is 329.12 hectares in combined size.
iii. The vegetation on the property has been extensively cleared and is currently used for grazing livestock.
iv. Regional ecosystem mapping classifies the study site as primarily category X non-remnant vegetation, category B remnant vegetation (12.5.4/12.3.12/12.5.2; 12.3.3) and category C high value regrowth vegetation (12.5.4/12.3.12/12.5.2; 12.3.3).
v. There are several VMA (1999) (Stream order 1 and 2) waterways intersecting the three lots. All on site waterways are listed under the Fisheries Act (1994) as a waterway for water barrier works (low and moderate risk), and additionally listed as Water Act (2000) waterways or drainage features.
vi. Field assessment confirmed that the category X vegetation was heavily dominated by exotic grasses with scattered native trees.

vii. The proposed solar farm consisted primarily of exotic grass paddocks with small patches of native vegetation, and does not impact on category B or C vegetation/habitat areas (refer image below)



Typical vegetation across all solar arrays, heavy abundance of exotic grasses and few native tress (report page 34 – Appendix Q)

The Ecological Assessment conducted included:

- Desktop Studies as described in sections 2.1 (Data Searches) and 2.2 (Likelihood of Occurrence Assessment) of the report
- Field Methodology (Section 3) including:
  - Flora Assessment
  - Fauna Survey
  - Koala Survey
  - Incidental Sightings

with field surveys conducted during daylight and nocturnal periods.

Koala Impacts

Queensland's Koala regulations involving Koala Priority Areas, Koala Habitat Areas and Rehabilitation Areas are present in South-East Queensland, and therefore apply to this project. The work area is outside of any essential habitat or protected vegetation areas. In summary, the proposed work area:

- Is in Koala district B
- Is outside a Core Koala Habitat Area
- Is outside Koala Priority Area
- Is outside Koala Habitat Restoration Area and
- Is outside Identified Koala Broad-Hectare Area

A call to the Bundaberg office of State Assessment Referral Agency (SARA) and subsequent email from SARA (refer Appendix R) to discuss the project at this location concluded that given the design of the solar array and the non-disturbance of protected vegetation or essential habitat, no referral to SARA is required in relation to the proposed solar farm application for a Material Change of Use.

Redleaf Group concluded with respect to potential Koala disturbance:
"Based upon aerial mapping and field assessment, it has been determined that an estimated 74 non-juvenile koala habitat trees are present across the proposed solar array sites and are expected to be removed. NJKHT's within the solar arrays are situated sparsely among tall exotic grass fields and are in predominantly open areas. Adjoining the sites are waterways and other vegetated corridors which provide ample passage for koala between habitat patches.

There is a major corridor of treed vegetation running from east to west between lots 2 and 73, and the waterways are also heavily vegetated with koala habitat trees. These corridors surround each of the solar arrays, and so, the loss of the sparse trees is unlikely to significantly impact the movement and passage of koalas within the local area. The
mapped vegetation outside of the solar arrays would be more favourable to koalas as habitat and passageways as there is significantly more habitat available and movement is more achievable for koalas within these areas." (Appendix Q – page 32)

Watercourse and Vegetation Buffer – South East Corner Lot 183
The proposal's solar array footprint development area does not encroach into the 50m watercourse buffer (measured from either side of the mapped stream) and is offset 10m from the MSES regulated vegetation (category R – GBR riverine).

Redleaf Group initially recommended a Pre-lodgement meeting with SARA regarding the minor watercourse located in the southeast corner of Lot 183. This recommendation was based on early discussions with SARA, which suggested mitigation actions for the disturbance of this feature (refer Appendix R).

"For the planned solar array construction within the east of Lot 183/CK2771 over the watercourse, several measures were considered necessary for works to proceed. The impacted eastern watercourse on Lot 183 was to be presented to SARA during a pre-lodgement meeting for further guidance on the planned works" (refer Appendix Q – page 32).

There is conflicting mapping over this watercourse and regulated vegetation. Subsequent site inspections by Redleaf Ecologists, conducted after several days of rain, revealed that the feature in question behaved more like a drainage feature rather than a protected watercourse. Despite conflicting State mapping, which designated this feature as a watercourse, the ecological assessment suggested it more closely aligned with a drainage feature.

To respect the mapped requirements and avoid the need for reclassification or further consultation with SARA, the final solar array footprint has been adjusted at the request of the client. The solar array now maintains a minimum 50m offset to the centreline of the mapped watercourse, ensuring no encroachment within the buffer. Additionally, a 10m offset has been provided from the MSES regulated vegetation (category R – GBR riverine), and the internal road beside this area is wholly located outside the mapped area. This adjustment avoids any disturbance within the mapped buffer areas and demonstrates compliance with the Biodiversity Areas Overlay Code.

Summary of Key Conclusions

A. Considering the environmental features outlined in this report, the proposed solar array placements for Bullyard Solar Farm avoids and mitigates areas of environmental importance.

B. Majority of the works are planned to be in areas that are highly disturbed, mapped as non-remnant category X vegetation and are predominantly dominated by exotic flora.

C. Future proposed access tracks, laydowns, storage areas and vehicle storage areas are recommended to be constructed in category X non-remnant vegetation, where ecological values are few, to avoid unnecessary vegetation clearing.

Further, the mitigation measures identified in the risk matrix of the report (Table 10 Appendix Q), which should be implemented for this works area, are summarised as:

i. Minimising disturbance to vegetation and surrounding habitats.
ii. Implement erosion and sediment control plans and biosecurity measures to prevent any additional environmental harm.
iii. A fish passage assessment is recommended to be conducted on the impacted watercourse to provide SARA with additional information, (prior to lodgement of the Operational Works application)

If clearing any non-modified vegetation such as identified REs, mature vegetation including grassy habitats or koala habitat trees Redleaf recommends that:

i. A preclearance survey be conducted to determine the extent of breeding places within the work site to avoid harm to fauna and collect the required information for a SMP if needed. *A preclearance report should be conducted no more than 2 weeks prior to the clearing date to be most accurate and effective.*
ii. A qualified/licensed fauna spotter catcher be present during the clearing of habitat especially if koala habitat trees are to be removed.

8.2. Flood and Storm Water Assessment and Management

Not required for DA. The design and implementation of drainage systems will be finalised during the Operational Works application phase, specific conditions may be set within the Development Approval to be based on detailed engineering assessments and design.

8.3. Traffic Impact Assessment and Management

RMA Engineers undertook a Traffic Impact Assessment for the proposed project to determine the level of potential impacts of both the construction and operational phases of the proposed solar farm.

The full report is to be found in Appendix P.

Key Findings and Recommendations

Traffic operation

i. Peak hour traffic movements will comprise staff vehicles, with 50% of movements to/from the east and 50% to/from the west.
ii. The external road network is considered to have sufficient capacity to cater for operational traffic.
iii. A review of SIDRA outcomes indicates an increase in aggregate intersection delay of 11.8% with development traffic. Although greater than the 5% threshold, the background intersection delay is very low and the delay increase occurs due to an otherwise negligible increase in delay (0.1 seconds) in one movement. It is also noted that the assessed development operational phase traffic is representative of a conservative maximum of 12 staff, expected to occur on isolated days only.

Due to this and the intersection performance within desired standards of service with significant spare capacity, no mitigation is considered to be required.

Safety review

i. Four crashes have been recorded along the key roads and at the key intersection during the most recent five-year period. No crash patterns or mitigation measures could be determined from the available data.
ii. Turn warrant assessment indicates that under existing background conditions, the Bundaberg-Gin Gin Road / Goondoon Road intersection requires BAR and BAL turn treatments. The addition of operational traffic does not result in a change in the required turn treatment.
iii. The Goondoon Road and Gastons Road access intersections do not require any turn treatments with development operational traffic, with volumes falling within simple left (SL) and simple right (SR) turning provision.
iv. It is recommended that the Goondoon Road site access is designed to accommodate B-Double turn paths (left in and right out) and geometries as per BRC rural driveway requirements.
v. It is recommended that the Gastons Road site access is designed with geometries as per BRC rural driveway requirements.
vi. The safe intersection sight distance (SISD) assessment found that the available sight distance is adequate for the existing Bundaberg Gin Gin Road / Goondoon Road intersection and proposed Gastons Road site access. The Goondoon Road access intersection does not meet the minimum SISD requirements for the southern approach due to a crest.
vii. It is recommended that 'concealed driveways' warning signs be installed on Goondoon Road on the southern approach to warn motorists of the upcoming access and to increase driver alertness and reaction times. It is noted that, during construction, the traffic management plan may require temporary speed reduction and additional warning signage (e.g. 'trucks turning').
viii. It is also recommended that the site accesses continue to be monitored for any emerging safety issues.
ix. It is recommended that the grass and vegetation along Gastons Road 300m prior to the access be removed to provide additional visibility and potential shoulder width for passing of vehicles.
x. Bucca Road, Goondoon Road and Gastons Road are considered to be generally suitable for development operation, with consideration to the recommendations outlined and findings in the Road Condition Assessment and associated site visit observations and associated site visit observations (Appendix D of Appendix P)

With consideration of the above findings, no adverse traffic and transport engineering matters have been identified that should preclude approval of the proposed development at this location.

A discussion with SARA confirmed the site does not trigger any requirements for referral to Department of Transport and Main Roads for the issuing of the material Change of Use. Traffic Management Plans during the Operational Works stage should be lodged directly with the department.

8.4. Visual Amenity and Landscaping

The site is not observed directly by any neighbouring properties and as such does not pose as a detractor to visual amenity in the area. Landscaping elements are addressed in Appendix L – 9.3.2 LANDSCAPING CODE.
The Bullyard Solar Project has been carefully designed to ensure minimal visual impact on surrounding properties and to preserve the rural character of the area. Key elements of this strategy include the use of modern solar panels with low-reflective surfaces, strategic panel placement, and the implementation of landscape buffers to mitigate visual impacts.
The site plan includes the necessary setback distances for the solar array areas from all site boundaries and confirm the north-facing orientation of the solar panels. The plan includes indicative landscape buffers to mitigate any potential visual impacts, particularly near sensitive receptors such as dwellings to the east of the site. Given the modern design of the panels, their strategic placement, and the surrounding land uses, it is determined that a Visual Amenity Report is not required.

1. **Setback Distances & Orientation:**
   - The proposal plan shows a minimum 10m setback of the Solar Array (excluding internal access roads) from all site boundaries, particularly focusing on the eastern side where the only likely sensitive receptors (dwellings) are located. The solar arrays will be north-facing, and this orientation is indicated on the plan with an arrow showing the direction to true north. The typical elevation and height of a solar panel, approximately 1.8m above ground level, has been provided in the appendices, Appendix U – Solar Panel Standard Elevation.

2. **Modern Solar Panel Design:**
   - Modern solar panels are designed to absorb rather than reflect sunlight, significantly reducing concerns about glare and reflection. This characteristic is discussed to address visual amenity elements required in the Rural Zone Code (Appendix J) PO5; Utility Code (Appendix K) PO2, PO3, PO5; Landscaping Code (Appendix L) PO1; Nuisance Code (Appendix M) PO7. The technology and orientation of the panels as described ensure minimal visual impact. This design feature, combined with the strategic north-facing orientation, ensures that there will be no adverse impacts on the surrounding properties, including those to the east.

3. **Surrounding Parcels and Uses:**
   - The development is surrounded by a mix of land uses:

- **North:** Abutting macadamia farming interests (Lots 3/RP868537).
- **South:** Adjacent to an unconstructed road reserve (Gastons Road) and State Reserve (Lot 213 BON1098).
- **East:** Properties adjacent to the eastern boundary fronting Goondoon Road are described as hobby farms, including Lots 1/RP868537, 1/RP219563, and 2/RP219563.
- **West:** Abutting macadamia farming interests (Lots 75/SP327283, 71/CK2771, and 11/SP318580).

- Given the north-facing orientation of the solar arrays, the impact on the hobby farms to the east will be negligible. The adjacent macadamia farms and reserve are unlikely to be affected by the development.

4. **Landscape Buffers:**
   - The proposal plan includes an indication of landscape buffers within the development up to a height of 4m where indicated to address potential sensitive receptors, such as dwellings.
   - The application of a landscaping strategy for the Bullyard Solar Project is discussed by the benchmarks outlined in the Rural Zone Code PO5, Nuisance Code PO7/AO7.3, and the Landscaping Code (Appendix L). These include:
     - **East:** Landscape buffers are specifically proposed along parts of the eastern boundary, as shown in the proposal plan, to mitigate potential visual impacts on the nearby hobby farms. The treatment for these buffers is outlined in the Landscaping Code assessment and aligns with the guidelines provided to ensure visual amenity protection for sensitive receptors.
     - **North and West:** Given that the adjacent parcels are primarily used for macadamia farming, no significant visual impacts are anticipated. However, existing vegetation will be retained and supplemented as needed to maintain visual amenity, as outlined in the Landscaping Code (Appendix L).
     - **South:** The existing reserve and unconstructed road provide a natural buffer, minimising the need for additional landscaping in this area.

5. **Visual Amenity Report Unnecessary:**

Given the modern design of the solar panels, their north-facing orientation, and the lack of impact on surrounding land uses, coupled with the strategic layout, terrain, low profile panels and the inclusion of landscaping buffers outlined above, the development is sufficiently designed to avoid adverse visual impacts beyond the site boundaries. Therefore, a Visual Amenity Report is not considered necessary.

This conclusion aligns with the discussions during the pre-lodgement meeting, where it was understood through the dialogue that the need for such a report was minimised due to the inherent characteristics of the development. Although the requirement for a Visual Amenity Report was not formally recorded in the meeting notes, the understanding was that the combination of design features and mitigation measures sufficiently addressed any potential visual impact concerns.

9. LEGISLATIVE REQUIREMENTS (PLANNING CONTEXT)

The Bullyard Solar Project will adhere to all relevant local, state, and federal regulations. Compliance with these regulations will be ensured through continuous monitoring, reporting, and adherence to best practices in environmental management and construction standards.

The Proponent has sought to understand the legislative context of the provisions of the Planning Act 2016 under which this application is to be submitted. The Proponent has completed a thorough review of the Planning Act 2016, the State Planning Regulatory Provisions (SPRP), the State Planning Policy (SPP) and the Bundaberg Regional Council Planning Scheme 2015.

The application seeks approval from the Assessment Manager (Bundaberg Regional Council) for:

- **Development Permit for Material Change of Use for a Renewable Energy Facility (Solar PV Farm)**

This section provides an overview of the legislative context under which this application is submitted and to be assessed.

9.1 Local Planning Interests

The Scheme is the relevant local area planning framework for the assessment of this application. The relevant provisions have been identified and the responses required are presented below.

9.1.1. Assessment Manager

The Assessment Manager for this development application is Bundaberg Regional Council as determined by Schedule 8 of the *Planning Regulation 2017*.

9.1.2. Level of Assessment

The level of assessment has been determined as a result of reviewing the relevant zoning and related overlays for each aspect of the development, and following discussions with Bundaberg Regional Council officers at a Pre-lodgement Meeting held on the 9th of April 2024. (refer to Appendix E Pre-lodgement Meeting Outcomes)
It is determined that the Level of assessment for this development is as follows:

Table 9.1: Level of Assessment

Scheme Component	Level of Assessment
Zone	
Rural Zone	Code Assessable
Overlay	
Acid Sulphate Soils	No Change
MSES Watercourse Buffer	No Change
MSES Wildlife Habitat	No Change
MSES Regulated Vegetation	No Change
Bushfire Hazard	No Change
Steep Land – BRC mapped area	No Change
Agricultural Land Classification (ALC)	No Change

CBD Parking Area	No Change
Third Party Advertising Devices Exclusion Area	No Change
Preliminary Planning Approval	No Change
Charges Resolution (No.1) 2021	No Change
High Density Residential Zone – Bargara Building Height Control Area	No Change
State Development Area	No Change
Development Footprint Plan Provision	No Change
Priority Infrastructure Area (PIA)	No Change
Future Trunk Infrastructure	No Change
Existing trunk Infrastructure	No Change
Level of Assessment	
Resulting Level of Assessment	Code Assessable

9.1.3. Rural Zone

As noted in the Table 9.1 above, the site is located within the Rural Zone. This proposal is consistent with the intent of the Rural Zone as set out in the Bundaberg Regional Council Planning Scheme and the responses to the intent are presented in Table 9.2 below.

Table 9.2. Summary - Response against Rural Zone Assessment Criteria *(Refer Appendix J 6.2.17 RURAL ZONE - BENCHMARKS FOR ASSESSABLE DEVELOPMENT)*

Overlay	Response
PO1 Development in the Rural zone provides for a broad range of rural activities to support the ongoing productive use of rural lands. Note—such rural activities include animal husbandry, aquaculture, cropping, permanent plantations, intensive horticulture, roadside stalls, wholesale nurseries and wineries.	**PO1** Although a renewable energy facility does not fall within the 'rural activities' activity group, it is widely recognised that rural areas are ideal for solar farms due to their unimpeded access to high solar irradiation, proximity to suitable grid connection points, and large areas of undeveloped land. The proposed solar farm on Lots 183, 73, and 2 will enhance sustainability by reducing carbon emissions by approximately 62,612.8 metric tonnes CO2e annually, including savings from ceasing cattle farming operations. This development aligns with state and federal renewable energy targets and supports local economic and employment opportunities. The solar farm's design ensures minimal ground disturbance by using non-invasive installation methods, avoiding extensive excavation for footing support and concrete foundations. This approach facilitates easier rehabilitation of the site to its natural state upon cessation of use. The temporary nature of the solar farm, with a decommissioning period of 25-30 years, ensures that the land can be restored. Council-imposed conditions will require the removal of all solar panels and structures within six months of cessation.
PO2 More intensive rural activities are supported in the zone, provided that adverse environmental and amenity impacts are avoided or appropriately managed. Note—such activities include animal keeping, intensive animal industry and rural industry.	**PO2** While the proposed use is not an intensive rural activity, its design respects the site's environmental values. The solar farm's footprint avoids key watercourse buffer areas, preserving significant natural features. The site, despite containing watercourses, any significant environmental values as indicated by MSES and MNES mapping are not within the development footprint. The project's low-impact construction and operational phases minimise environmental disruption. This design choice protects the land's agricultural viability and maintains the rural character, integrating best environmental management practices to safeguard the site's natural attributes.
PO5 Non-rural uses are located, designed and operated to minimise conflicts with existing and future rural uses and activities on the surrounding rural lands.	**PO5** The proposed solar farm, considered a quasi-rural use, is compatible with the surrounding rural activities. The design allows for agricultural use, such as grazing, under the solar

	panels, providing economic benefits while ensuring minimal conflict with adjacent land uses. The project's low operational impact, including minimal noise and emissions, supports the continued viability of nearby agricultural operations. The solar farm's design includes low-profile structures and the use of non-reflective coatings on the panels to reduce glare, maintaining the visual quality of the area. Additionally, the implementation of landscape buffers using natural vegetation and planted screening will blend the solar farm into the surrounding landscape, minimising visibility from nearby roads and properties. To enhance visual screening, these buffers will use native vegetation to ensure that the solar farm is not visible from neighbouring houses and adjacent macadamia farms, which will be using the immediately adjacent land for cropping. The strategic placement of the solar panels and the incorporation of visual screening measures ensure that the scenic and rural character of the landscape is preserved and even enhanced. Moreover, the temporary nature of the solar farm allows the site to return to its natural state at the end of its lifespan. This capability for site rehabilitation ensures that the solar farm does not permanently alienate the land from its rural uses and maintains the long-term agricultural viability of the site.
PO8 Development does not alienate, fragment or diminish productivity of agricultural land classification (ALC) Class A and Class B land, unless:- (a) there is an overriding need for the development in terms of public benefit; and (b) no other site is suitable for the particular purpose.	**PO8** The proposed solar farm addresses the urgent need for renewable energy to meet state and federal targets for carbon emissions reduction, which constitutes an overriding public benefit (a). Government policies strongly support the development of renewable energy sources to ensure a sustainable future. Additionally, the proposal addresses issues related to energy pricing and the need for stable, renewable energy sources as outlined in various government policies . The site selection for solar energy production is crucial due to specific criteria such as large, contiguous land areas with high solar irradiation, proximity to grid connection points, and suitable topography. This location meets these criteria, making it an optimal choice for the proposed solar farm. Although there may be other sites, finding a suitable site that meets all necessary criteria and does not have other ecological or land-use conflicts is challenging (b). Although the site is partially affected by the State Planning Policy's mapping for Classes A or B Agricultural Land, the actual quality of the land is low for agricultural purposes. The land has been historically used for cattle grazing, and its classification as high-grade agricultural land is inconsistent with its actual use and quality. The DNRM land use category designates all three parcels as 'Cattle-breeding & fattening,' indicating low productivity for intensive agricultural use. The temporary nature of the solar farm, with a decommissioning period of 25-30 years, allows the land to be restored to its natural state, ensuring that the productivity of the land is not permanently diminished. Additionally, the design allows for co-locating agricultural activities, such as grazing, under the solar panels, further maintaining the land's productivity during the operational life of the solar farm. Given these factors, the proposed development does not alienate, fragment, or diminish the productivity of the agricultural land, aligning with the requirements of PO8.
PO9 Development has a maximum building height of:- (a) 2 storeys and 8.5m for residential and other non-rural activities; and (b) 10m for rural activities.	**PO9** The proposed solar farm will adhere to the maximum building height criteria set forth in PO9, ensuring that it maintains the rural character and amenity of the zone. The solar panels themselves are low-profile structures, designed to be unobtrusive and integrate seamlessly into the landscape. There are no residential buildings planned for the site. Any additional necessary structures related to non-rural activities will not surpass 8.5 metres in height, while structures related to rural activities will remain within the 10-metre height limit. This adherence to height restrictions ensures that all buildings are visually unobtrusive.

	By ensuring that no structures exceed these maximum heights, the development preserves the visual amenity and character of the rural landscape. The incorporation of appropriate screening where necessary further minimises visual impact, ensuring that the development complements rather than detracts from the existing setting.
PO10 The built form of development:- (a) integrates with and complements the predominant rural character and scale of the zone; and (b) sensitively responds to the environmental and topographical features of the landscape.	**PO10** The proposed solar farm is designed to integrate with and complement the rural character and scale of the zone. The development features low-profile solar panels that align with the existing landscape, ensuring minimal visual disruption and maintaining the area's aesthetic integrity. (a) The built form will adhere to the rural character by using materials and colours that blend with the natural surroundings. Structures will be designed to be visually unobtrusive, ensuring they do not dominate the landscape. There are no residential buildings planned for the site, and any necessary structures related to the solar farm's operation will not exceed the height limits specified for rural activities, thereby maintaining the rural scale. (b) The design of the solar farm sensitively responds to the site's environmental and topographical features. The site comprises cleared grazing land with generally gentle sloping topography, which is ideal for solar panel installation. The development avoids areas with significant environmental constraints, such as waterway buffers and protected vegetation, ensuring that natural features are preserved. Appropriate screening, using both natural vegetation and additional planted buffers, will be implemented to minimise visual impact and enhance the integration of the solar farm into the landscape. By adhering to these design principles, the solar farm will maintain the visual amenity and character of the rural landscape, ensuring that the development complements the existing setting and respects the environmental and topographical features of the site.
PO11 Development provides for infrastructure and services that are commensurate with the very limited range of small scale and low-key activities that are expected to occur in the zone.	**PO11** The proposed solar farm will be self-sufficient and not reliant on council reticulated services, ensuring minimal impact on existing rural infrastructure: Infrastructure: Includes internal access roads and electrical connections, designed to support operations without overwhelming the rural character. Services: Water for maintenance and cleaning will be sourced sustainably from on-site collection, and waste management will follow environmental guidelines. This approach ensures compatibility with the expected range of small scale and low-key activities in the Rural zone, maintaining the area's character and functionality.
PO12 Irrigation areas and associated infrastructure are protected from potential damage or encroachment by incompatible rural and non-rural uses.	**PO12** The proposed solar farm development will not damage or encroach upon any existing irrigation areas or associated infrastructure, both within and external to the site. The site is primarily used for grazing and does not contain significant irrigation infrastructure internally. A Sunwater pipeline runs through the property and is covered by a registered easement; our design avoids this area, ensuring it is not affected. The development will ensure that any potential conflicts with irrigation areas are avoided, maintaining the functionality and integrity of existing infrastructure.
PO13 Development does not adversely impact on the continued operation, viability and maintenance of existing infrastructure (including rural infrastructure) or compromise the future provision of planned infrastructure.	**PO13** The development ensures that it does not adversely impact the continued operation, viability, or maintenance of existing infrastructure (including rural infrastructure). The 66kV Ergon Energy powerline, which traverses Lot 183, is respected by positioning all solar panels and structures outside the easement area, ensuring uninterrupted access for maintenance and operation. Similarly, the Cane Rail corridor affecting the northern part of Lot 2, although no longer in use, is preserved by avoiding

	any encroachment on the easement, ensuring it remains available for potential future use. The proposal would not impact rural infrastructure external to the site. BRC interactive mapping does not indicate that there is any planned infrastructure in the immediate vicinity of the site.

Table 9.3. Summary - Response against Utility Code Assessment Criteria *(Refer Appendix K – 9.2.19 UTILITY CODE - BENCHMARKS FOR ASSESSABLE DEVELOPMENT)*

Overlay	Response
PO1 The utility is located such that:- (a) it is well placed relative to the infrastructure network that is services; (b) opportunities for cost efficiencies and reduction in environmental and social impacts are maximised; and (c) a high standard of accessibility is available for maintenance purposes and at times of emergency.	**AO1.1, AO1.2 & AO1.3** The proposed development of the Bullyard Solar Project is strategically located to optimise the use of existing infrastructure, specifically the 132kV Ergon Energy electricity lines immediately south of lot 183. This placement ensures that the solar farm is well integrated into the existing supply network, thereby maximising cost efficiencies and minimising both environmental and social impacts. The location is further enhanced by its proximity to the Ergon Substation at McLeod's Road, Bullyard, approximately 2 kilometres southwest of the site. This proximity eliminates the need for an on-site substation, resulting in significant cost savings. The strategic positioning within approximately 5 kilometres of the grid connection point ensures cost-effective interconnection, as solar farms typically need to be located within this distance to optimise connectivity and minimise infrastructure costs. The site is designed to provide high accessibility for maintenance and emergency purposes. The infrastructure layout allows for efficient access routes, ensuring that maintenance teams can easily reach critical components of the utility. In case of emergencies, the site can be quickly and effectively shut down remotely, adding an additional layer of safety. While co-location with other utilities is generally preferred, it is not applicable in this instance due to the specific requirements and constraints of the project. Therefore, AO1.2 does not apply. The strategic use of the existing Ergon Energy 132kV lines immediately south of the site, ensures that the project meets the specific Performance Outcome PO1 by maximising cost efficiencies, minimising environmental impacts, and ensuring high accessibility.
PO2 The utility is sited and designed to:- (a) minimise adverse visual impacts beyond the boundaries of the site; and (b) minimise adverse impacts on the amenity of nearby residential, community or other sensitive uses.	**PO2** The Bullyard Solar Project is designed to minimise visual, and amenity impacts through strategic siting, the use of existing natural features, and the implementation of additional screening measures. The topography and existing vegetation of the site play a significant role in naturally buffering the solar farm from surrounding properties. The site is bordered by macadamia farms to the north and west, a reserve to the south, and hobby farms to the east. The hobby farm dwellings will not be visually impacted, and appropriate screening will be provided where necessary. The adjacent macadamia farms, which will be using the immediately adjacent land for cropping, are unaffected. Should the existing vegetation prove insufficient, additional screening will be provided to create a more robust visual barrier. The solar panels and associated structures are designed to be low-profile and oriented to minimise glare, particularly towards sensitive receptors. This design ensures that the height and positioning of the structures protect the visual amenity of the area. The operations of the solar farm are non-intrusive, generating no dust, minimal noise, and low glare, thereby preserving the amenity of the surrounding residential and community areas. The strategic layout of the solar panels, combined with significant separation distances and natural barriers such as watercourses and vegetation, ensures minimal visual impacts.

	For instance, the orientation of the panels and any reasonably necessary screening will mitigate any potential visual intrusion for the hobby farm dwellings to the east, although we expect that screening will be unnecessary. By adhering to these design principles and site-specific strategies, the proposed Bullyard Solar Project effectively ensures minimal adverse visual, and amenity impacts on the surrounding area.
PO3 The utility provides an attractive street front address with unsightly elements screened from view by walls and landscaping strips.	**PO3** The Bullyard Solar Project is located in a rural setting, not an urban one which presumes low traffic volumes. The Gastons Road frontage is unconstructed, and the site opposite is a Reserve. Goondoon Road is a gravel rural road providing access to very few rural properties, including a macadamia farm, with the property opposite Lot 2 used for cattle grazing. This rural context means the site is not within a high use viewing corridor or significant viewing catchment, thereby protecting the visual amenity of the local area. The existing vegetation along Gastons Road and within the site itself, along with the natural topography, assists in mitigating the visual impact of the development. The strategic layout of the solar panels, combined with the low-profile design and orientation to minimise glare, further ensures that the solar farm integrates seamlessly into the rural landscape. Given the immediate relatively isolated location and the nature of the surrounding land uses, there are no significant viewing corridors that cannot be managed by appropriate screening. This approach ensures that the visual amenity of the local area is protected while maintaining compatibility with the rural character.
PO4 The utility is designed, constructed and operated in a manner that:- (a) minimises energy use and greenhouse gas emissions. (b) minimises the use of water; and (c) maximises the re-use and recycling of by-products associated with the operation of the utility.	**PO4** The Bullyard Solar Project, by its very nature, is designed to operate sustainably, ensuring the efficient use of resources, resilience to natural hazards, and minimal environmental impact. The development maximises the use of renewable solar energy to provide a sustainable resource for end users. The solar farm is partly powered by its own power generation, enhancing its resource efficiency. Unlike other energy generation methods, solar farms do not consume significant amounts of water, further contributing to sustainability. The infrastructure is built to withstand local climatic conditions and potential natural events, maintaining operational integrity and reliability. Solar farms produce minimal by-products, generating no emissions or harmful pollutants. Solar panels have a long lifespan of 25 to 30 years and are recyclable, supporting environmental sustainability. Occasional maintenance, such as replacing failed cells or panels, ensures continued efficient operation without significant environmental impact. By adhering to these principles, the Bullyard Solar Project efficiently uses resources, is resilient to natural hazards, and maintains a minimal environmental footprint, aligning with the sustainable goals of the development.
PO5 The siting and design of any buildings or structures associated with the utility are compatible with the setting and character of the local area in which the facility is located.	**PO5** Structures within the Bullyard Solar Project, including the 66kV switching station in the southeast corner of Lot 183, are intended to be of a low-rise built form. This area is screened by existing vegetation along Gastons Road, which is unconstructed, and is opposite a reserve. The other abutting unnamed road reserve is also vegetated and unconstructed, ensuring minimal visual impact. Solar structures are inherently compatible with the rural character, blending with the anticipated visual characteristics of rural lands. The design and scale of the low-profile solar panels and associated infrastructure maintain the visual amenity of the locality. While there are anticipated to be maintenance buildings in the final Ops works design, these will have minimal impact because of the rural nature of the area and built form profile; where

	necessary they will be appropriately screened where natural site vegetation or topography leaves gaps in the viewing corridors.
PO6 Public access is discouraged to those parts of the utility that pose a health or safety risk.	**AO6.1:** The Bullyard Solar Project is designed to ensure the safety and security of people and property. The site will be securely fenced to prevent unauthorised access, in compliance with AO6.1. To enhance security and monitor the site, CCTV cameras will be installed at strategically determined positions. The exact number and layout of the CCTV cameras will be established during the detailed design phase, ensuring comprehensive coverage and effective monitoring of the site. By implementing these security measures, public access to areas posing health or safety risks is effectively discouraged. **AO6.2:** Warning signage will be displayed at appropriate locations to alert individuals to potential hazards, meeting the requirements of AO6.2. These measures collectively ensure that the Bullyard Solar Project provides a secure environment for both people and property. It is anticipated that the Council will impose conditions requiring the implementation of these safety and security measures, further enhancing the overall safety of the project.

Table 9.4. Summary - Response against Landscaping Code Assessment Criteria *(Refer Appendix L – 9.3.2 LANDSCAPING CODE - BENCHMARKS FOR ASSESSABLE DEVELOPMENT)*

Overlay	Response
PO1 Development provides for landscaping that:- (a) protects and enhances the character and amenity of the site, street and surrounding locality. (b) promotes the character of the Bundaberg Region as a sub-tropical environment. (c) is sensitive to site conditions, natural landforms and landscape characteristics. (d) as far as practicable, retains, protects and enhances existing trees, vegetation and topographic features of ecological, recreational, aesthetic and cultural value. (e) clearly defines public and private spaces. (f) promotes passive surveillance of public and semi-public spaces; and (g) is of an appropriate scale to integrate successfully with development.	**AO1.1** The proposed landscaping for the Bullyard Solar Project is designed to integrate seamlessly with the natural and built environment of the Bundaberg Region. The Ecological Impact Assessment (EIA) will identify trees for retention, ensuring that significant vegetation is preserved. Trees identified by the EIA will be protected, and other significant trees will be retained as part of the landscaping and protection buffers. To mitigate potential visual impacts, the solar panels are equipped with anti-reflective coatings that significantly reduce glare, making them less reflective than standard glass windows. This ensures that the panels will not create visual disturbances for nearby roads or adjoining properties. Additionally, the panels are strategically sited and oriented to minimise visibility from public vantage points, further supported by the use of landscape buffers and screening. The combination of native vegetation and anti-reflective technology ensures that the development will not only blend into its surroundings but also contribute positively to the local landscape character. This approach aligns with the overall outcomes of the Landscaping Code by enhancing visual amenity. **AO1.2** Given the security measures in place for the Bullyard Solar Project, AO1.2 is not applicable as the facility is not a public space. The primary function of the site is to generate solar energy, and it is not designed for public access or use. As such, the landscaping will focus on creating visual barriers and enhancing the natural landscape rather than defining public and private spaces or promoting passive surveillance. However, the overall landscaping strategy will still contribute to the visual amenity of the area by integrating the facility into its surroundings and using native vegetation to blend with the natural landscape. This approach ensures that the development will not detract from the character and amenity of the Bundaberg Region while maintaining the necessary security and functionality of the solar farm. **AO1.3**

	The landscaping for the Bullyard Solar Project is designed to ensure the facility integrates seamlessly with the broader landscape. The primary focus is on using native vegetation to create visual barriers and blend the development into its natural surroundings. This approach not only enhances the visual amenity but also supports local biodiversity. The plantings will be strategically placed to minimise the visual impact of the solar panels and other infrastructure. By using vegetation that is native to the region, the landscaping will complement the existing natural environment and contribute to the ecological health of the area. This strategy ensures that the built form of the solar farm is effectively integrated into the broader landscape, maintaining the character and amenity of the Bundaberg Region. Additionally, the use of anti-reflective coatings on the solar panels reduces glare, further helping the development blend into its surroundings without creating visual disturbances for nearby areas. **AO1.4** The Bullyard Solar Project will provide landscaping screening that meets or exceeds the minimums specified in AO1.4. Specifically, driveways and any operational parking areas will be screened by a landscaping strip with a minimum width of 3 metres where adjacent to street frontages or public open spaces. This ensures that the development maintains visual amenity and integrates seamlessly into its natural surroundings, while adhering to the specified landscaping requirements. **AO1.5** While a formal car park design is not yet in place for the Bullyard Solar Project and the facility is not intended for public access, it is intended to comply with this section. The landscaping strategy will ensure that any necessary operational parking areas are appropriately landscaped. The plan will include measures to provide shade and integrate the car parking areas into the broader landscape. We anticipate that the car park design will be subject to council review under DA conditions. This approach ensures that any car parking areas are visually integrated into the broader landscape, aligning with the overall outcomes of the Landscaping Code. **AO1.6** The Bullyard Solar Project will have a security fence, with landscaping and screening appropriately placed to ensure minimal visual impact. Native vegetation will be used to create visual barriers along the security fence, helping it blend into the surrounding landscape and maintaining the visual amenity of the area. Given the remote location and the design of the site, view lines from roadways are not likely to be present. However, the landscaping strategy will ensure that the security fencing does not detract from the character and amenity of the region. **AO1.7** The Bullyard Solar Project will include screening provisions for any on-site buildings to ensure they blend into the landscape. Native vegetation will be strategically planted to create visual barriers around the buildings, minimising their visual impact and addressing view lines. Storage and utility areas will be screened by vegetation or built screens to ensure they do not detract from the visual character of the site.
PO2 Development provides sufficient areas to cater for landscaping.	**AO2** The Bullyard Solar Project, located in the Rural Zone, will ensure that sufficient areas are allocated for landscaping to soften the built form and enhance the natural environment. The site layout and design will provide appropriate locations for landscaping, but no water-sensitive urban design devices are included in the development because such devices are typically not required for rural developments.
PO3 Development provides for streetscape landscaping that:- (a) incorporates shade trees.	**PO3** While PO3 focuses on urban streetscape landscaping, the Bullyard Solar Project will incorporate landscaping measures within the site to align with its rural context. The development

(b) contributes to the continuity, character and form of existing and proposed streetscapes in the locality, including streetscape works. (c) in established urban areas, towns and villages, incorporates landscape design (including planting, pavements, furniture, structures, etc.) that reflect and enhance the character of the streetscape; and (d) in new or establishing urban areas, incorporates landscape design that is consistent with and complementary to the natural landscape character of the local area.	will include native vegetation to create visual barriers and enhance the natural landscape. The planting for landscaping and retention of existing vegetation will be within the site, contributing to the visual amenity and supporting local biodiversity. Although the site does not include traditional urban streetscape elements, it will maintain the rural character and contribute positively to the local environment.
PO4 Development provides landscaping that assists in passive solar access, the provision of shade, microclimate management and energy conservation.	**AO4.1** The landscaping plan will include the use of native vegetation strategically placed to provide shade for operational buildings and outdoor areas, helping to reduce the need for mechanical cooling. This approach ensures that the working environment remains comfortable for employees while promoting energy efficiency. **AO4.2** While the primary focus of the Bullyard Solar Project is on solar energy generation rather than residential living, the design will ensure that any necessary operational areas receive adequate sunlight during the winter. This design consideration supports energy efficiency by maximizing passive solar heating where applicable. **AO4.3** Given the nature of the Bullyard Solar Project as a commercial operation with infrastructure-type buildings, the landscaping, fences, and walls will be designed to facilitate airflow for cooling during summer while providing protection against winter winds. The operational buildings will prioritise functionality, with appropriate landscaping to enhance worker comfort and energy efficiency. **General Compliance/Representations:** The operational buildings at the Bullyard Solar Project are designed with functionality and purpose in mind. The design will prioritise energy efficiency and worker comfort, incorporating features that reduce dust accumulation and facilitate maintenance. While there are no public spaces, the buildings will include worker amenities that consider environmental factors and operational needs. This comprehensive approach ensures that the design and landscaping of the solar farm support both functionality and sustainability.

Table 9.5. Summary - Response against Nuisance Code Assessment Criteria *(Refer Appendix M – 9.3.3 NUISANCE CODE - BENCHMARKS FOR ASSESSABLE DEVELOPMENT)*

Overlay	Response
PO1 Development is located, designed, constructed and operated to ensure that noise emissions do not adversely impact upon surrounding sensitive land uses. Note—this performance outcome also applies to noise emissions generated by sensitive land uses, from sources such as communal areas, service areas, plant and equipment (e.g. air conditioning units) and the like.	**PO1** 1. Noise Emissions During Construction: • Control Measures: Construction activities will be scheduled to minimize noise impacts, adhering to standard construction hours. Measures will be taken to ensure that equipment and machinery operate within acceptable noise levels. • Barriers and Buffers: Temporary measures will be employed where necessary to shield nearby sensitive areas from construction noise. 2. Noise Emissions During Operation: • Location and Context: Operational equipment will be sited to reduce noise impacts on nearby sensitive land uses. The rural setting and site layout will help mitigate potential noise disturbances to adjacent properties.

	3. Compliance with Standards: • Standards Compliance: The development will adhere to the Environment Protection (Noise) Policy 2019 (EPP Noise) and other relevant guidelines to ensure compliance with acceptable noise levels. **Proposed Conditional Statement:** "Detailed noise management solutions, including the placement of noise-reducing measures, will be addressed at the Operational Works approval stage following an assessment by appropriate experts. This approach ensures that all necessary noise control measures comply with the EPP Noise and other relevant standards."
PO2 Development that is a sensitive land use is located, designed, constructed and operated to achieve a satisfactory level of acoustic amenity where there is potential for noise emissions generated from surrounding development to adversely affect the sensitive land use. Editor's note—this is often referred to as a "reverse amenity" situation where a proposed sensitive land use may be adversely affected by nuisance emissions from surrounding development. In such cases it is contingent upon the proposed sensitive land use to implement measures to ensure that a satisfactory level of acoustic amenity is provided to prospective occupants and users of the development.	**AO2** 1. Noise Mitigation for Surrounding Sensitive Land Uses: • Strategic Location: Components such as inverters and transformers will be positioned to minimize noise impacts on surrounding sensitive land uses. • Noise Barriers and Buffers: Measures such as barriers or vegetative buffers may be considered to further reduce noise impacts where necessary. 2. Design and Operation: • Design Considerations: The design will incorporate noise reduction features for equipment and maintain appropriate distances from habitable buildings. • Operational Controls: The solar farm's operation will include regular maintenance and noise monitoring to ensure compliance with relevant standards. 3. Compliance with Environmental Standards: • Standards Compliance: The development will comply with the Environment Protection (Noise) Policy 2019 (EPP Noise) to meet acoustic environment and quality objectives for sensitive receiving environments. **Proposed Conditional Statement:** "Detailed noise management measures, including equipment placement and noise mitigation strategies, will be addressed at the Operational Works approval stage following expert assessment. This approach ensures compliance with the acoustic environment and quality objectives set out in the EPP (Noise)."
PO3 A satisfactory level of acoustic amenity is achieved for:- (a) external private and communal open space areas (including gardens and balconies) of sensitive land uses; and (b) parks and other areas of public open space (where not used for outdoor sport, recreation and entertainment). Note—this performance outcome will not be met if significant increases (i.e. more than 3 dB(A)) over and above pre-existing noise levels are likely to occur post-development.	**PO3** 1. Rural Context and Activities: • The surrounding area consists of rural activities such as macadamia farms and hobby farms, which naturally generate noise (e.g., machinery, pumps) that is consistent with rural environments. • Typical rural noise levels are already above the very low background levels found in purely residential settings, making additional noise from the solar farm less impactful. 2. Vegetative Buffers: • The design includes natural vegetative buffers around the site to absorb and reduce noise transmission. This aligns with the existing rural landscape and provides effective noise mitigation. 3. Distance to Residences: • The nearest habitable buildings are at least 100m away from any solar farm structures. This significant distance, combined with the rural setting, further minimises any potential noise impact on sensitive land uses. 4. Operational Noise Minimisation: • Inverters and transformers, the primary sources of operational noise, will be equipped with noise-reducing enclosures and strategically located to minimise impact. • Construction activities are limited to 12 hours per day, 6 days per week, reducing noise during sensitive times. 5. No Public Open Space Impact: • There are no public open spaces or likely external private spaces in the immediate vicinity that would be affected by noise emissions from the solar farm. Conclusion:

	Given the rural environment, typical noise-generating activities, vegetative buffers, and the distance to residences, the Bullyard Solar Project is unlikely to cause significant noise impacts post-development. It is unlikely that a baseline noise assessment will be deemed necessary. **Proposed Conditional Statement:** "Detailed noise mitigation measures for both construction and operational phases will be addressed at the Operational Works approval stage following expert noise assessment. This will ensure that the development achieves a satisfactory level of acoustic amenity in line with the Environmental Protection (Noise) Policy 2019 and local planning standards."
PO5 Development is located, designed, constructed and operated to ensure that odour, dust and particulate emissions do not cause environmental nuisance to sensitive land uses (whether existing or proposed uses) in the surroundings of the proposed development.	**AO5.1** The Bullyard Solar Project will implement dust control measures to comply with the Air Quality Objectives contained in the Environmental Protection (Air) Policy 2008. Potential measures include regular wetting of the ground, application of dust suppressants, and use of vegetative buffers to minimise dust dispersion. These measures are examples and not exhaustive; the final selection will be determined during the detailed design and construction phases, based on the specific conditions and requirements at that time. Monitoring will be conducted to ensure dust levels remain within acceptable limits and do not cause nuisance to surrounding sensitive land uses. **AO5.2** The Bullyard Solar Project does not produce odour emissions. Particulate emissions will be controlled through dust control measures similar to those outlined for AO5.1. While specific measures will be tailored during the detailed design and construction phases, they will include potential solutions such as wetting, dust suppressants, and vegetative buffers. These measures will be adjusted as necessary to manage particulate emissions effectively, ensuring no environmental nuisance to surrounding sensitive land uses. **Proposed Conditional Statement:** "Dust, odour, and particulate emissions will be managed to prevent environmental nuisance to surrounding sensitive land uses. Measures to control these emissions may include, but are not limited to, regular wetting of disturbed areas, application of dust suppressants, and use of vegetative buffers. The final control measures will be determined during the detailed design and construction phases and conditioned in the Development Approval to ensure compliance with the Air Quality Objectives contained in the Environmental Protection (Air) Policy 2008."
PO7 Development ensures that lighting and glare does not have any significant adverse amenity impacts or create nuisance to surrounding premises.	**AO7.1** **Lighting Design and Installation:** The Bullyard Solar Project will ensure that lighting devices are strategically located and designed to minimise light spillage on surrounding premises. Covers and shading will be provided around lights to direct them downwards and away from sensitive areas, and lights will be positioned to avoid impacting nearby residences and rural properties. Given the rural setting and the nature of the development, enabling brightness of lights to be adjusted to low levels is not deemed necessary beyond standard design measures. **Reflective Glare:** The solar panels are equipped with anti-reflective coatings that significantly reduce glare. This ensures that the panels do not create visual disturbances for nearby roads or adjoining properties. The panels are also strategically sited and oriented to minimise visibility from public vantage points, further supported by the use of landscape buffers and screening. **AO7.2** Vehicle access is typically restricted to mostly daylight hours (12 hours). The site is in a rural environment, screened, and buffered, with visual impacts off the property being very unlikely, including for adjacent rural residences. The main switching station is in a relatively remote part of the site and is lit for security reasons. The layout of streets, driveways, and servicing areas within the solar farm will be designed to direct vehicle

	headlights away from surrounding residential premises. This minimises any potential nuisance from vehicle lights. **AO7.3** The use of anti-reflective coatings on solar panels, along with low-reflectivity external materials and landscape treatments, ensures that reflective glare is minimised. Buildings are strategically positioned and designed with low-reflectivity materials to minimise visual impact. Landscape treatments, including vegetative buffers and screening, further block or reduce excessive reflective glare, preventing any nuisance to residents or the general public in surrounding areas.
PO8 Effective measures are implemented during the construction and operation of development to protect fauna that is sensitive to disturbance from noise, vibration, odour, light, dust and particulates.	**AO8.1** The Bullyard Solar Project is committed to implementing effective measures to protect fauna during both the construction and operation phases. Key strategies include: 1. Noise and Vibration Management: • Construction Scheduling: Construction activities will be scheduled to minimise noise and vibration impacts, with consideration given to the timing and duration of potentially disruptive activities. • Equipment Maintenance: Regular maintenance of equipment and machinery will be conducted to ensure they operate efficiently and quietly, reducing noise and vibration. • Noise Mitigation: Noise-reducing enclosures will be used for inverters and transformers during operation, and their location will be carefully selected to minimise disturbance to fauna. 2. Dust and Particulate Control: • Dust Suppression: Effective dust control measures, such as regular wetting of the ground and the use of dust suppressants, will be implemented during construction to limit dust and particulate emissions. • Vegetative Buffers: Natural vegetative buffers will be established to help contain dust and particulate dispersion, providing a protective barrier for sensitive fauna habitats. 3. Light Management: • Strategic Lighting: Lighting devices will be strategically located and designed to minimise light spillage and direct lights downwards to avoid impacting nocturnal fauna. • Controlled Brightness: Lights will be set at the minimum necessary brightness for safety and security to reduce potential disruption to fauna. 4. Odour Control: • Operational Characteristics: The solar farm is not expected to produce significant odour emissions, ensuring that odour does not adversely impact fauna in the surrounding areas. **Proposed Conditional Statement:** "The implementation of noise, dust, light, and other impact mitigation measures will be conditioned in the Development Approval and further refined at the Operational Works approval stage based on expert assessments.

Table 9.6. Summary - Response against Transport and Parking Code Assessment Criteria *(Refer Appendix N – 9.3.5 TRANSPORT AND PARKING CODE - BENCHMARKS FOR ASSESSABLE DEVELOPMENT)*

Overlay	Response
PO1 Development ensures that the location, layout and design of vehicle access, on-site circulation systems and parking and service areas:- (a) is safe, convenient and legible for all users including people with disabilities, pedestrians, cyclists and public transport services, where relevant.	**AO1.1** The location, design, and provision of any site access, access driveways, internal circulation and manoeuvring areas, service areas, and parking areas will be in accordance with the standards specified in the Planning Scheme Policy for Development Works and the requirements of relevant authorities. The Bullyard Solar Project will ensure that all transport infrastructure, including roads, pathways, and public transport facilities, is designed and constructed to these standards.

(b) does not interfere with, and minimises any adverse impacts on, the planned function, safety, capacity, efficiency and operation of the transport network. (c) provides sufficient on-site parking to meet the needs of, and anticipated demand generated by, the development. (d) limit potential conflict between service vehicles, other vehicles and pedestrians; and (e) minimises adverse impacts on the local streetscape character and amenity of the surrounding area.	**On-site access, circulation, and service areas:** • The proposal plan provides a clear layout of on-site access, internal circulation, and parking areas that accommodate all necessary vehicles associated with the project. The main parking area (108m x 48m and 108m x 22m) is designed to accommodate up to 180 cars, and the Office/Extra Parking area (50m x 40m) can hold an additional 20 cars, ensuring a total capacity of 200 cars. • As advised by the client, car-pooling and shared transportation are expected to reduce the peak number of vehicles to around 150 cars. The additional 50 spaces provide flexibility and contingency, ensuring smooth on-site operations even during peak periods. • The layout ensures safe and efficient circulation for B-Doubles, rigid body trucks, and other vehicles associated with the construction phase, with designated areas for loading/unloading and storage. **Proposed Conditional Statement:** "This element is to be conditioned in the Development Approval to be dealt with at the Operational Works approval stage following detailed engineering design." **AO1.2** The Bullyard Solar Project will ensure that the number of site access driveways is minimised. For this project, there are two entrances: the main entrance for construction and operations from Goondoon Road, and a secondary entrance from Gastons Road. This approach is consistent with amenity impact constraints and is subject to the formal design and treatment to be addressed in the Traffic Impact Assessment. **Proposed Conditional Statement:** "This element is to be conditioned in the Development Approval to be dealt with at the Operational Works approval stage following detailed engineering design." **AO1.3** The Bullyard Solar Project will ensure that the number of on-site parking spaces is appropriate for the use. According to Table 9.3.5.3.3, which categorizes our development under "all other activities," specific parking requirements for cars, service vehicles, and bicycles are not explicitly listed. Given the nature of the solar farm, parking requirements will cater to operations staff, maintenance staff, service vehicles, and occasional visitors. The design and location of car parking areas will be aimed at achieving a high standard of amenity and safety for users. This includes accommodating the necessary types and volumes of vehicles in accordance with relevant standards and guidelines to be determined by the engineers during the formal design phase. **Provision of on-site parking spaces:** • The amended plan provides the required number of parking spaces based on practical experience from similar projects. Although 300 personnel are anticipated during peak construction, 150 vehicles are expected due to car-pooling and shared transport arrangements. • The 200 spaces provided across the Main Parking and Office/Extra Parking areas exceed the expected demand, ensuring sufficient parking for all personnel, with additional capacity as a contingency. **Proposed Conditional Statement:** "The final number of on-site parking spaces and the design of car parking areas will be conditioned in the Development Approval to be dealt with at the Operational Works approval stage following detailed engineering design generally in accordance with the proposed plan." **AO1.4** Pedestrian paths will be located in areas where people are likely to walk, ensuring convenience and safety. The design will guide pedestrian movement along aisles rather than across vehicular traffic, reducing potential safety hazards.

	Proposed Conditional Statement: "The design and location of pedestrian paths within and around on-site vehicle parking areas will be conditioned in the Development Approval to be dealt with at the Operational Works approval stage following detailed engineering design." **AO1.5** The layout and design of the development will provide for the manoeuvring and parking of all vehicles associated with the use on-site. Driveways, internal circulation areas, manoeuvring areas, and service areas (including loading and unloading areas and refuse collection facilities) will be designed and provided to accommodate the nominated design vehicles and other vehicles likely to be associated with the use. These areas will be constructed in accordance with the standards specified in the Planning Scheme Policy for Development Works. **On-site manoeuvring and parking design:** • The layout of driveways, internal circulation areas, and manoeuvring zones has been designed to accommodate the vehicles anticipated for the project, allowing for easy ingress and egress without causing congestion. • All vehicles will be able to enter and leave the site in a forward motion, as required by the code, ensuring safety and compliance. • Propose Designated areas are provided for loading/unloading, storage, and manoeuvring to prevent congestion and allow smooth on-site operations. **Proposed Conditional Statement:** "The layout and design of driveways, internal circulation areas, manoeuvring areas, and service areas will be conditioned in the Development Approval to be dealt with at the Operational Works approval stage following detailed engineering design generally in accordance with the proposed plan." **AO1.6** N/A. This element is not applicable to the Bullyard Solar Project as it is located in a rural zone and classified as a utility installation. The provisions for inter-connectivity with adjacent developments in a centre zone or Specialised centre zone are not relevant to this project.
PO2 Development, particularly where involving high trip generating land uses or the creation of new roads and other transport corridors, ensures provision of a transport network that:- (a) accords with the Strategic transport network as shown on **Strategic Framework Map SFM-003 (Transport and infrastructure elements) and the Local Government Infrastructure Plan**. (b) provides visible distinction of roads, with the design of streets and roads based on function, safety and efficiency. (c) provides convenient, safe and efficient movement for all modes of transport between land use activities with priority given to pedestrian movement and bicycle use over vehicle movements. (d) allows for unimpeded and practical access to the development site and each proposed lot. (e) facilitates and promotes the use of public and active transport, including access to cycle and pedestrian pathways. (f) facilitates a high standard of urban design which reflects a grid pattern (or modified grid pattern) to assist in connectivity and permeability, particularly for pedestrians and cyclists. (g) connects to and integrates with existing roads and other relevant facilities within and external to the land to be developed or subdivided. (h) provides for the dedication and construction of roads where required to allow access to, and proper development of, adjoining land that is intended for development.	**PO2** The Bullyard Solar Project will ensure that the transport network meets all elements of PO2, aligning with the Strategic Framework Map SFM-003 and the Local Government Infrastructure Plan. The development will be designed to support safe, efficient, and convenient transport for all users, minimising impact on the surrounding environment and infrastructure. **Proposed Conditional Statement:** "The layout and design of the transport network will be conditioned in the Development Approval to be dealt with at the Operational Works approval stage following detailed engineering design."

(I) provides for the construction and adequate drainage of all proposed roads, pathways, laneways and bikeways within and adjoining the land to be developed. (j) minimises any adverse impacts on the existing transport network, surrounding land uses, and the amenity of the surrounding environment; and (k) does not adversely impact on wildlife movement corridors.	
PO3 In Woodgate Beach, development provides for the extension and continuation of residential access streets between First Avenue and Seventh Avenue, including but not limited to Palm Court, Jacaranda Court, Oleander Court and Banksia Court, consistent with the established cadastral and road alignment pattern in the area, and so as not to preclude or prejudice access to and development of adjacent and nearby properties.	**PO3** N/A. PO3 is not applicable to the Bullyard Solar Project, as it addresses a specific coastal development in Woodgate Beach.
PO4 Development provides for the establishment of a safe and convenient network of pedestrian and bicycle paths that:- (a) provides a high level of permeability and connectivity. (b) provide for joint usage where appropriate. (c) maximises opportunities to link activity centres, employment areas, residential areas, community facilities, open space and public transport stops located internally and externally to the site. (d) have an alignment that maximises visual interest, allows for the retention of trees and other significant features and does not compromise the operation of or access to other infrastructure. (e) incorporates safe street crossings with adequate sight distances, pavement markings, warning signs and safety rails; and (f) is well lit and located where there is casual surveillance from nearby premises.	**PO4** N/A. PO4 is not applicable to the Bullyard Solar Project, as it pertains to developments where managing conflicts between vehicles, pedestrians, and cyclists is a primary concern in urban environments. There is no public access to this secure site. The solar farm is located in a rural area with essentially no pedestrian (other than staff and occasional visitors) and cyclist traffic. However, the engineering design for the development will manage safety for staff and visitors as part of the Operational Works design.
PO5 Appropriate on-site end of trip facilities are provided to encourage walking and cycling as an alternative to private car travel.	N/A. PO5 PO5 and its associated acceptable outcomes (AO5.1 and AO5.2) are not applicable to the Bullyard Solar Project. The project is classified as a utility installation located in a rural area with minimal pedestrian and cyclist traffic. It does not involve development activities that require end-of-trip facilities such as shower cubicles, change rooms, lockers, or bicycle storage.
PO6 Development encourages the use of public transport through:- (a) appropriate development design which maximises accessibility via existing and planned public transport facilities; and (b) appropriate provision of on-site or off-site public transport facilities, having regard to the specific nature and scale of development, and the number of people or lots involved.	N/A. PO6 PO6 and its associated acceptable outcomes (AO6.1, AO6.2, AO6.3, AO6.4, AO6.5) are not applicable to the Bullyard Solar Project. The project is classified as a utility installation located in a rural area without existing or proposed public transport facilities. It does not involve development activities that require public transport linkages or facilities
PO7 Development ensures that on-site vehicle access, manoeuvring and parking facilities do not have adverse impacts on people, properties or activities, with regard to light, noise, emissions or stormwater run-off.	**PO7** The Bullyard Solar Project will ensure that on-site vehicle access, manoeuvring, and parking facilities do not have adverse impacts on people, properties, or activities with regard to light, noise, emissions, or stormwater run-off. The project will adhere to the standards specified in the Planning Scheme Policy for

	Development Works to manage these potential impacts effectively. **Proposed Conditional Statement:** "The design and layout of on-site vehicle access, manoeuvring, and parking facilities, ensuring they do not have adverse impacts with regard to light, noise, emissions, or stormwater run-off, will be conditioned in the Development Approval to be dealt with at the Operational Works approval stage following detailed engineering design."
PO8 Development provides the reserve width and external road works along the full extent of the site frontage, and other transport corridors where appropriate, to support the function and amenity of the transport corridor, including where applicable:- (a) paved roadway; (b) kerb and channel; (c) safe vehicular access; (d) safe footpaths and bikeways; (e) safe on-road cycle lanes or verges for cycling. (f) stormwater drainage; (g) provision of public utility services; (h) streetscaping and landscaping; and (i) provision of street lighting systems, road signage and line marking.	**AO8** The design and construction of road works, including external road works, will be managed by the engineers at the Operational Works approval stage to ensure compliance with the Planning Scheme Policy for Development Works. **Proposed Conditional Statement:** "The design and construction of road works, including external road works, ensuring they support the function and amenity of the transport corridor, will be conditioned in the Development Approval to be dealt with at the Operational Works approval stage following detailed engineering design."
PO9 Development provides for traffic speeds and volumes to be catered for through the design and location of intersections and traffic controls so as to:- (a) ensure the function, safety and efficiency of the road network is maintained; (b) minimise unacceptable traffic noise to adjoining land uses; and (c) maintain convenience and safety levels for pedestrians, cyclists and public transport.	**AO9** Intersections and speed control devices will be managed by the engineers at the Operational Works approval stage to ensure compliance with the Planning Scheme Policy for Development Works. **Proposed Conditional Statement:** "The design and construction of intersections and speed control devices, ensuring they cater for traffic speeds and volumes to maintain the function, safety, and efficiency of the road network, will be conditioned in the Development Approval to be dealt with at the Operational Works approval stage following detailed engineering design."

Table 9.7. Summary - Response against Works, Services and Infrastructure Code Assessment Criteria *(Refer Appendix O – 9.3.7 WORKS, SERVICES AND INFRASTRUCTURE CODE - BENCHMARKS FOR ASSESSABLE DEVELOPMENT)*

Overlay	Response
PO1 The design and construction of works ensures safe and convenient use by users of the site and the general public.	**PO1** The Bullyard Solar Project will ensure that the design and construction of works provide safe and convenient use for users of the site. **AO1** All development works will be managed by the engineers at the Operational Works approval stage to ensure compliance with the Planning Scheme Policy for Development Works. **Proposed Conditional Statement:** "The design and construction of works, ensuring they provide safe and convenient use for users of the site, will be conditioned in the Development Approval to be dealt with at the Operational Works approval stage following detailed engineering design."

PO2 Development works and connections to infrastructure and services are undertaken in accordance with acceptable engineering standards.	**PO2** The Bullyard Solar Project will ensure that development works and connections to infrastructure and services are undertaken in accordance with acceptable engineering standards. **AO2.1** All development works will be certified by a Registered Professional Engineer Queensland (RPEQ). **AO2.2** All connections to infrastructure and services will be made in accordance with the requirements of Ergon Energy and other relevant infrastructure entities. **Proposed Conditional Statement:** "All development works and connections to infrastructure and services, ensuring they meet acceptable engineering standards, will be conditioned in the Development Approval to be dealt with at the Operational Works approval stage following detailed engineering design and certification by a Registered Professional Engineer Queensland (RPEQ). This includes adhering to the requirements set by Ergon Energy and other relevant infrastructure entities."
PO3 Development is provided with infrastructure, services and utilities that:- (a) are appropriate to its location and setting; (b) are commensurate with the needs of the development and its users; and (c) maintain acceptable public health and environmental standards.	**PO3** The Bullyard Solar Project will ensure that development is provided with infrastructure, services, and utilities that: (a) are appropriate to its location and setting; (b) are commensurate with the needs of the development and its users; and (c) maintain acceptable public health and environmental standards. **AO3.1** The Bullyard Solar Project site does not have access to reticulated sewerage, water supply, stormwater drainage, electricity, gas, or telecommunications services. The development will provide the required services on-site at no cost to the Council. **AO3.2** As the site is not located in a sewered area, the development will include an on-site effluent treatment and disposal system in accordance with the requirements of the Plumbing and Drainage Act 2018. **AO3.3** The development will provide on-site rainwater collection and other means to meet the anticipated water supply needs, including potable water and firefighting requirements. **AO3.4** The potable water supply for the development will comply with the Australian Drinking Water Guidelines (NHMRC, 2011) for persons working, visiting, and temporarily staying on the premises. **Proposed Conditional Statement:** "The provision of infrastructure, services, and utilities, ensuring they meet the needs of the development and comply with relevant standards, will be conditioned in the Development Approval to be dealt with at the Operational Works approval stage following detailed engineering design."
PO4 Development provides for infrastructure, services and utilities that are planned, designed and constructed in a manner which:- (a) ensures appropriate capacity to meet the current and planned future needs of the development; (b) is integrated with and efficiently extends existing networks; (c) minimises risk to life and property; (d) avoids areas of environmental significance; (e) minimises risk of environmental harm;	**AO4.1** **Proposed Conditional Statement:** “Infrastructure planning and contributions, ensuring they meet the requirements of the Local Government Infrastructure Plan or any other applicable infrastructure charging instrument, will be conditioned in the Development Approval to be dealt with at the Operational Works approval stage following detailed engineering design.” **AO4.2** **Proposed Conditional Statement:** “Infrastructure planning, design, and construction, ensuring they comply with the Council’s Local Government Infrastructure Plan, the Planning Scheme Policy for Development Works, and the requirements of relevant service providers, will be conditioned in the Development Approval to be dealt with at the Operational Works approval stage following detailed engineering design.”

(f) achieves acceptable maintenance, renewal and adaptation costs; (g) can be easily and efficiently maintained; (h) ensures the ongoing construction or operation of the development is not disrupted; (i) where development is staged, each stage is fully serviced before a new stage is released; (j) ensures adequate clearance zones are maintained between utilities and dwellings to protect residential amenity and health; and (k) minimises adverse visual impacts, to the extent practicable.	**AO4.3** The Bullyard Solar Project will ensure that compatible public utility services are co-located in common trenching where feasible, to minimise land requirements and reduce the costs for underground services. **Proposed Conditional Statement:** "The planning and design of utility services will consider the co-location of compatible public utility services in common trenching as a preferred solution where practical, to minimise land requirements and reduce costs for underground services. However, the condition will allow for alternative innovative solutions to be considered and implemented, subject to detailed engineering design and approval at the Operational Works stage." **AO4.4** While AO4.4 is typically applicable to residential developments, the Bullyard Solar Project will ensure that stormwater drainage, sewerage, and sullage systems are designed for operational works and other buildings used particularly by staff and for staff amenity to prevent overflows. The systems will be planned and approved to accommodate the needs of the site, ensuring they do not adversely impact the surrounding rural environment. **Proposed Conditional Statement:** "The design of stormwater drainage, sewerage, and sullage systems, ensuring they prevent overflows and accommodate the needs of operational works and other buildings, will be conditioned in the Development Approval to be dealt with at the Operational Works approval stage following detailed engineering design." **AO4.5** The Bullyard Solar Project will ensure that the location, design, and construction of infrastructure, services, and utilities minimise disturbance to areas of environmental significance, reduce earthworks, and manage impacts on watercourses or natural drainage lines where practical but in some instances will be unavoidable due to site characteristics, subject to approved engineering treatments. The solar panels' design footprint will be outside these areas to protect the sensitive environmental areas. **Proposed Conditional Statement:** "The location, design, and construction of infrastructure, services, and utilities will be conditioned in the Development Approval to be dealt with at the Operational Works approval stage following detailed engineering design. The design will aim to minimise disturbance to environmentally significant areas, reduce earthworks, and manage impacts on watercourses or natural drainage lines particularly where crossings are unavoidable, subject to approved engineering treatments. The solar panels' design footprint will remain outside watercourses and sensitive environmental areas." **AO4.6** **Proposed Conditional Statement:** "The selection of materials for the construction of infrastructure, ensuring suitability, durability, ease of maintenance, cost-effectiveness, and alignment with best practice environmental management and energy savings, will be conditioned in the Development Approval to be dealt with at the Operational Works approval stage following detailed engineering design." **AO4.7** While AO4.7 typically applies to urban areas, the Bullyard Solar Project, located in a rural setting, will ensure that electrical and telecommunications reticulation infrastructure is designed in a manner that is appropriate for the rural environment. The specific approach will be subject to engineering review and approval, considering practicality and efficiency in the rural context. **Proposed Conditional Statement:** "The design of electrical and telecommunications reticulation infrastructure, ensuring it is appropriate for the rural setting of the Bullyard Solar Project, will be conditioned in the

	Development Approval to be dealt with at the Operational Works approval stage following detailed engineering design. The infrastructure will be designed considering practicality and efficiency in a rural context."
PO6 Excavation and filling:- (a) does not cause environmental harm; (b) does not impact adversely on visual amenity; (c) does not impact adversely on adjoining properties; (d) maintains natural landforms as far as reasonably practicable; (e) is stable in both the short and long term; (f) does not prevent or create difficult access to the property; and (g) does not result in ponding, concentration or diversion of overland runoff flows that cause damage to adjacent lands or infrastructure.	**AO6.1** The Bullyard Solar Project will ensure that excavation and filling: (a) are limited to maintaining the natural landforms as much as practical, recognising that on areas with slopes of 15% or more, changes will not exceed 1.5m relative to the natural ground level at any point, and in other areas, changes will not exceed 1m relative to the natural ground level at any point; (b) do not involve cut or fill batter within 1.5m of any property boundary unless the change in ground level is less than 200mm and does not require vegetation removal; (c) ensure that any retaining walls are no greater than 1m high; and (d) ensure that retaining walls are constructed a minimum of 150mm from property boundaries. **Proposed Conditional Statement:** "The extent of excavation and filling will be conditioned in the Development Approval to be dealt with at the Operational Works approval stage following detailed engineering design. The design will aim to maintain natural landforms as much as practical, manage changes in ground level according to site slope characteristics, and ensure compliance with setback and height requirements for retaining walls." **AO6.2** **Proposed Conditional Statement:** "The design, construction, and maintenance of driveways, ensuring compliance with the requirements of the Planning Scheme Policy for Development Works, will be conditioned in the Development Approval to be dealt with at the Operational Works approval stage following detailed engineering design." **AO6.3** The Bullyard Solar Project will ensure that any filling and excavation work is designed to manage and mitigate alterations to overland runoff flows, preventing damage to adjacent lands or infrastructure. **Proposed Conditional Statement:** "The design of filling and excavation work, ensuring management and mitigation of alterations to overland runoff flows to prevent damage to adjacent lands or infrastructure, will be conditioned in the Development Approval to be dealt with at the Operational Works approval stage following detailed engineering design."
PO7 Hydrants are located in positions that will enable fire services to access water safely, effectively and efficiently.	**Combined AO7.1 & AO7.2 Response** The Bullyard Solar Project will ensure that fire hydrants are located and provided to enable fire services to access water safely, effectively, and efficiently. Although AO7.1 and AO7.2 typically apply to residential, commercial, and industrial streets, the placement of hydrants will be adapted to the specific needs and layout of the solar farm. This will ensure safe and efficient access for fire services, considering the operational buildings, switch station, service infrastructure, and rural setting of the project. **Proposed Combined Conditional Statement:** "The placement and provision of fire hydrants, ensuring they enable safe and efficient access for fire services, will be conditioned in the Development Approval to be dealt with at the Operational Works approval stage following detailed engineering design. Hydrant placement will be tailored to the specific needs and layout of the Bullyard Solar Project, including operational buildings, switch station, and service infrastructure, considering the rural environment and complying with relevant guidelines."
PO8 Road widths and construction within the development area adequate for fire emergency vehicles to gain access to a safe working area close to dwellings and	**AO8** **Proposed Conditional Statement:** "The design and construction of internal roads and access routes, ensuring minimum clearances of 3.5 metres wide and 4.8 metres high for safe passage of emergency vehicles, will be

near water supplies whether or not on-street parking spaces are occupied.	conditioned in the Development Approval to be dealt with at the Operational Works approval stage following detailed engineering design."
PO9 Hydrants are suitably identified so that fire services can locate them at all hours.	**AO9** Proposed Conditional Statement: "The identification and marking of hydrants, ensuring they are suitable for the solar farm layout and accessible for fire services at all hours, will be conditioned in the Development Approval to be dealt with at the Operational Works approval stage following detailed engineering design. Hydrant identification will be adapted from the DTMR Traffic and Road Use Management manual (TRUM) Volume 1: Guide to Traffic Management, Part 10, to meet the specific requirements of the Bullyard Solar Project."
PO10 Marina development provides facilities for the handling and disposal of ship-sourced pollutants.	**PO10** N/A - PO10 is not applicable to the Bullyard Solar Project, as it pertains specifically to marina developments and the handling and disposal of ship-sourced pollutants. There are no facilities related to marinas or boat handling on the solar farm site.

9.1.4. Overlay Codes

Table 9.8 below presents the responses to the assessment against the overlays applicable to this site.

Table 9.8: Response against Overlay Code Assessment Criteria

Overlay	Response
Acid Sulphate Soils *Mapping Overlay: (Figure 23)*	N/A - The site is not affected by Acid Sulphate Soils.
Biodiversity (MSES Watercourse Buffer) *Mapping Overlay: (Figure 22a, 22b & 25b)*	The project incorporates a 50m buffer on either side of mapped watercourses (Stream Orders 1 & 2), with all crossings located on existing farm roads. The General Treatment for Watercourse and Mapped Vegetation Crossings (Appendix W) guides the design and rehabilitation of these areas to ensure compliance with the Biodiversity Areas Overlay Code (Appx V) and improve degraded crossing areas. The disturbance footprint, including the solar array and internal roads, are located outside the buffer, except at designated crossings, which are managed in accordance with the General Treatment document and the requirements of the Biodiversity Areas Overlay Code. Ecologists Redfleaf Group have provided a supporting review of the proposed internal road network and crossing treatments, Appendix X – Redleaf Group Technical Memorandum - Internal Access Tracks Environmental Input. Refer also Section 8.1 and Appendix Q Ecological Impact Assessment for details, and SARA discussion Appendix R.
Biodiversity (MSES Wildlife Habitat) Mapping Overlay: (Figure 22a & 25b)	The disturbance footprint for the solar array and internal road network avoids impacts to MSES Wildlife Habitat except for necessary

	watercourse and mapped vegetation crossings. A minimum 10m offset to the solar array from the protected vegetation is maintained. Internal roads may in some instances follow existing farm roads also outside the mapped watercourse buffers and MSES Wildlife Habitat, potentially within the 10m solar array footprint buffer. Refer proposed plan Figure 25b. The General Treatment for Watercourse and Mapped Vegetation Crossings (Appendix W) guides the design and rehabilitation of road crossing protected areas to ensure compliance with the Biodiversity Areas Overlay Code (Appx V) and improve degraded crossing areas. Ecologists Redfleaf Group have provided a supporting review of the proposed internal road network and crossing treatments, Appendix X – Redleaf Group Technical Memorandum - Internal Access Tracks Environmental Input. Refer also Section 8.1 and Appendix Q Ecological Impact Assessment for details, and SARA discussion Appendix R.
Biodiversity (MSES Regulated Vegetation) *Mapping Overlay: (Figure 22a & 25b) and Figure 20: Ecological Assessment Regulated Vegetation Mapping (Redleaf) referenced page 44*	The disturbance footprint for the solar array and internal road network avoids impacts to MSES Wildlife Habitat except for necessary watercourse and mapped vegetation crossings. A minimum 10m offset to the solar array from the protected vegetation is maintained. Internal roads may in some instances follow existing farm roads also outside the mapped watercourse buffers and MSES Wildlife Habitat, potentially within the 10m solar array footprint buffer. Refer proposed plan Figure 25b. The General Treatment for Watercourse and Mapped Vegetation Crossings (Appendix W) guides the design and rehabilitation of road crossing protected areas to ensure compliance with the Biodiversity Areas Overlay Code (Appx V) and improve degraded crossing areas. Ecologists Redfleaf Group have provided a supporting review of the proposed internal road network and crossing treatments, Appendix X – Redleaf Group Technical Memorandum - Internal Access Tracks Environmental Input. Refer also Section 8.1 and Appendix Q Ecological Impact Assessment for details, and SARA discussion Appendix R.
Bushfire Hazard (Nil to High) *Mapping Overlay: (Figure 21)*	Not considered relevant, considered minimal impact. Refer Section 6.7.2 Bushfire Hazard

	Assessment and Management considerations (page 31). Fire Management Plan to be developed prior to commencement of construction on site.
Steep Land *Mapping Overlay: (Figure 8)*	The site involves several areas of steep land which are concentrated generally around the existing watercourses. The solar farm development solar array footprint area is located outside of these areas, but details of dealing with internal roads crossing are discussed in Section 6.7.3, Steep Land Overlay Code discussion (AO1) and generally covered in the General Treatment for Watercourse and Mapped Vegetation Crossings Appx W. Ecologists Redfleaf Group have provided a supporting review of the proposed internal road network and crossing treatments which is also relevant to Steep Land; Appendix X – Redleaf Group Technical Memorandum - Internal Access Tracks Environmental Input.
Agricultural Land Classification (ALC) *Mapping Overlay: (Figure 9)*	The site is partially affected by SPP mapping for Classes A or B Agricultural Land. The parcels are considered low quality for any agricultural use given the previous 20-year usage of the sites for cattle grazing. The DNRM land use category for all three parcels is designated as: Cattle-breeding & fattening (Source: BRC interactive mapping, parcel information panel). The construction of a solar farm on this site does not impact agriculture, given the current and historical land use, and the low-grade land quality is inconsistent with high-grade agricultural use. Moreover, the temporary nature of the solar farm allows the site to return to its natural state at the end of its lifespan. This capability for site rehabilitation ensures that the solar farm does not permanently alienate the land from its rural uses and maintains the long-term agricultural viability of the site, therefore no further assessment is required.
CBD Parking Area	N/A - Not in a CBD area
Third Party Advertising Devices Exclusion Area	N/A - No intention by the Proponent to install or allow to be installed any Third-Party Advertising Devices within the Exclusion Area
Preliminary Planning Approval	Being sought
Charges Resolution (No.1) 2021	Charges Resolution (No.1) 2021 is Bundaberg Regional Council's framework for setting infrastructure charges under the Planning Act 2016. Charges details are expected to be a

	condition of the approval. We note however that special incentives may be provided for projects of regional significance. These include significant infrastructure projects, which are defined as those involving substantial investment (e.g., projects valued at $15 million or more) or creating many local jobs. Eligible projects may receive discounts of up to 100% off the standard infrastructure charges
High Density Residential Zone – Bargara Building Height Control Area	N/A – Not within the High-Density Residential Zone – Bargara Building Height Control Area
State Development Area (SDA) *Mapping Overlay: (Figure 24)*	N/A – SDAs are strategically located areas designed to support large-scale industrial activities, infrastructure development, and major public works. They provide planning and development certainty and help concentrate industrial activities in specific regions to minimise environmental impacts and infrastructure duplication. Our site is not within the Bundaberg SDA.
Development Footprint Plan Provision (DPF) *See Plan: 24002-01-AD S_Array Sht1, 2 & 3: (Figures 25a, 25b &25c)*	The Proposal Plan or Development Footprint Plan is designed to clearly outline the extent of development on a site, ensuring that the proposed development does not exceed the permissible footprint. This plan helps in managing environmental impacts, conserving natural resources, and ensuring sustainable land use. Refer Plan: 24002-01-AD S_Array Shts1, 2 & 3.
Priority Infrastructure Area (PIA)	N/A – The development is not within a PIA
Future Trunk Infrastructure	N/A – Future Trunk Infrastructure (FTI), as defined by the Planning Act 2016 and Bundaberg Regional Council Planning Scheme, includes major systems for water, sewerage, stormwater, transport, and public parks serving multiple developments. Our solar farm does not meet the FTI criteria and is not located near any designated FTI according to the Bundaberg LGIP mapping
Existing trunk Infrastructure	N/A – Existing Trunk Infrastructure (ETI). According to Bundaberg LGIP mapping, our solar farm is not located near any ETI nor does it affect any ETI within BRC

Table 9.9. Summary - Response against BIODIVERSITY AREAS OVERLAY CODE Assessment Criteria *(Refer Appendix V – 8.2.4 BIODIVERSITY AREAS OVERLAY CODE - BENCHMARKS FOR ASSESSABLE DEVELOPMENT)*

Performance outcomes	**Compliance/Representations**
Protection of matters of environmental significance	
PO1	**AO1**

Development avoids significant impacts on, areas of environmental significance, unless there is an overriding need for the development in the public interest and there is no feasible alternative.	• The amended proposal plan demonstrates that the solar arrays have been carefully positioned to avoid significant impacts on MSES-regulated vegetation, wildlife habitat, and watercourse buffers. A setback of at least 10 metres has been provided specifically for the solar array from regulated vegetation. Additionally, a 50-metre buffer has been maintained on either side of watercourses classified as Stream Orders 1 and 2, ensuring compliance with environmental regulations. • *No works, including earthworks, will extend beyond the nearest road reserve boundary, to be marked prior to the commencement of works, to MSES areas or watercourse buffers, except for the necessary crossings and fire breaks. the 6m-wide road reserve may fall within the minimum 10m offset, excluding these exceptions.* • The internal road network remains outside the watercourse buffers and regulated vegetation, except where crossings are required. Crossings have been limited to existing farm road locations and are strategically managed through avoidance alignment strategies to limit the environmental footprint, ensuring minimal disturbance. • The REDLEAF Group's ecological report confirms that the project site consists primarily of non-remnant category X vegetation, meaning that most of the site has already been disturbed, minimising the potential for significant environmental impacts. Where impacts could occur, the report recommends setbacks and buffers that have been adopted in the amended plan. • The General Treatment for Watercourse and Mapped Vegetation Crossings (Appendix W) outlines a framework for addressing impacts during the operational works phase, ensuring that detailed designs protect sensitive environmental areas. Further consultation with SARA will ensure compliance with environmental standards as the project progresses. • Crossing points, though requiring some minor clearing, will be carefully located and managed to minimise their environmental footprint, with the design strategy intended to avoid clearing wherever possible. • Any necessary clearing associated with these crossings will comply with Schedule 10, Part 3, Division 4, Table 3, Item 1(b) of the Planning Regulation 2017, as also detailed in the General Treatment for Watercourse and Mapped Vegetation Crossings document. Discussions with SARA will be required to ensure full regulatory compliance. • Ecologists Redfleaf Group have provided a supporting review of the proposed internal road network and crossing treatments, Appendix X – Redleaf Group Technical Memorandum - Internal Access Tracks Environmental Input.
PO2 Development is located, designed and operated to mitigate significant impacts on the relevant environmental values.	**PO2** • The amended proposal plan ensures that the solar arrays and internal roads are located outside watercourse buffers and protected vegetation areas, except where crossings are necessary. By utilising existing farm tracks and employing avoidance alignment strategies, the design minimises the need for clearing and protects significant environmental values, including native vegetation and fauna habitats. • *No works, including earthworks, will extend beyond the nearest road reserve boundary, to be marked prior to the commencement of works, to MSES areas or watercourse buffers, except for the necessary crossings and fire breaks. the 6m-wide road reserve may fall within the minimum 10m offset, excluding these exceptions.* • Where crossings over watercourses or through regulated vegetation are required, these have been carefully located at existing farm road locations to limit disturbance. The crossings will incorporate culverts or low-flow pipe systems to ensure watercourse connectivity and allow for the safe passage of aquatic species, such as fish, while maintaining natural flow conditions. • Fauna movement corridors will be maintained by ensuring that internal roads do not create barriers to wildlife movement. The design will prevent habitat fragmentation and ensure minimal disruption to local fauna.

	• During the operational phase, human activities such as lighting, noise, and vehicle movement will be carefully managed. Low-intensity lighting will be used only when necessary, and vehicle movements will be restricted to minimise disruption to sensitive habitats. These operational considerations ensure minimal impact on the local ecosystem. • **The General Treatment for Watercourse and Mapped Vegetation Crossings (Appendix W)** provides further guidance for addressing impacts during the operational works phase. • Ecologists Redfleaf Group have provided a supporting review of the proposed internal road network and crossing treatments, Appendix X – Redleaf Group Technical Memorandum - Internal Access Tracks Environmental Input.
PO3 Development avoids the introduction of non-native pest species (plant or animal) that pose a risk to ecological integrity, and manages existing pest species. Editor's note—Pest species may need to be controlled by adopting pest management practices that provide for long-term ecological integrity.	**PO3** The regular maintenance operations of the solar farm will include weed and pest control as part of ongoing site management. This will prevent the introduction and spread of non-native pest species and ensure that vegetation around the solar panels is properly managed. The pest management measures will include routine monitoring, targeted weed control, and maintaining clear access paths. Any existing pest species will be controlled using approved techniques, minimising the risk to ecological integrity.
Improving ecological corridors and expanding habitat extent of ecological corridors	
PO5 Existing ecological corridors are protected, and where possible enhanced, and have dimensions and characteristics that will:- (a) effectively link habitats on and/or adjacent to the development site; (b) facilitate the effective movement of terrestrial and aquatic fauna accessing and/or using the development site as habitat. Editor's note—ecological corridors are identified conceptually on **Strategic Framework Map SFM-004 (Natural environment and landscape character elements)**,	**AO5** • The amended proposal plan ensures that ecological corridors remain intact and are protected from significant disturbance. Native vegetation within these corridors will be retained, and where required, efforts will be made to regenerate and rehabilitate areas affected by the project, in compliance with AO5. • The Redleaf Group's ecological assessment has identified and evaluated the fauna movement corridors within the project area. Based on this assessment, the dimensions and characteristics of these corridors have been factored into the design to ensure the continued safe movement of fauna. • The internal roads are designed to avoid major ecological corridors, and where crossings are required, they have been aligned with existing farm roads to reduce the environmental footprint and minimise disruption to the corridors. • The **General Treatment for Watercourse and Mapped Vegetation Crossings (Appendix W)** further supports the preservation of these corridors by providing guidelines on minimising impacts during both the construction and operational phases. • Ecologists Redfleaf Group have provided a supporting review of the proposed internal road network and crossing treatments, Appendix X – Redleaf Group Technical Memorandum - Internal Access Tracks Environmental Input.
PO6 Development near an ecological corridor mitigates adverse impacts on native fauna feeding, nesting, breeding and roosting sites and native fauna movements, including (but not limited to):- (a) ensuring that development (e.g. roads, pedestrian access, in-stream structures) during both the construction and operation phases does not create barriers to the movement of fauna into, along or within ecological corridors; (b) providing wildlife movement infrastructure where necessary and directing fauna to locations where wildlife movement infrastructure has been provided to enable fauna to safely negotiate a development area; and (c) separating fauna from potential hazards (e.g. through appropriate fencing).	**PO6** • The amended proposal plan ensures that development near ecological corridors avoids creating barriers to fauna movement. The design of internal roads, solar arrays, and other structures ensures that fauna can move into, along, and within the corridors without obstruction. • The development avoids disrupting critical feeding, nesting, breeding, and roosting sites, with key fauna movement routes protected as part of the design. The Redleaf Group's ecological assessment has been used to identify areas of high ecological significance and to design the layout to minimise disturbance. • Where necessary, existing farm road crossings have been utilised to limit the creation of new infrastructure, reducing the likelihood of fauna encountering barriers. Since only open roadways are being constructed, the project ensures that fauna can safely negotiate the development area without the need for additional wildlife movement infrastructure. • The project avoids hazards to fauna by minimising interaction with construction areas and maintaining safe movement paths. All operational procedures will be reviewed during the operational works phase to ensure that potential hazards to wildlife are mitigated.

	• The **General Treatment for Watercourse and Mapped Vegetation Crossings (Appendix W)** will guide the construction and operational phases, ensuring that fauna movement is preserved and that necessary mitigation strategies are in place.
Impact on habitat of threatened species	
PO7 Development protects the habitat of endangered, vulnerable and near threatened species and local species of significance, including by incorporating siting and design measures to protect and retain identified ecological values and underlying ecosystem processes within or adjacent to the development site.	**PO7** • The amended proposal plan has incorporated siting and design measures that protect and retain the habitat of endangered, vulnerable, and near-threatened species identified within or adjacent to the development site. The Redleaf Group's ecological assessment has provided critical data on the presence of these species and their habitats, which informed the design to minimise disturbance. • The solar array footprint and internal roads have been positioned to avoid areas of high ecological significance. A minimum 10m setback from regulated vegetation has been established to protect these habitats, and a 50m buffer has been maintained around watercourses, particularly those classified as Stream Orders 1 and 2. • *No works, including earthworks, will extend beyond the nearest road reserve boundary, to be marked prior to the commencement of works, to MSES areas or watercourse buffers, except for the necessary crossings and fire breaks. the 6m-wide road reserve may fall within the minimum 10m offset, excluding these exceptions.* • The project design ensures that the underlying ecosystem processes supporting endangered and vulnerable species, including feeding, nesting, and breeding habitats, remain intact and are not significantly disturbed. Where necessary, crossings are limited to existing farm road locations to minimise additional environmental disruption. • During the operational works phase, any further measures needed to protect these habitats will be implemented in line with the **General Treatment for Watercourse and Mapped Vegetation Crossings (Appendix W)**. • Any necessary clearing associated with these habitats will comply with **Schedule 10, Part 3, Division 4, Table 3, Item 1(b) of the Planning Regulation 2017**, as detailed in the General Treatment for Watercourse and Mapped Vegetation Crossings document. Discussions with SARA will be required to ensure that all regulatory requirements for protecting endangered species habitats are met during the operational works phase. • Ecologists Redfleaf Group have provided a supporting review of the proposed internal road network and crossing treatments, Appendix X – Redleaf Group Technical Memorandum - Internal Access Tracks Environmental Input.
PO8 Human disturbance, such as presence of vehicles, pedestrian use, increased exposure to domestic animals, noise and lighting impacts, are avoided or adverse impacts sufficiently mitigated to retain critical life stage ecological processes (such as feeding, breeding or roosting).	**PO8** • During both the construction and operational phases, human disturbances such as noise, light, and vehicular movement will be managed to avoid disrupting critical life-stage processes of fauna. The design incorporates measures to limit these disturbances, ensuring that the habitat remains suitable for wildlife throughout the project's lifecycle. • The facility will generally operate during daylight hours, with minimal traffic movement except for planned maintenance. Traffic volume and movement will be kept to a minimum, particularly in sensitive areas, to reduce disturbance to wildlife. • Apart from necessary crossings, there is generally no need to enter sensitive areas, limiting vehicle access to designated internal roads. This ensures that sensitive habitats remain undisturbed by vehicular movement. • *No works, including earthworks, will extend beyond the nearest road reserve boundary, to be marked prior to the commencement of works, to MSES areas or watercourse buffers, except for the necessary crossings and fire breaks. the 6m-wide road reserve may fall within the minimum 10m offset, excluding these exceptions.* • Lighting will be minimised, with low-intensity lighting only used when necessary, primarily during planned maintenance. Measures

	will be in place to prevent light spill into sensitive areas, particularly during critical times for wildlife.
Buffering and protection of watercourses	
PO9 Development:- (a) retains, enhances and maintains the environmental values and functioning of watercourses; (b) provides and maintains adequate vegetated buffers and setbacks to watercourses; (c) maintains and restores connectivity between aquatic habitats and access for fish along watercourses/waterways and into key habitats.	**AO9.1** • **Watercourse Buffer Requirement**: In accordance with the **editor's note** in **AO9.1**, a **50m buffer** is required on either side of mapped watercourses for **Stream Orders 1 and 2** in rural residential areas. This buffer ensures the protection of watercourses' environmental values and the preservation of aquatic connectivity. • **Stream Order Classification**: The streams on the site have been classified as **Stream Orders 1 and 2** using the following methods: 1. **Queensland Globe mapping of Water Features under the Water Act 2000**: The watercourses and drainage features on the site were identified using **Queensland Globe**, which classifies water features according to the **Water Act 2000** definitions: **Watercourse**, **Drainage Feature**, and **Undefined**. Based on these classifications, the **Stream Orders** were determined under the **Strahler System** as being either: • **Stream Order 1**: Streams with no tributaries. • **Stream Order 2**: Streams formed by the confluence of two Stream Order 1 streams. 2. **SPP mapping confirmation**: The SPP mapping diagrams, accessed via the **Bundaberg Regional Council interactive mapping tool**, confirm the application of the **50m buffer** for these streams, consistent with their classification as **Stream Orders 1 and 2**. The mapping further validates the correct buffer distances across the development site. 3. **Queensland Globe mapping pathway**: The **Stream Orders** were verified using **Queensland Globe** by following the pathway: • **Layer > Inland Waters > Water Feature > Watercourse Stream Order** This confirmed the correct stream classifications as **Stream Order 1 and 2**, supporting the application of the **50m buffer** on either side of the mapped watercourses. • **Development Compliance**: The proposal plan has been amended to ensure compliance with **AO9.1**. The **solar array footprint** has been fine-tuned to ensure that it remains entirely outside the **50m buffer** on either side of the mapped watercourses. Additionally, a **10m offset** from mapped protected vegetation has been applied to the **solar array footprint**. These adjustments confirm that the solar array footprint avoids encroachment within sensitive areas and complies with the Biodiversity Areas Overlay Code requirements. **Watercourse crossings**, where necessary, are confined to **existing farm road locations** to minimise disturbance to watercourse buffers and protected vegetation. These crossings are guided by the framework set out in the **General Treatment for Watercourse and Mapped Vegetation Crossings (Appendix W)**. **AO9.2** The project design prioritises the minimisation of vegetation removal within watercourse buffers. Where watercourse crossings are required, they are confined to existing farm road locations to limit the need for clearing native vegetation. The approach outlined in the **General Treatment for Watercourse and Mapped Vegetation Crossings** document **(Appendix W)** emphasises minimising disturbance and avoiding vegetation removal where possible. In the event that vegetation removal becomes unavoidable for necessary crossings, the project will follow legal protocols and mitigation strategies as described in the General Treatment document. This includes adherence to Schedule 10 Part 3 Division 4 of the Planning Regulation 2017, and ensuring that appropriate offsets, rehabilitation, or revegetation measures are implemented.

	Consultations with SARA will ensure that all vegetation removal complies with regulatory requirements, and sensitive areas will be protected throughout the construction and operational phases. **AO9.3** The areas of existing farm road crossings within the watercourse buffers are already degraded due to ongoing farm use. As part of the development, these areas will be improved through the implementation of rehabilitation strategies incorporated in the design Treatment document. The **General Treatment for Watercourse and Mapped Vegetation Crossings document (Appendix W)** provides a guide for the design of these crossings, ensuring that the bed, banks, and surrounding vegetation at these degraded crossing sites are rehabilitated and stabilised. During the Operational Works stage, the design submission will include detailed plans for the rehabilitation of these areas in accordance with the **General Treatment for Watercourse and Mapped Vegetation Crossings document (Appendix W)**, which will be reviewed and approved by the Council. Some of the key focuses of the Treatment already include: • Erosion and sediment control, using riprap and other stabilisation methods to prevent further degradation. • Revegetation with native species, to restore ecological functions and enhance the watercourse and buffer zones. • Bed and bank restoration, improving the stability and integrity of the watercourses at the crossing sites. • Aquatic habitat protection, ensuring that natural flow conditions are preserved and that fauna movement is facilitated. • Ecologists Redfleaf Group have provided a supporting review of the proposed internal road network and crossing treatments, Appendix X – Redleaf Group Technical Memorandum - Internal Access Tracks Environmental Input. By rehabilitating these degraded areas, the development will enhance the environmental values of the watercourses and their buffers, contributing to long-term sustainability and compliance with the Biodiversity Areas Overlay Code. **AO9.4** The development will be carried out following the strategies outlined in the **General Treatment for Watercourse and Mapped Vegetation Crossings** document, which serves as the guiding framework for environmental management during the Operational Works stage. This document integrates design guidelines, rehabilitation strategies, and environmental management measures, ensuring the protection of watercourses and compliance with regulatory requirements. **The document covers key aspects typically required in an Environmental Management Plan (EMP), including:** • Monitoring and Reporting: Continuous monitoring of watercourse crossings and buffer zones during the Operational Works stage to ensure compliance with environmental regulations. • Incident and Emergency Response: Protocols for handling spills, vegetation damage, and other environmental incidents, with rapid response actions and reporting procedures. • Rehabilitation and Site Management: Detailed plans for post-construction rehabilitation, focusing on stabilising watercourse beds and banks, replanting native vegetation, and protecting sensitive areas. • Legal Compliance: Ensuring adherence to relevant environmental legislation, including Schedule 10 Part 3 Division 4 of the Planning Regulation 2017, with ongoing consultation with SARA to maintain compliance. The strategies in this document will guide all activities to ensure that the development does not negatively impact the watercourses and that protective measures are implemented and maintained throughout the project lifecycle.
PO10 All in-stream development works ensures that movement of fish across watercourse/ waterway barriers is catered for and that lateral and longitudinal migrations can be maintained within the whole of the system.	**PO10** The **General Treatment for Watercourse and Mapped Vegetation Crossings** document **(Appendix W)** ensures that in-stream development works maintain fish passage and facilitate aquatic fauna movement. This includes using culverts and low-flow pipe systems at crossings to allow for the lateral and longitudinal migration of fish and

	other aquatic organisms within the system. These measures are detailed to ensure connectivity across watercourses is maintained, with the specific strategies to be finalised during the operational works stage using the guidance of the General Treatment for Watercourse and Mapped Vegetation Crossings. • Ecologists Redfleaf Group have provided a supporting review of the proposed internal road network and crossing treatments, Appendix X – Redleaf Group Technical Memorandum - Internal Access Tracks Environmental Input.
PO11 Bank stability, channel integrity and in-stream habitat is protected from degradation and maintained or improved at a standard commensurate with pre-development environmental conditions.	**PO11** The proposal avoids direct interference with watercourse channels, banks, or riparian in-stream habitats, as outlined in AO11. **The General Treatment for Watercourse and Mapped Vegetation Crossings** document provides guidance on erosion control measures, including structure such as riprap and natural vegetation reinforcement, which will be employed to stabilise banks and protect in-stream habitats during and after construction of crossings. This ensures that the development maintains or improves bank stability and channel integrity, adhering to pre-development environmental conditions. • Ecologists Redfleaf Group have provided a supporting review of the proposed internal road network and crossing treatments, Appendix X – Redleaf Group Technical Memorandum - Internal Access Tracks Environmental Input.
PO12 Development ensures that the natural surface water and groundwater hydrologic regimes of watercourses and associated buffers are maintained to the greatest extent possible.	**AO12** Consistent with AO12, the internal road network and crossings are to be designed to maintain natural hydrologic regimes, minimising alterations to natural flows. The **General Treatment for Watercourse and Mapped Vegetation Crossings** includes implementing silt traps and vegetation restoration to control erosion and sedimentation, ensuring the preservation of natural surface water and groundwater flows. This ensures that the natural hydrologic regime of watercourses and their associated buffers is maintained, with detailed measures to be provided in the final Operational Works phase design.

Figure 21 – Bushfire Hazard with Proposed Solar Array Layout – (Source: SPP/BRC mapping) EDC Plan No. 24002-02-AD Fire and S_Array

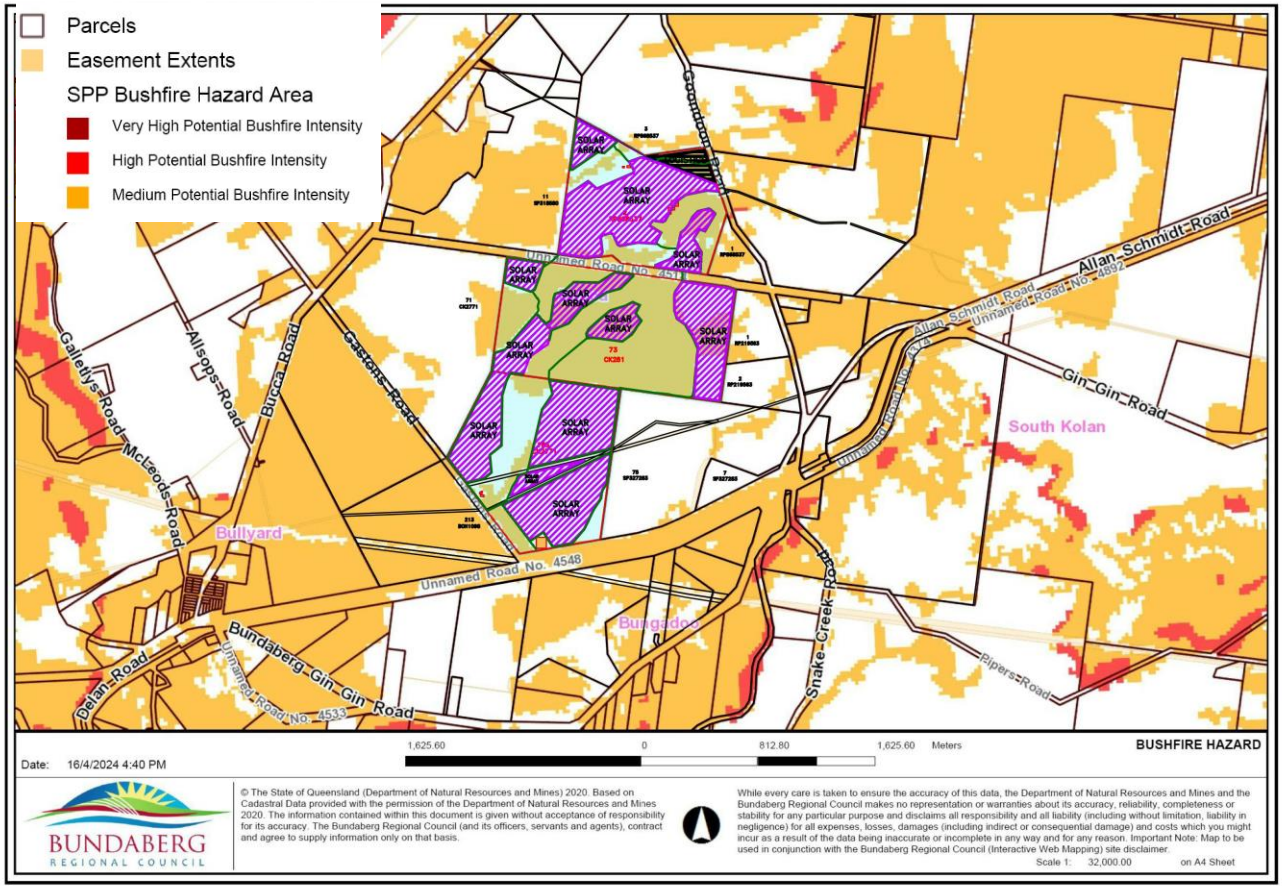


Figure 22a – MSES Overlays with Proposed Solar Array Layout demonstrating general avoidance – (Source: SPP/BRC mapping) EDC Plan No. 24002-04-AD Biodiversity and S_Array. See also Figure 20: Ecological Assessment Regulated Vegetation Mapping (Redleaf) page 44

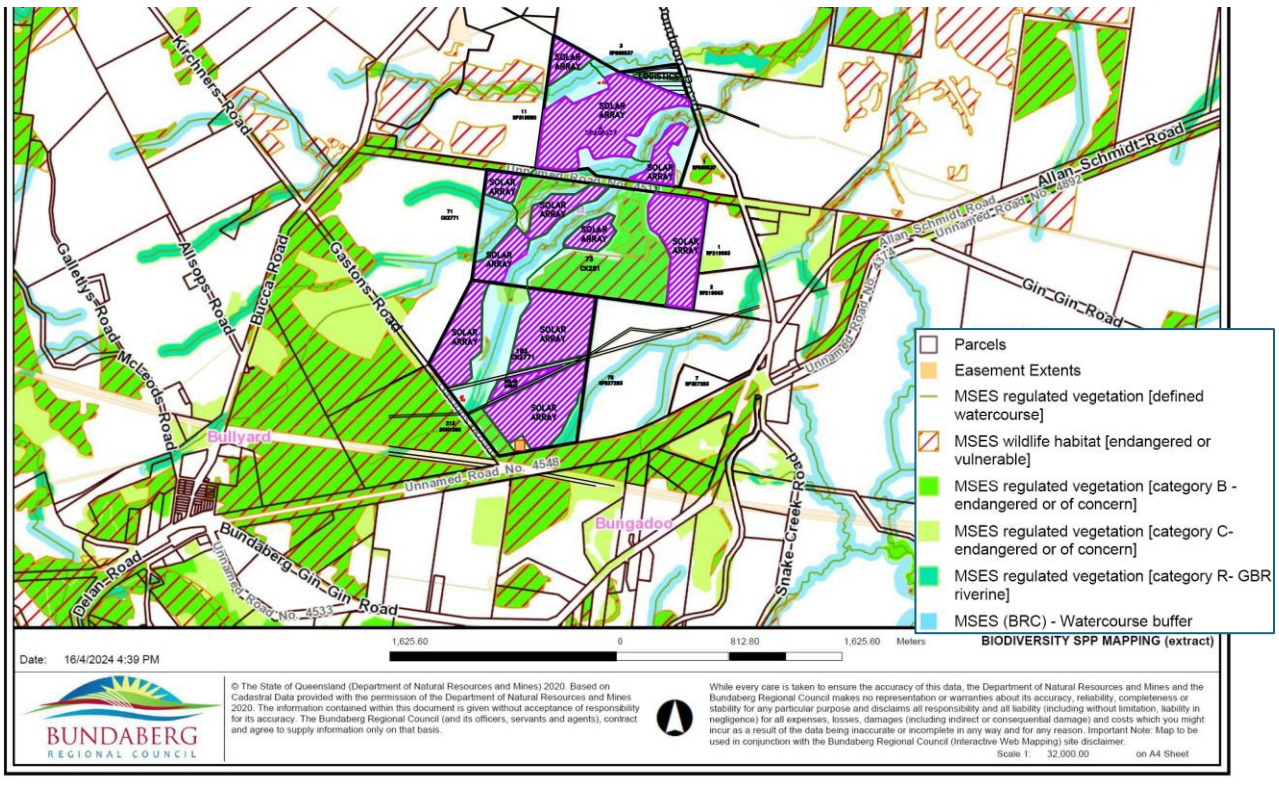


Figure 22b – Watercourse Buffer with Proposed Solar Array Layout demonstrating general avoidance – (Source: SPP/BRC mapping) EDC Plan No. 24002-03-AD Watercourse Buffer

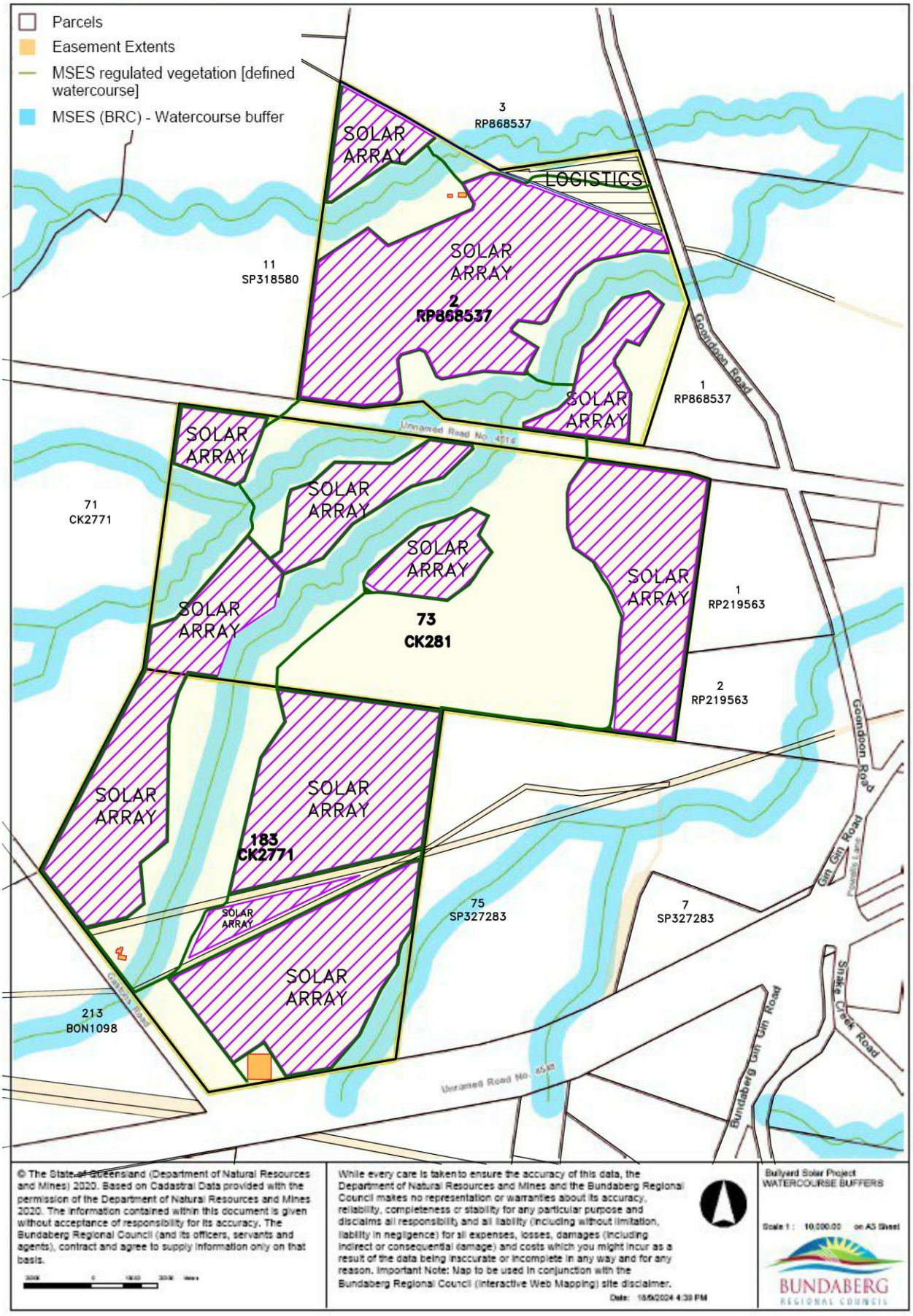


Figure 23 – Acid Sulphate Land – (Source: BRC mapping)

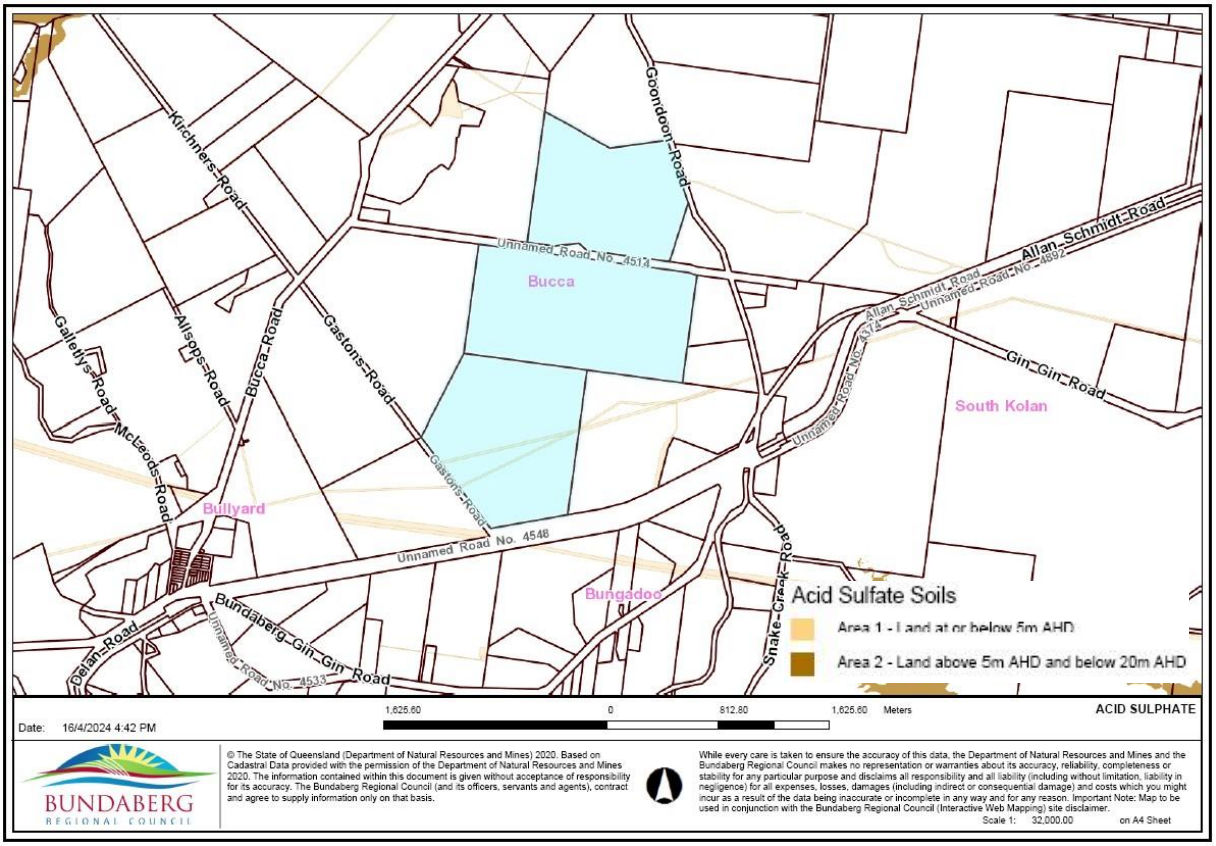


Figure 24 – State Development Area – (Source: BRC mapping)

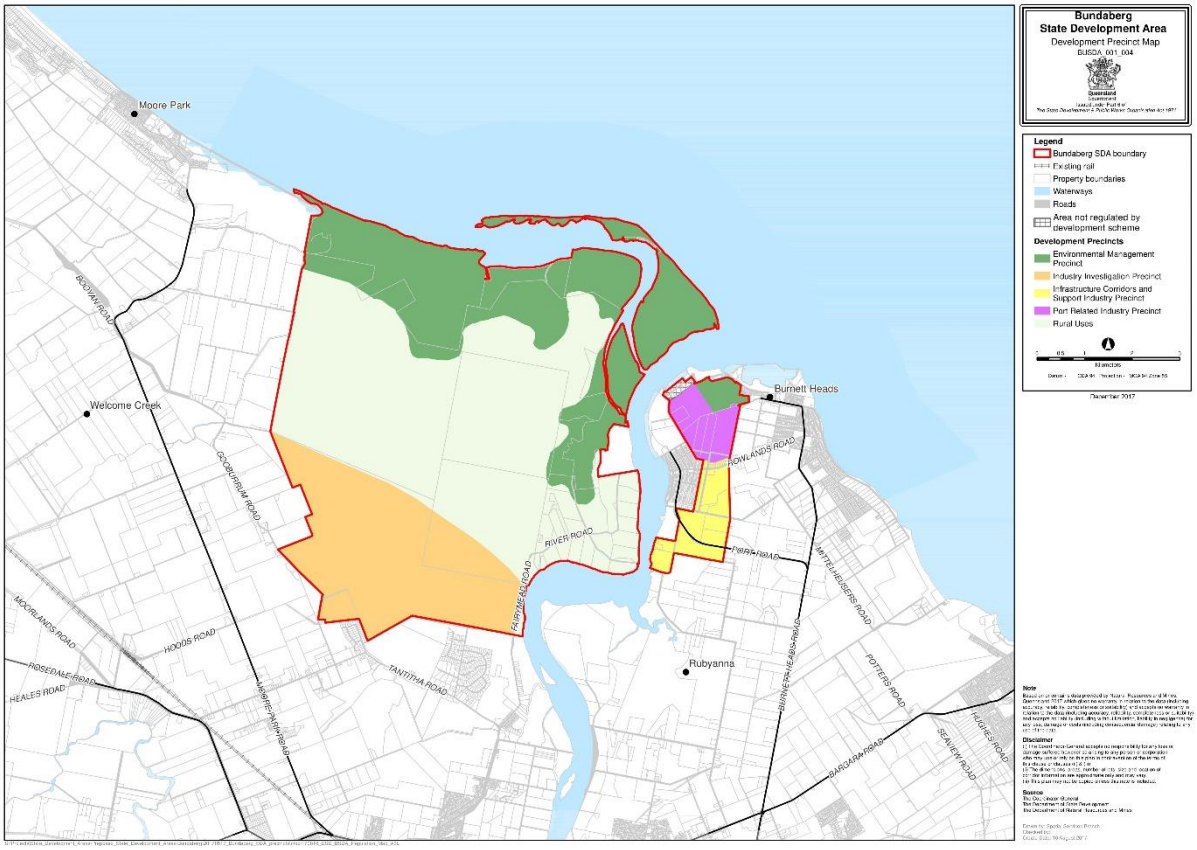


Figure 25a – EDC Plan 24002-01-AD Proposed Solar Array Layout 1 of 3

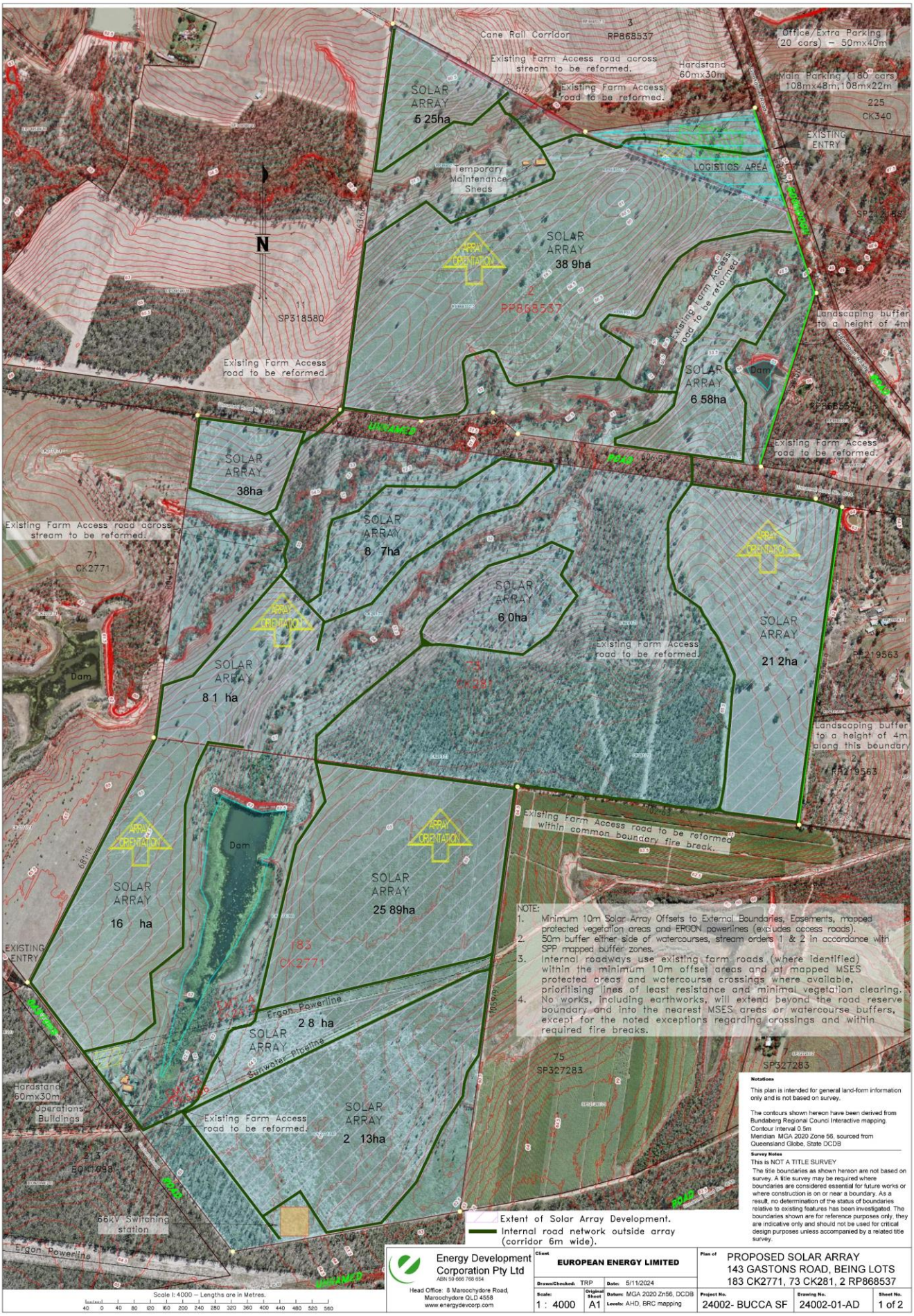


Figure 25b – EDC Plan 24002-01-AD Proposed Solar Array Layout 2 of 3

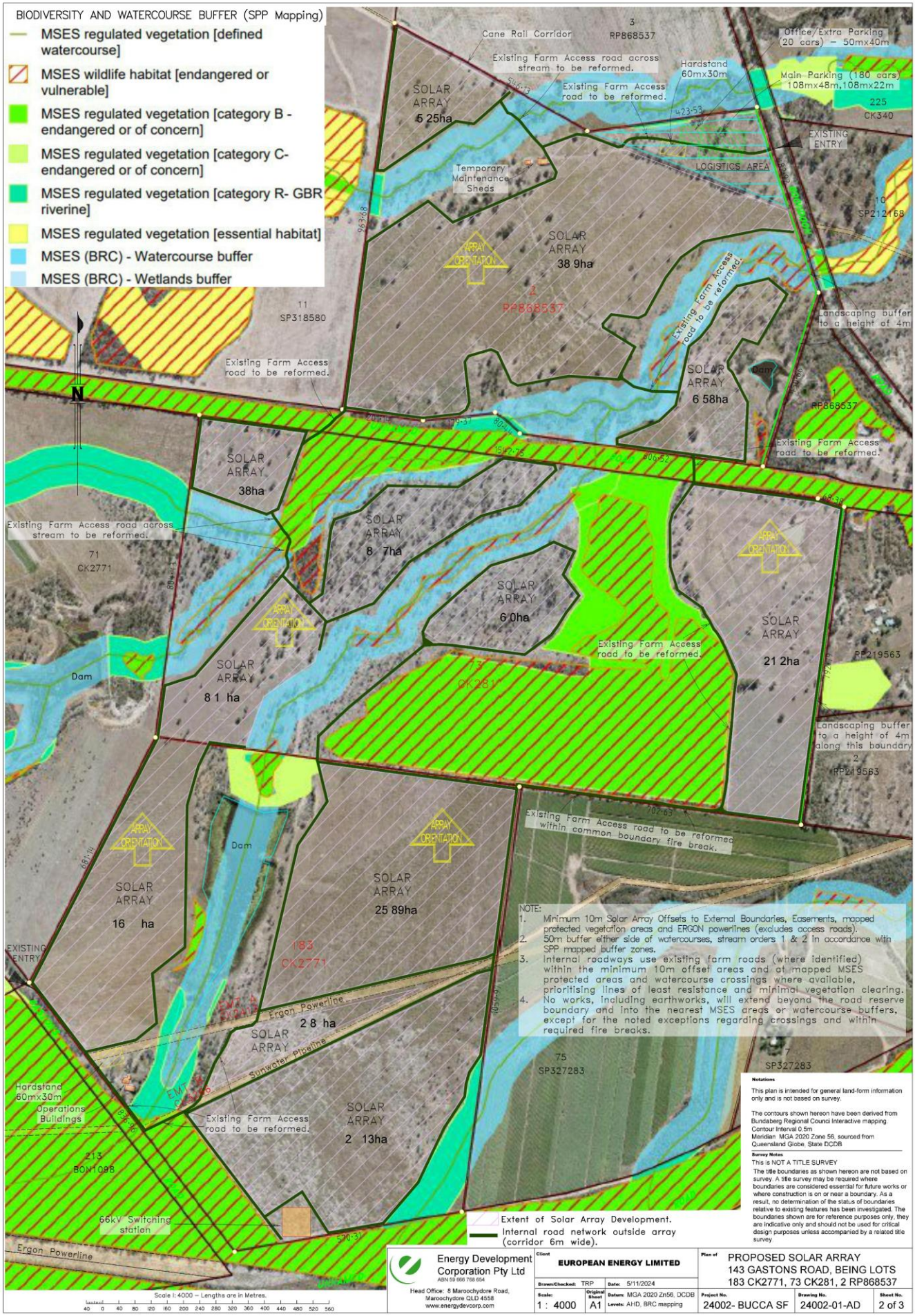
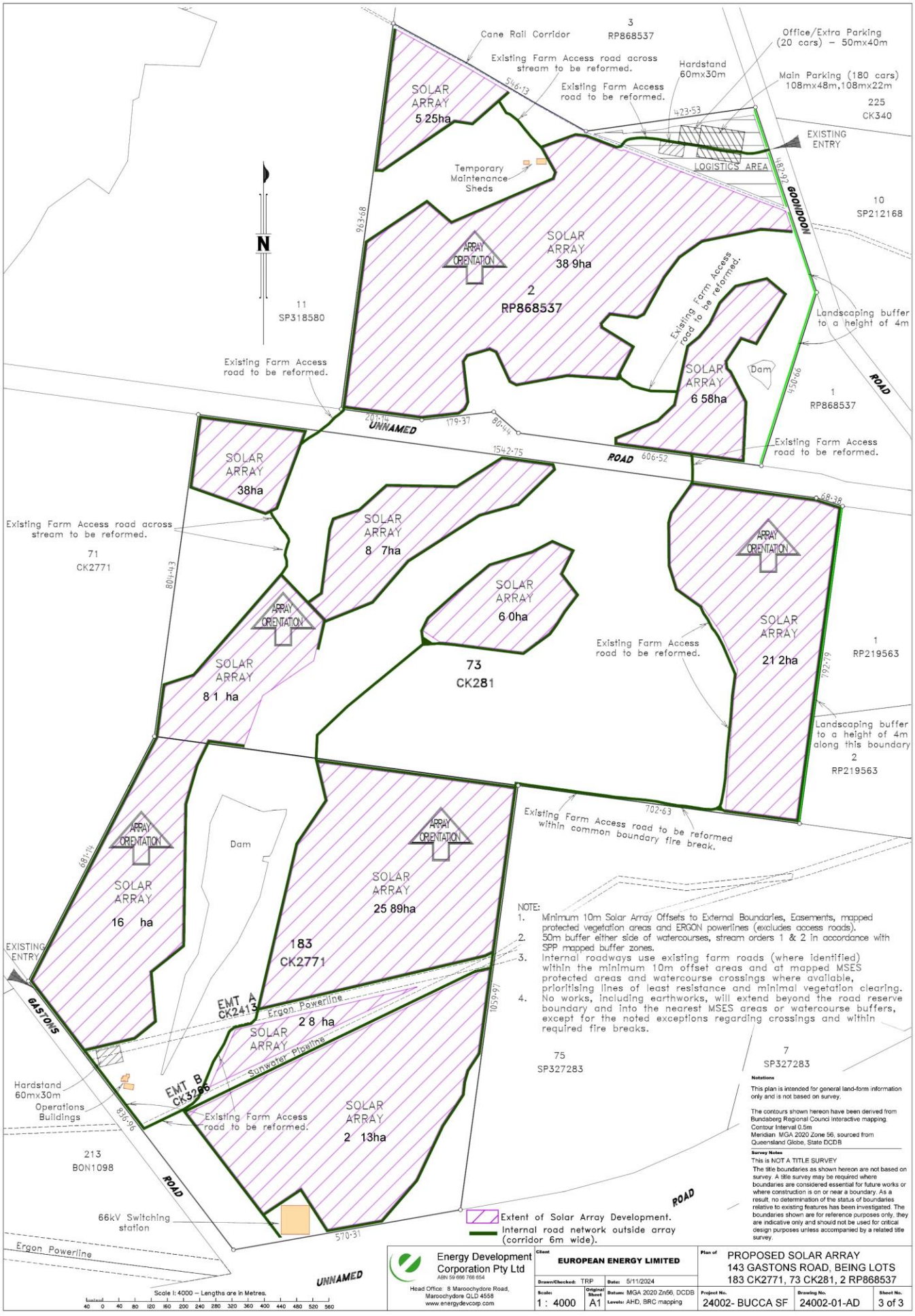


Figure 25c – EDC Plan 24002-01-AD Proposed Solar Array Layout 3 of 3



9.2. State Planning Interests

A review of the current SPRPs, SPPS and Planning Scheme has been completed. It is determined that the proposed development is considered to be compliant with all aspects and requirements of the state legislative framework, and that no conflicts have been identified.

9.2.1. State Planning Regulatory Provisions

The only State Planning Regulatory Provisions (SPRPs) that has been identified as related to this site is:
SPRP Adopted Charges – this proposal is subject to infrastructure charges in accordance with Bundaberg Regional Council's Adopted Infrastructure Charges Resolution (No.1) 2021, as provided for by the SPRP. Our response to overlay Codes "Table 9.8: Response against Overlay Code Assessment Criteria" above, notes that special incentives may be provided for projects of regional significance. These include significant infrastructure projects, which are defined as those involving substantial investment (e.g., projects valued at $15 million or more) or creating a large number of local jobs.
Eligible projects may receive discounts of up to 100% off the standard infrastructure charges

9.2.2. State Planning Policy

The Planning Scheme incorporates the State Planning Policy and state interests. A separate assessment of the State Planning Policy is therefore not required.

9.2.3. Referrals and State Development Assessment Provisions

Potential Referrals for this proposal have been assessed against the Planning Act 2016.
As a result of the extensive reviews conducted it has been determined that no matters requiring referral exist.

10 PROJECT TIMELINE AND BUDGET

10.1. Project Timeline

The project is scheduled to commence in Q2 2025, with an estimated construction period of 24 months. Key milestones include:

- Site Preparation: Clearing and grading of the site, construction of access roads, and installation of temporary facilities.
- Installation of Infrastructure: Installation of solar panels, inverters, and switching station.
- Testing and Commissioning: Testing of all systems to ensure proper functionality and compliance with regulatory standards.
- Operational Phase: Commencement of energy generation and integration into the national grid.

10.2 Budget

The total project budget is estimated at $140million to $160 million, covering all aspects from land acquisition and site preparation to construction, testing, and commissioning. The budget allocation includes:

- Land Acquisition: Purchase of land and associated costs.

- Construction: Costs for site preparation, infrastructure installation, and labour.
- Equipment: Procurement of solar panels, inverters, and other necessary equipment.
- Contingencies: Allocation for unforeseen expenses and project contingencies.

11. CONCLUSION AND RECOMMENDATION

This Town Planning Report supports the Development Application made by EE Australia Pty Ltd (European Energy Australia) for a Renewable Energy Facility (Solar PV Farm) located at 143 Gastons Road, Bucca, involving the lots described in Table 2.1.
The application seeks approval from the Assessment Manager (Bundaberg Regional Council) for:

- **Development Permit for Material Change of Use** for a Renewable Energy Facility (Solar PV Farm)

The land is to be acquired by the Proponent upon granting of the development approval as outlined in the report earlier. The resulting tenure will be freehold title.
This Development Application demonstrates that the proposed development is in accordance with the intent for the Rural Zone Code of the Bundaberg Regional Council Planning Scheme (2015), together with relevant SPRP requirements and other relevant State requirements.
The Proposal in overview incorporates:

- About 208,000 photovoltaic solar modules (Modules)
- Approximately 18 containerised Power Conversion Stations containing electrical switchgear, inverters and medium voltage transformers (PCS)
- New onsite electrical switchyard and substation (Substation)
- Control building including office, supervisory control and data acquisition (SCADA) systems, operation and maintenance facilities, spare parts and staff amenities serviced by septic systems and rainwater tanks
- Car park adjacent to control building
- Internal underground DC and AC cabling in trenches for electrical reticulation
- Internal all-weather access tracks
- Internal fire trail and bushfire asset protection zones
- Security fencing around the solar farm
- Vegetation screening – plantings along the site boundaries where required
- Meteorological stations.

The application demonstrates that this site is well suited to its intended change of use, and there will be no reduction in visual amenity for surrounding residences.
The implementation of the management strategies identified in the Ecological Assessment will effectively minimise impacts to vegetation communities, wetlands, waterways and fauna habitat identified within the site.
The location of the solar array ensures minimum risk to the panels in the event the surrounding forest areas are impacted by bushfire.
As determined by the Traffic Impact Assessment, it is not expected that the proposed construction or operational phases of the Project will lead to any significant reductions in operational safety of the surrounding road network.

This Town Planning Report and related supporting expert and technical reports presented in the Appendices, demonstrate that this proposed development is consistent with the intent of the Bundaberg Regional Council Planning Scheme (2015) and all relevant State requirements, and it is therefore recommended that an approval be granted, and a development permit issued, subject to reasonable conditions.

Wayne Drinkwater
CEO/Director Planning and Development
Energy Development Corporation Pty Ltd
(For EE Australia Pty Ltd – Proponent)

Blank Page

Appendix A – DEVELOPMENT APPLICATION DETAILS (DA) FORM 1 under Planning Act 2016

- FORM 1 Provided separately

Appendix B – LOT 183/CK2771: OWNERS CONSENT (COMPANY) making of a development application under the Planning Act 2016

Company owner's consent to the making of a development application under the *Planning Act 2016*

I, Steven Rademaker

Sole Director/Secretary of the company mentioned below.

Of Trifecta Estate Pty Ltd, ACN: 616 309 687

the company being the owner of the premises identified as follows:

146 Gastons Road, Bucca, 4670

Lot 183 CK2771

consent to the making of a development application under the *Planning Act 2016* by:

EE Australia Pty Ltd, ABN: 79 656 465 959

[*Insert name of applicant.*]

The Planning Act 2016 is administered by the Department of Local Government, Infrastructure and Planning, Queensland Government.

Applicant template 11.0
Version 1.0—3 July 2017

on the premises described above for:

Material Change of use for a 59MW solar farm

Company seal - none

Company Name and ACN: Trifecta Estate PTY LTD, ACN: 616 309 687  ..... Signature of Sole Director/Secretary 17th July 2024 ..... Date

Appendix C – LOT 73/CK281: OWNERS CONSENT (COMPANY) making of a development application under the Planning Act 2016

Company owner's consent to the making of a development application under the *Planning Act 2016*

I,

[*Insert name in full.*]

Sole Director/Secretary of the company mentioned below.

[*Delete the above where company owner's consent must come from both director and director/secretary*]

I, Diane Elizabeth Bailey [*Insert name in full.*]

Director of the company mentioned below.

and I, Noel Gordon Bailey [*Insert name in full.*]

Director/Secretary [*Insert position in full—i.e. another director, or a company secretary.*]

Delete the above two boxes where there is a sole director/secretary for the company giving the owner's consent.

Of LUINN PTY LTD, ACN: 010 236 441

the company being the owner of the premises identified as follows:

Lot 73 Goondoon Road, Bucca, 4670

Lot 73 CK281

consent to the making of a development application under the *Planning Act 2016* by:

EE Australia Pty Ltd, ABN: 79 656 465 959

[*Insert name of applicant.*]

The Planning Act 2016 is administered by the Department of Local Government, Infrastructure and Planning, Queensland Government.

Applicant template 11.0
Version 1.0—3 July 2017

on the premises described above for:

Material Change of use for a 28MW solar farm

Company seal *[if used]*

Company Name and ACN: LUNNIN PTY LTD, ACN: 010 236 441 ..... Signature of Sole Director/Secretary ..... Date

[Delete the above where company owner's consent must come from both director and director/secretary.]

Company Name and ACN: LUNNIN PTY LTD, ACN: 010 236 411	
D Barley ..... Signature of Director 11/7/2024 ..... Date	N J Bailey ..... Signature of Director/Secretary 11/7/2024 ..... Date

[Delete the above where there is a sole director/secretary for the company giving the owner's consent.]

Appendix D – LOT 2/RP868537: OWNERS CONSENT (COMPANY) making of a development application under the Planning Act 2016

Company owner's consent to the making of a development application under the *Planning Act 2016*

I,

[*Insert name in full.*]

Sole Director/Secretary of the company mentioned below.

[*Delete the above where company owner's consent must come from both director and director/secretary*]

I, Diane Elizabeth Bailey

[*Insert name in full.*]

Director of the company mentioned below.

and I, Noel Gordon Bailey

[*Insert name in full.*

Director/Secretary [*Insert position in full—i.e. another director, or a company secretary.*]

Delete the above two boxes where there is a sole director/secretary for the company giving the owner's consent.

Of LUINN PTY LTD, ACN: 010 236 441

the company being the owner of the premises identified as follows:

Lot 2 Goondoon Road, Bucca, 4670

Lot 2 RP868537

consent to the making of a development application under the *Planning Act 2016* by:

EE Australia Pty Ltd, ABN: 79 656 465 959

[*Insert name of applicant.*]

The Planning Act 2016 is administered by the Department of Local Government, Infrastructure and Planning, Queensland Government.

Applicant template 11.0
Version 1.0—3 July 2017

on the premises described above for:

Material Change of use for a 38MW solar farm

Company seal *[if used]*

Company Name and ACN: LUNNIN PTY LTD, ACN: 010 236 441 ..... Signature of Sole Director/Secretary ..... Date

[Delete the above where company owner's consent must come from both director and director/secretary.]

Company Name and ACN: LUNNIN PTY LTD, ACN: 010 236 411	
DBarley ..... Signature of Director	mg Bailey ..... Signature of Director/Secretary
11/7/2024 ..... Date	11/7/2024 ..... Date

[Delete the above where there is a sole director/secretary for the company giving the owner's consent.]

Appendix E – COPIES OF TITLE LOTS (X3) AS PROOF OF OWNERSHIPS AND TENURE

Titles QUEENSLAND

Registration Confirmation Statement

Queensland Titles Registry Pty Ltd
ABN 23 648 568 101

Lodger Code: PX 02614

Title Reference:	**17767067**
Lodgement No:	6301239
Office:	PEXA

WITHERS LAWYERS PTY LTD
118 BLINZINGER RD
BANYO 4014 QLD

This is the current status of the title as at 12:16 on 14/06/2024

ESTATE AND LAND

Estate in Fee Simple

LOT 183 CROWN PLAN CK2771
Local Government: BUNDABERG

REGISTERED OWNER

Dealing No: 723325798 14/06/2024

TRIFECTA ESTATE PTY LTD A.C.N. 677 233 617 TRUSTEE
UNDER INSTRUMENT 723325798

EASEMENTS, ENCUMBRANCES AND INTERESTS

1. Rights and interests reserved to the Crown by
Deed of Grant No. 17767067 (Lot 183 on CP CK2771)
2. EASEMENT IN GROSS No 700839777 05/09/1995 at 11:28
burdening the land to
THE WIDE BAY-BURNETT REGIONAL ELECTRICITY BOARD
over
EASEMENT A ON CROWN PLAN CK2413
UNDER SECTION 458(2) OF THE LAND ACT 1994
IDENTIFYING EASEMENT NO A733 RECORDED 13/04/1973
3. EASEMENT IN GROSS No 700858632 15/09/1995 at 11:03
burdening the land to
THE COMMISSIONER OF WATER RESOURCES
over
EASEMENT B ON CROWN PLAN CK3266
UNDER SECTION 458(2) OF THE LAND ACT 1994
IDENTIFYING EASEMENT BY PROCLAMAMTION GAZETTED 13/07/1985
4. VESTING No 705971769 20/09/2002 at 14:20
EASEMENT IN GROSS: 700858632
SUNWATER A.B.N. 17 020 276 523

ADMINISTRATIVE ADVICES

NIL

UNREGISTERED DEALINGS

NIL

DEALINGS REGISTERED

723325797	RELEASE	3612024 Trifect
723325798	TFR TO TTEE	3612024 Trifect

Caution - Charges do not necessarily appear in order of priority

TITLES QUEENSLAND - CONTACT CENTRE:
Email: titlesinfo@titlesqld.com.au / Phone: (07) 3497 3479

www.titlesqld.com.au
Page 1/2

Title Reference:	17767067

** End of Registration Confirmation Statement **

Registrar of Titles and Registrar of Water Allocations

CURRENT TITLE SEARCH
QUEENSLAND TITLES REGISTRY PTY LTD

Request No: 46015265
Search Date: 19/10/2023 09:46 Title Reference: 50116231
Date Created: 06/03/1996

Previous Title: 14557048

REGISTERED OWNER

Dealing No: 718838552 28/06/2018

LUINN PTY LTD A.C.N. 010 236 441

ESTATE AND LAND

Estate in Fee Simple

LOT 2 REGISTERED PLAN 868537
Local Government: BUNDABERG

EASEMENTS, ENCUMBRANCES AND INTERESTS

1. Rights and interests reserved to the Crown by
Deed of Grant No. 12075224 (POR 64V)

2. LEASE No 601655730 (A546220) 11/08/1943
OF PART OF THE LAND
TO GIBSON & HOWES LIMITED
FOR 99 YEARS
COMMENCING 01 JUL 1942

3. VESTING No 709129190 11/11/2005 at 12:19
LEASE: 601655730 (A546220)
BUNDABERG SUGAR LTD A.B.N. 24 077 102 526

4. MORTGAGE No 721319831 07/12/2021 at 14:36
SUNCORP-METWAY LIMITED A.C.N. 010 831 722

ADMINISTRATIVE ADVICES

Dealing	Type	Lodgement Date	Status
709687047	VEG NOTICE VEGETATION MANAGEMENT ACT 1999	16/06/2006 14:05	CURRENT
710041471	ACCESS RIGHT SUGAR INDUSTRY ACT 1999	24/10/2006 14:19	CURRENT

UNREGISTERED DEALINGS - NIL

Caution - Charges do not necessarily appear in order of priority

** End of Current Title Search **

COPYRIGHT QUEENSLAND TITLES REGISTRY PTY LTD [2023]
Requested By: D-ENQ INFOTRACK PTY LIMITED

CURRENT TITLE SEARCH
QUEENSLAND TITLES REGISTRY PTY LTD

Request No: 46015266
Search Date: 19/10/2023 09:46 Title Reference: 14820196
Date Created: 26/09/1972

Previous Title: 12926030
12926031

REGISTERED OWNER

Dealing No: 718838552 28/06/2018

LUINN PTY LTD A.C.N. 010 236 441

ESTATE AND LAND

Estate in Fee Simple

LOT 73 CROWN PLAN CK281
Local Government: BUNDABERG

EASEMENTS, ENCUMBRANCES AND INTERESTS

1. Rights and interests reserved to the Crown by
Deed of Grant No. 12083126 (POR 73V)

2. MORTGAGE No 721319831 07/12/2021 at 14:36
SUNCORP-METWAY LIMITED A.C.N. 010 831 722

ADMINISTRATIVE ADVICES

Dealing	Type	Lodgement Date	Status
709687047	VEG NOTICE VEGETATION MANAGEMENT ACT 1999	16/06/2006 14:05	CURRENT

UNREGISTERED DEALINGS - NIL

Caution - Charges do not necessarily appear in order of priority

** End of Current Title Search **

COPYRIGHT QUEENSLAND TITLES REGISTRY PTY LTD [2023]
Requested By: D-ENQ INFOTRACK PTY LIMITED

Appendix F - Pre-Lodgement Meeting Outcomes (1 of 5)

Appendix F - Pre-Lodgement Meeting Outcomes (2 of 5)

BUNDABERG REGIONAL COUNCIL

Pre-lodgement Meeting Outcomes

Council Reference:	338.2024.1410.1		
Applicant's Reference:			
Meeting Date:	9 April 2024	**Time:**	2:00pm

ATTENDEES		
Name	**Title/Position**	**Organisation**
1. Richard Jenner	Manager Development Assessment	BRC
2. Rod Souza	Development Engineer	BRC
3. Indiana Anderson	Senior Administration Officer	BRC
4. Catriona McLoud	Country Manager (Director European Energy Australia)	European Energy (Proponent)
5. Steve Rademaker	Investor	European Energy
6. Cassidy Prent	Legal Counsel	European Energy
7. Wayne Drinkwater	CEO	Energy Development Corporation Pty Ltd
8. Vanyssa Ong		European Energy
9. Luciano Giangiordano		Enertech

PROPERTY DETAILS	
Property Address	143 Gastons Road & Goondoon Road, BUCCA
Property Description:	Lot: 183 CK: 2771, Lot: 73 CK: 281 & Lot: 2 RP: 868537
Area	110.5ha, 129.5247ha & 89.11ha

PLANNING SCHEME DETAILS	
Planning Scheme	Bundaberg Regional Council 2015
Zone of Property:	Industry Zone
Precinct/Area	Not Applicable
Local Area:	Not Applicable
Overlays:	See attached property parcel reports

PROPOSAL

The Proponent requests pre-lodgement meeting advice regarding a Material Change of Use for a Renewable Energy Facility. There is a current Development Approval for a Renewable Energy Facility across 143 Gastons Road and another adjoining lot (2129 Bucca Road) however this Lot is not going to be utilised moving forward. After discussions with Dean Catorall, it was advised to the Proponent that a new Development Application may be a beneficial assessment approach, rather than a 'Change Other' application, noting landowner consent would be required for all lots benefitting by this current Development Approval.

Appendix F - Pre-Lodgement Meeting Outcomes (3 of 5)

MEETING OUTCOMES

PLANNING COMMENTS

Definition: Renewable Energy Facility

Level of Assessment: Code Assessable

Comments:

Application Process/Timeframe

- Richard Jenner discussed how the application process for a 'Change Other' application and a new Material Change of Use application are very similar. However, there is a requirement in the 'change other' process that landowner consent be provided for all lots forming part of the original approval,even if all of the lots are not being utilised.
- Richard Jenner discussed some of the features of the land which includes State Vegetation areas. It was noted that the solar array areas appear to largely sit outside of identified environmental areas, which is a sensible design approach, however the State Assessment and Referral Agency (SARA) would be available to discuss their requirements in relation to any proposal.
- In terms of assessment timeframe, it was noted that it is an applicant driven process, however, a well prepared code assessable application assessment timeframe would generally be between 3 – 4 months.
- The Utility code in the Council's Planning Scheme provides information regarding requirements for renewable energy facilities such as setbacks from sensitive receptors (ie dwellings) and screening requirements etc.
- It was noted by Richard that it is considered advantageous that a large part of the land has already been assessed (and approved) for a similar land use purpose.

Vegetation clearing

- Council administers some biodiversity/vegetation requirements through its Planning Scheme, however larger scale vegetation clearing is administered by the State Government and early discussions with SARA area recommended to better understand clearing requirements.

Reconfiguring a Lot

- In response to a question about subdivision of land Richard advised there are some challenges when subdividing rural zoned land below established Planning Scheme minimums, noting the minimum lot size within the Reconfiguring a Lot code is 100ha. These provisions are aimed at reducing fragmentation of agricultural land to support the viability of the agricultural sector in the Region.
- Where multiple titles are available, rural boundary realignments are frequently used to manipulate boundaries to achieve some preferred land management outcome.

Engineering discussion

- A Traffic Impact Assessment will assist with any site access/road requirements.
- A Road Dilapidation report will be required prior to and after construction, to ensure the road is not damaged throughout the construction period.
- The temporary road closure matter sits separately to the Development Assessment process with the State.
- Council's Roads and drainage team can assist with temporary access between sites.

Appendix F - Pre-Lodgement Meeting Outcomes (4 of 5)

- There is an indication that the earthworks involved (ie. filling dams) might trigger an Operational Works application. Pending these works are not located in a mapped waterway/buffer, Council has no major issues with this, pending the relevant approvals are granted.

Additional Lot (Eastern site – 3 Goondoon Road, Bucca)

- A discussion was had regarding the adjoining site to the east and whether this would potentially be a suitable site. Richard advised this site looks to have similar characteristics to the listed sites, and therefore assuming the State areas are avoided, can't see any major issues with this site also being investigated for renewable energy development project/s.

Other

This is an exciting project and Council Officers would welcome the opportunity to discuss the project further or provide assistance as required. Please contact Richard Jenner (Manager Development Assessment) directly as required on 41304013 or 0448848552

SERVICES AND INFRASTRUCTURE COMMENTS

Water Supply

- No Council water supply is available.

Sewerage

- No reticulated sewer supply is available.
-

FEES AND CHARGES

Application Fees:

As at 9 April 2024 $18,815.00

Infrastructure Charges:

To be determined throughout assessment.

FURTHER APPLICATIONS REQUIRED:

☐ Building Works	☐ Plan Seal
☒ Operational Works	☐ Other:
☐ Plumbing	

SUPPORTING DOCUMENTS

Any subsequent application to be lodged with Council will require the following to be submitted:

☒ Planning Report	☐ Stormwater Management Plan
☒ Plans (elevations, floor plans, subdivision plans)	☒ Traffic Report
☐ Other – Dilapidation Report	

Appendix F - Pre-Lodgement Meeting Outcomes (5 of 5)

OTHER COMMENTS
Public Notification Not applicable

DOCUMENTS ATTACHED TO MEETING OUTCOMES
• Property Parcel Reports

Disclaimer
This advice has been prepared based on the information provided by the Applicant. The advice provided at pre-lodgement meetings should NOT be taken as a commitment as to whether an application would be approved or refused by Council. The pre-lodgement meeting process cannot override Council's duty of care and legislative responsibilities in the assessment of development applications including considering matters raised by possible submitters and referral agencies, or which come to light during the detailed assessment process.

AUTHORITY	
Richard Jenner *Name of Council Officer* Manager Development Assessment *Position*	*Signature* Richard Jenner Digitally signed by Richard Jenner Date: 2024.04.23 14:30:34 +10'00'

Appendix G - BRC PROPERTY REPORTS LOTS 183, 73 & 2

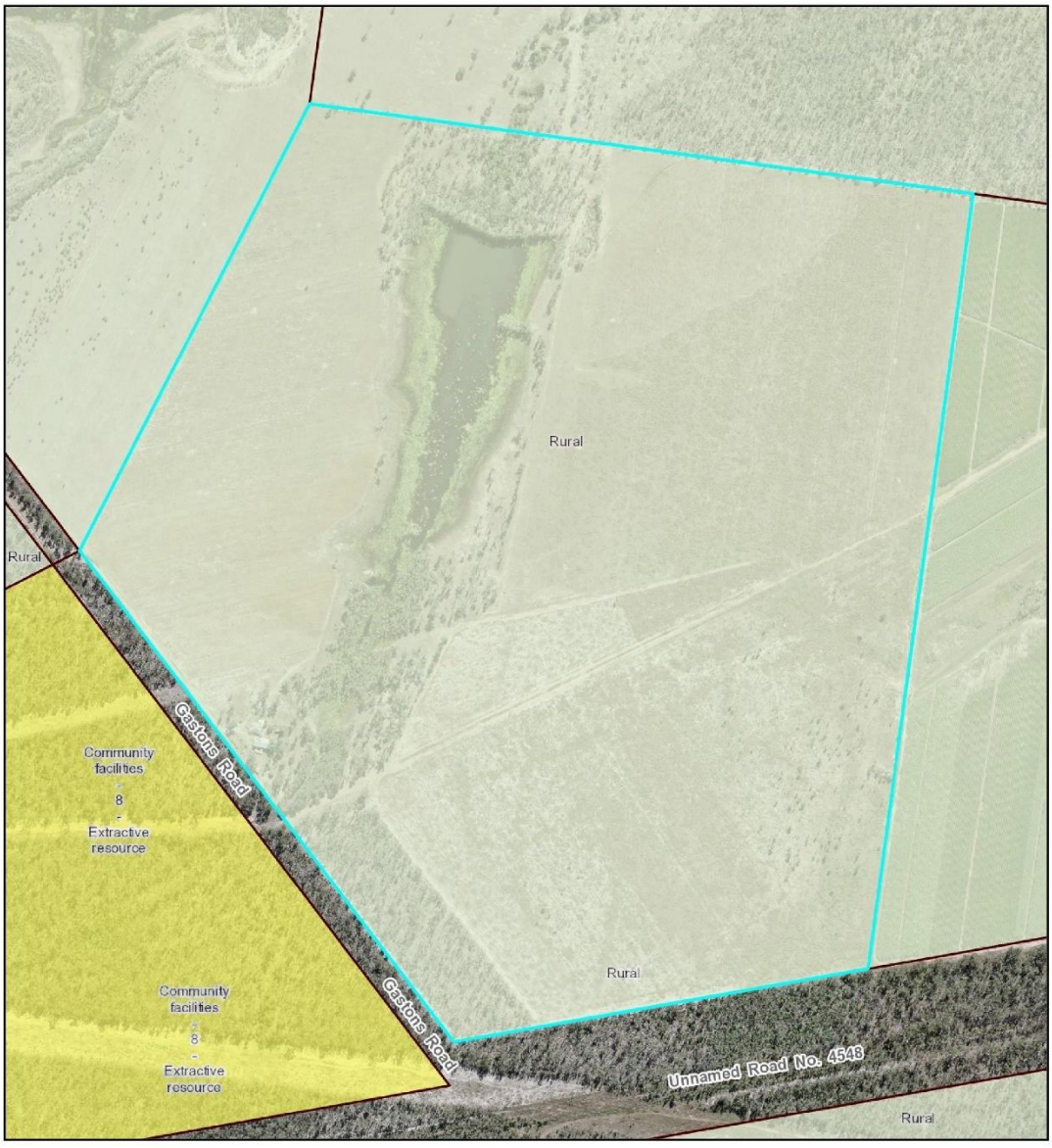
Lot 183 on CK2771 – BRC Property Report (1 of 4)

PROPERTY DETAILS

Plan Lot: *CK2771/183*

Property Address: *143 Gastons Rd, Bucca*

Planning Zone(s): *Rural*



BUNDABERG REGIONAL COUNCIL

Planning Scheme 2015 Parcel Report

Version 6.1 effective 12 May 2023

Date: 28/3/2024 4:07 PM Scale 1 : 7,592.85 on A4 Sheet

© The State of Queensland (Department of Resources) 2023. Based on Cadastral Data provided with the permission of the Department of Resources 2023. The information contained within this document is given without acceptance of responsibility for its accuracy. The Bundaberg Regional Council (and its officers, servants and agents), contract and agree to supply information only on that basis.

151.86 0 75.93 151.86 Meters

While every care is taken to ensure the accuracy of this data, the Department of Resources and the Bundaberg Regional Council makes no representation or warranties about its accuracy, reliability, completeness or stability for any particular purpose and disclaims all responsibility and all liability (including without limitation, liability in negligence) for all expenses, losses, damages (including indirect or consequential damage) and costs which you might incur as a result of the data being inaccurate or incomplete in any way and for any reason.

Lot 183 on CK2771 – BRC Property Report (2 of 4)

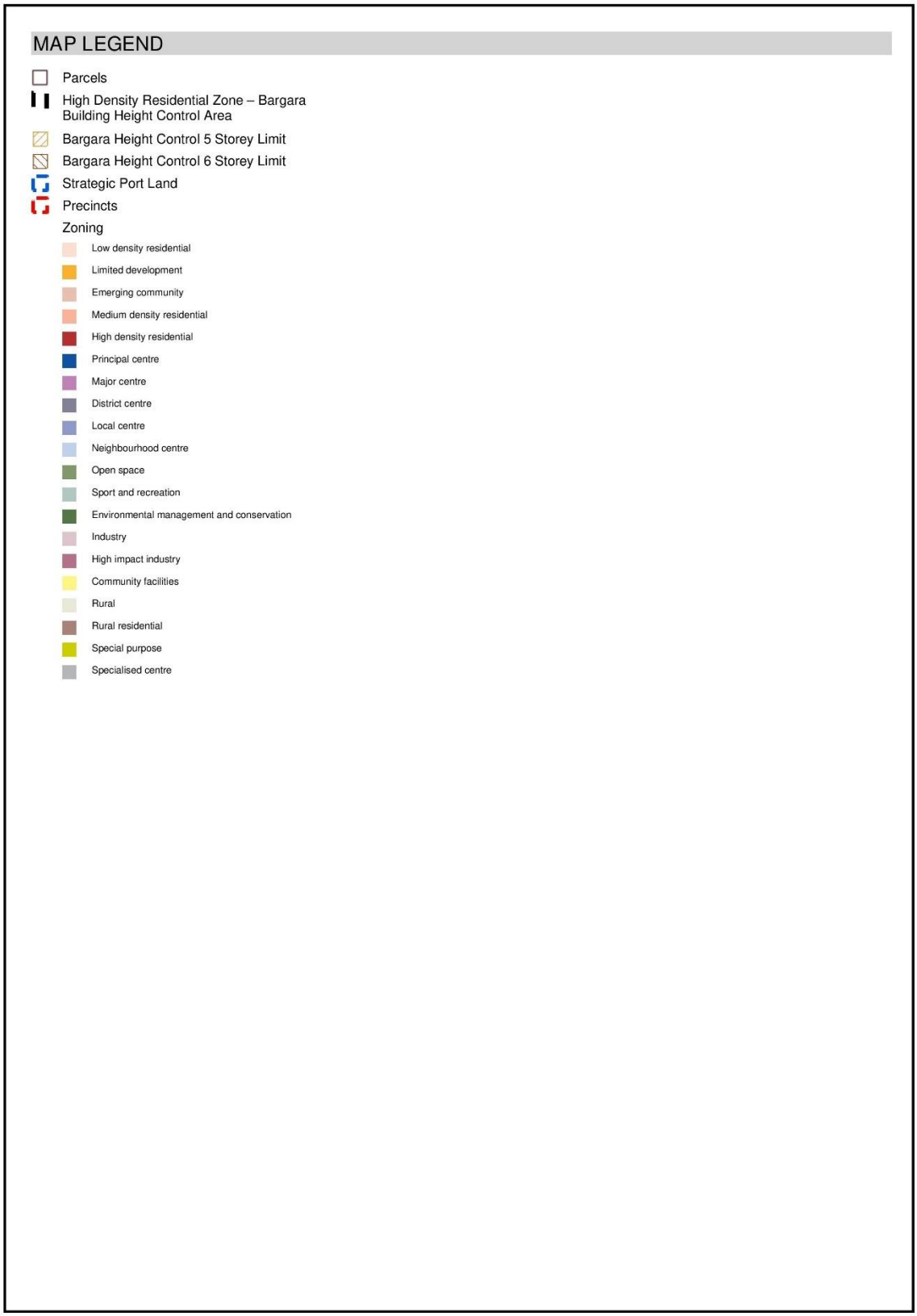
OVERLAYS	DOES THE OVERLAY APPLY
Acid Sulphate Soils	
Acid Sulphate Soils	*Acid sulphate soils not present*
Airport and Aviation Facilities*	
Operational Airspace	*No*
Wildlife Hazard Buffer / Lighting Area Buffer	*No*
ANEF Contour	*No*
Public Safety Area	*No*
Aviation Facility Building Restricted Area	*No*
Sloping Hummock VHF Facility Restricted Area	*No*
Biodiversity Areas - Matters of State Environmental Significance (MSES)*	
MSES Watercourse Buffer	*Yes - Within MSES Watercourse Buffer Area*
MSES Wetland Buffer	*No*
MSES Wildlife Habitat	*Yes - Within MSES Wildlife Habitat Area*
MSES Regulated Vegetation	*Yes - Within MSES Regulated Vegetation Area*
MSES Protected Area	*No*
MSES Declared Fish Habitat Area	*No*
MSES Legally Secured Offset Area	*No*
Hazard	
Bushfire Hazard Area*	*Yes - Within Potential Bushfire Area*
FLOOD HAZARD AREAS	
Subject to both Riverine and Local DFE	*No*
Riverine Defined Flood Event	*No*
Local Defined Flood Event	*No*
State Planning Policy Flood Hazard*	*No*
Non-urban Creeks / Overland Flow	*No*
Subject to both Riverine & Non-urban Creeks	*No*
Storm Tide Inundation	*No*
Steep Land - BRC mapped area	*Yes - Contains land steeper than 15%*
Steep Land - DNRM mapped area	*No*
Coastal Management	
Coastal Management District*	*No*
Erosion Prone Area*	*No*
Coastal Setback Line	*No*
Sea Turtle Sensitive Area	*No*
Extractive Resources*	
Resource/Processing Area	*No*
Extractive Resource Separation Area	*No*
Transport Route Separation Area	*No*

Lot 183 on CK2771 – BRC Property Report (3 of 4)

Agricultural Land*	
Agricultural Land Classification (ALC)	*No Agricultural Land Classification*
Heritage and Neighbourhood Character	
Local Heritage Place	*No*
Adjoins a Local Heritage Place	*No*
National or QLD Heritage Place*	*No*
Adjoins National or QLD Heritage Place*	*No*
Neighbourhood Character	*No*
Infrastructure	
Gas Pipeline	*No*
Electricity Substation*	*No*
Electricity Infrastructure*	*No*
Wastewater Treatment Plant Buffer	*No*
Waste Management Facility Buffer	*No*
State Controlled Road Corridor*	*No*
Railway Corridor*	*No*
Cane Railway Corridor	*No*
Water Resource Catchments	
Water Resource Catchment	*No*
CBD Parking Areas	
CBD Parking Area	*Not within CBD Parking Area*
Third Party Advertising Devices Exclusion Areas	
Third Party Advertising Devices Exclusion Area	*Not within Third Party Advertising Devices Exclusion Area*
Charges Resolution (No.1) 2021	
Infrastructure Charge Area	*Hinterland Partially Serviced (no wastewater and no water supply) Infrastructure Charge Area*
Other	
High Density Residential Zone - Bargara Building Height Control Area	*Not Applicable*
Bundaberg State Development Area	*Not within Bundaberg State Development Area (SDA)*
Development Footprint Plan Provision	*No Development Footprint Plan*
Local Government Infrastructure Plan (LGIP)	
Priority Infrastructure Area (PIA)	*Not within PIA*
Future Trunk Infrastructure	*Not within vicinity of property*
Existing Trunk Infrastructure	*Not within vicinity of property*

* Data within this overlay is based on the SPP interactive mapping. This data was last sourced on 10/03/2023. Council advises that land owners should review the SPP mapping to ensure it is the most up to date data available with relation to their land.

Lot 183 on CK2771 – BRC Property Report (4 of 4)



Lot 73 on CK281 – BRC Property Report (1 of 4)

PROPERTY DETAILS

Plan Lot: *CK281/73*
Property Address: *Unnamed Road No. 4514 BUCCA*
Planning Zone(s): *Rural*

BUNDABERG REGIONAL COUNCIL

Planning Scheme 2015 Parcel Report
Version 6.1 effective 12 May 2023

Date: 17/4/2024 10:10 AM Scale 1 : 9,657.25 on A4 Sheet

© The State of Queensland (Department of Resources) 2023. Based on Cadastral Data provided with the permission of the Department of Resources 2023. The information contained within this document is given without acceptance of responsibility for its accuracy. The Bundaberg Regional Council (and its officers, servants and agents), contract and agree to supply information only on that basis.

193.14 0 96.57 193.14 Meters

While every care is taken to ensure the accuracy of this data, the Department of Resources and the Bundaberg Regional Council makes no representation or warranties about its accuracy, reliability, completeness or stability for any particular purpose and disclaims all responsibility and all liability (including without limitation, liability in negligence) for all expenses, losses, damages (including indirect or consequential damage) and costs which you might incur as a result of the data being inaccurate or incomplete in any way and for any reason.

Lot 73 on CK281 – BRC Property Report (2 of 4)

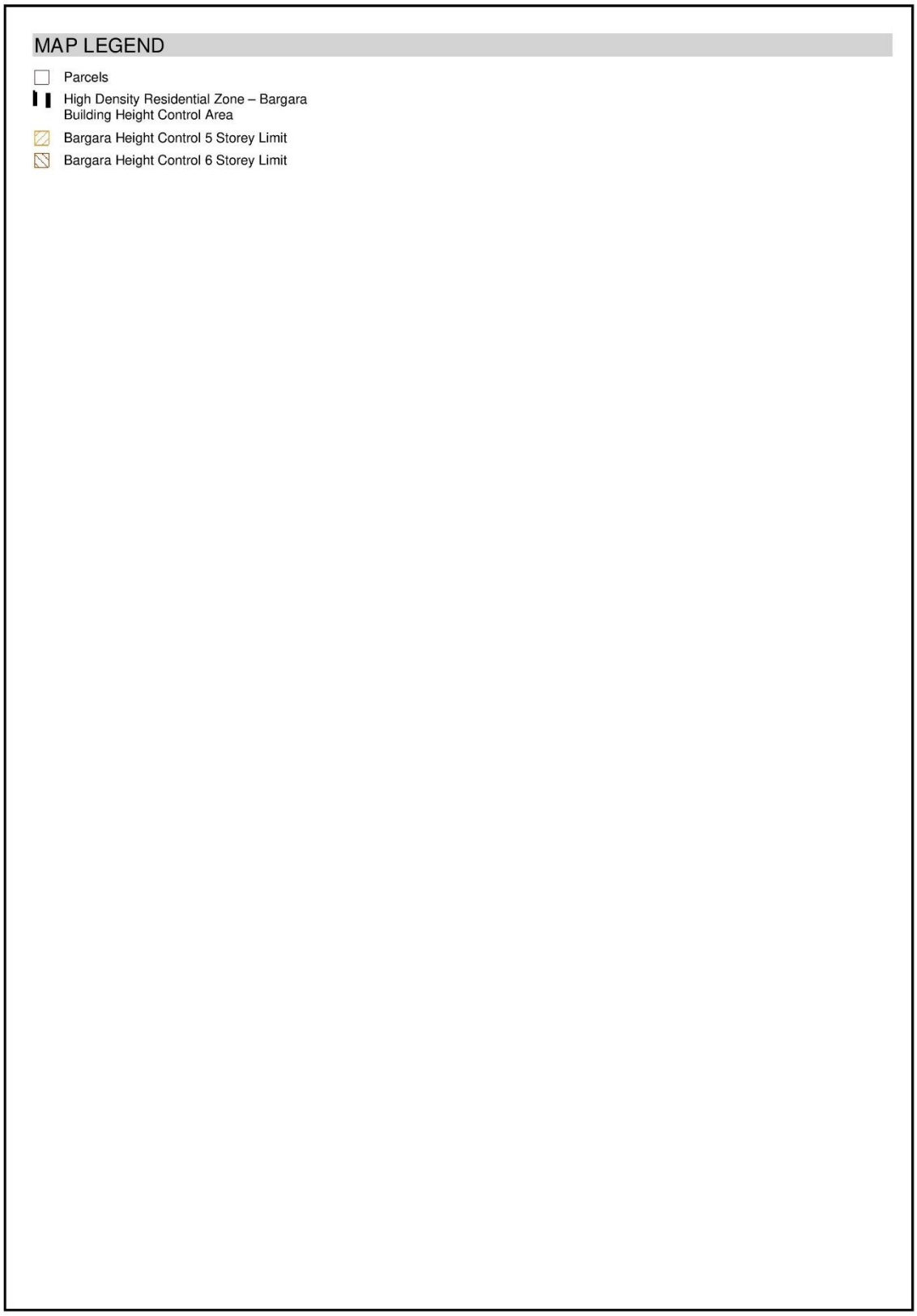
OVERLAYS	DOES THE OVERLAY APPLY
Acid Sulphate Soils	
Acid Sulphate Soils	*Acid sulphate soils not present*
Airport and Aviation Facilities*	
Operational Airspace	*No*
Wildlife Hazard Buffer / Lighting Area Buffer	*No*
ANEF Contour	*No*
Public Safety Area	*No*
Aviation Facility Building Restricted Area	*No*
Sloping Hummock VHF Facility Restricted Area	*No*
Biodiversity Areas - Matters of State Environmental Significance (MSES)*	
MSES Watercourse Buffer	*Yes - Within MSES Watercourse Buffer Area*
MSES Wetland Buffer	*No*
MSES Wildlife Habitat	*Yes - Within MSES Wildlife Habitat Area*
MSES Regulated Vegetation	*Yes - Within MSES Regulated Vegetation Area*
MSES Protected Area	*No*
MSES Declared Fish Habitat Area	*No*
MSES Legally Secured Offset Area	*No*
Hazard	
Bushfire Hazard Area*	*Yes - Within Potential Bushfire Area*
FLOOD HAZARD AREA RESOLUTION	
Subject to both Riverine and Local DFE	*No*
Riverine Defined Flood Event	*No*
Local Defined Flood Event	*No*
State Planning Policy Flood Hazard*	*No*
Non-urban Creeks / Overland Flow	*No*
Subject to both Riverine & Non-urban Creeks	*No*
Storm Tide Inundation	*No*
Steep Land - BRC mapped area	*Yes - Contains land steeper than 15%*
Steep Land - DNRM mapped area	*No*
Coastal Management	
Coastal Management District*	*No*
Erosion Prone Area*	*No*
Coastal Setback Line	*No*
Sea Turtle Sensitive Area	*No*
Extractive Resources*	
Resource/Processing Area	*No*
Extractive Resource Separation Area	*No*
Transport Route Separation Area	*No*

Lot 73 on CK281 - BRC Property Report (3 of 4)

Agricultural Land*	
Agricultural Land Classification (ALC)	*Yes - Class Limited crop land*
Heritage and Neighbourhood Character	
Local Heritage Place	*No*
Adjoins a Local Heritage Place	*No*
National or QLD Heritage Place*	*No*
Adjoins National or QLD Heritage Place*	*No*
Neighbourhood Character	*No*
Infrastructure	
Gas Pipeline	*No*
Electricity Substation*	*No*
Electricity Infrastructure*	*No*
Wastewater Treatment Plant Buffer	*No*
Waste Management Facility Buffer	*No*
State Controlled Road Corridor*	*No*
Railway Corridor*	*No*
Cane Railway Corridor	*No*
Water Resource Catchments	
Water Resource Catchment	*No*
Other	
CBD Parking Area	*Not within CBD Parking Area*
Third Party Advertising Devices Exclusion Area	*Not within Third Party Advertising Devices Exclusion Area*
Preliminary Planning Approval	*Not within Preliminary Planning Approval Area*
Charges Resolution (No.1) 2021	*Hinterland Partially Serviced (no wastewater and no water supply) Infrastructure Charge Area*
High Density Residential Zone - Bargara Building Height Control Area	*Not Applicable*
State Development Area	*Not within Bundaberg State Development Area (SDA)*
Development Footprint Plan Provision	*No Development Footprint Plan*
Local Government Infrastructure Plan (LGIP)	
Priority Infrastructure Area (PIA)	*Not Within PIA*
Future Trunk Infrastructure	*Not within vicinity of property*
Existing Trunk Infrastructure	*Within vicinity of property*

* Data within this overlay is based on the SPP interactive mapping. This data was last sourced on 10/03/2023. Council advises that land owners should review the SPP mapping to ensure it is the most up to date data available with relation to their land.

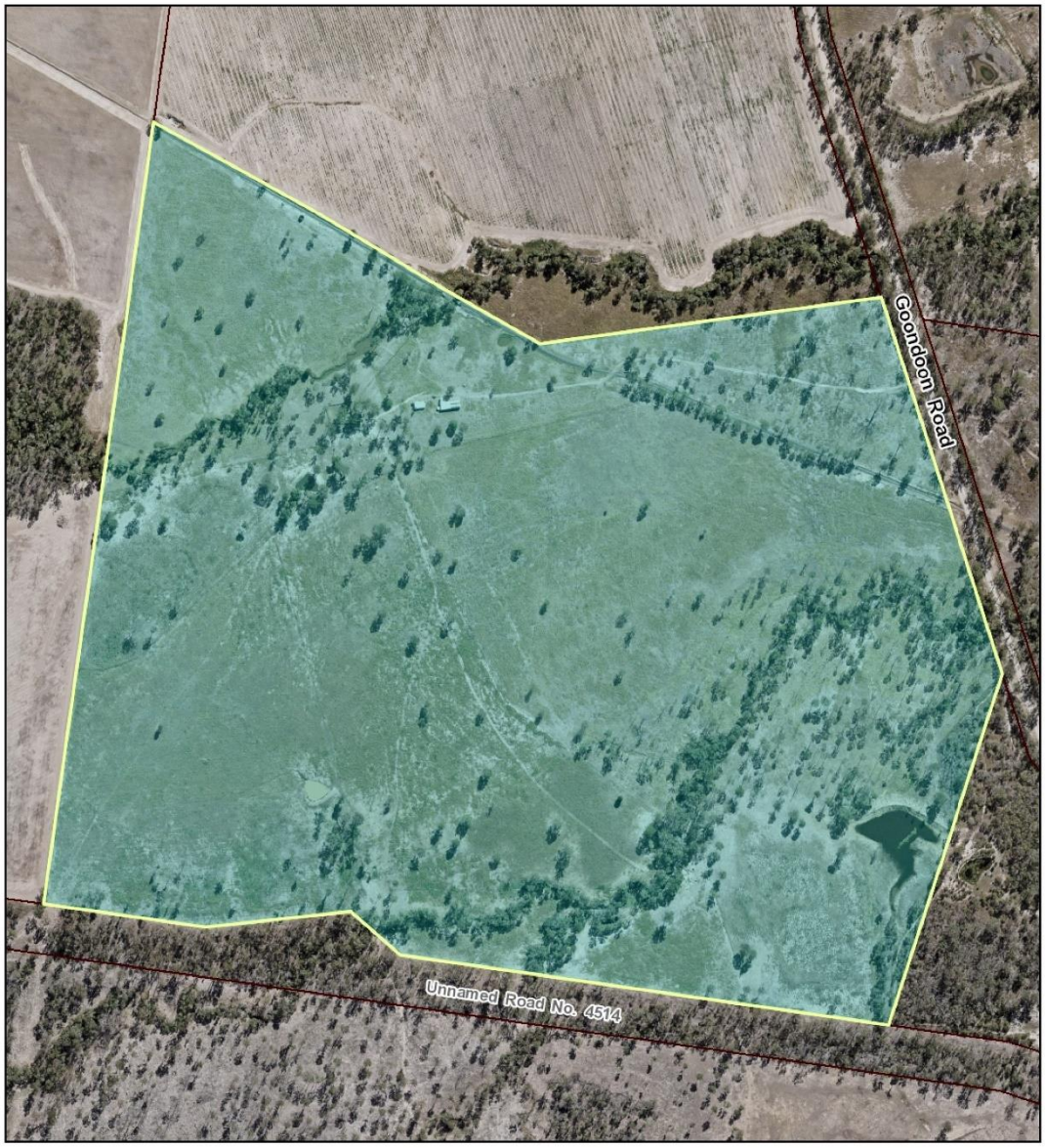
Lot 73 on CK281 – BRC Property Report (4 of 4)



Lot 2 on RP868537 – BRC Property Report (1 of 4)

PROPERTY DETAILS

Plan Lot: *RP868537/2*
Property Address: *Goondoon RD BUCCA*
Planning Zone(s): *Rural*



BUNDABERG REGIONAL COUNCIL

Planning Scheme 2015 Parcel Report
Version 6.1 effective 12 May 2023

Date: 17/4/2024 10:11 AM Scale 1 : 6,820.34 on A4 Sheet

© The State of Queensland (Department of Resources) 2023. Based on Cadastral Data provided with the permission of the Department of Resources 2023. The information contained within this document is given without acceptance of responsibility for its accuracy. The Bundaberg Regional Council (and its officers, servants and agents), contract and agree to supply information only on that basis.

136.41 0 68.20 136.41 Meters

While every care is taken to ensure the accuracy of this data, the Department of Resources and the Bundaberg Regional Council makes no representation or warranties about its accuracy, reliability, completeness or stability for any particular purpose and disclaims all responsibility and all liability (including without limitation, liability in negligence) for all expenses, losses, damages (including indirect or consequential damage) and costs which you might incur as a result of the data being inaccurate or incomplete in any way and for any reason.

Lot 2 on RP868537 – BRC Property Report (2 of 4)

OVERLAYS	DOES THE OVERLAY APPLY
Acid Sulphate Soils	
Acid Sulphate Soils	*Acid sulphate soils not present*
Airport and Aviation Facilities*	
Operational Airspace	*No*
Wildlife Hazard Buffer / Lighting Area Buffer	*No*
ANEF Contour	*No*
Public Safety Area	*No*
Aviation Facility Building Restricted Area	*No*
Sloping Hummock VHF Facility Restricted Area	*No*
Biodiversity Areas - Matters of State Environmental Significance (MSES)*	
MSES Watercourse Buffer	*Yes - Within MSES Watercourse Buffer Area*
MSES Wetland Buffer	*No*
MSES Wildlife Habitat	*Yes - Within MSES Wildlife Habitat Area*
MSES Regulated Vegetation	*Yes - Within MSES Regulated Vegetation Area*
MSES Protected Area	*No*
MSES Declared Fish Habitat Area	*No*
MSES Legally Secured Offset Area	*No*
Hazard	
Bushfire Hazard Area*	*Yes - Within Potential Bushfire Area*
FLOOD HAZARD AREA RESOLUTION	
Subject to both Riverine and Local DFE	*No*
Riverine Defined Flood Event	*No*
Local Defined Flood Event	*No*
State Planning Policy Flood Hazard*	*No*
Non-urban Creeks / Overland Flow	*No*
Subject to both Riverine & Non-urban Creeks	*No*
Storm Tide Inundation	*No*
Steep Land - BRC mapped area	*Yes - Contains land steeper than 15%*
Steep Land - DNRM mapped area	*No*
Coastal Management	
Coastal Management District*	*No*
Erosion Prone Area*	*No*
Coastal Setback Line	*No*
Sea Turtle Sensitive Area	*No*
Extractive Resources*	
Resource/Processing Area	*No*
Extractive Resource Separation Area	*No*
Transport Route Separation Area	*No*

Lot 2 on RP868537 – BRC Property Report (3 of 4)

Agricultural Land*	
Agricultural Land Classification (ALC)	*Yes - Class Limited crop land*
Heritage and Neighbourhood Character	
Local Heritage Place	*No*
Adjoins a Local Heritage Place	*No*
National or QLD Heritage Place*	*No*
Adjoins National or QLD Heritage Place*	*No*
Neighbourhood Character	*No*
Infrastructure	
Gas Pipeline	*No*
Electricity Substation*	*No*
Electricity Infrastructure*	*No*
Wastewater Treatment Plant Buffer	*No*
Waste Management Facility Buffer	*No*
State Controlled Road Corridor*	*No*
Railway Corridor*	*No*
Cane Railway Corridor	*Yes - Within 40m of Cane Railway*
Water Resource Catchments	
Water Resource Catchment	*No*
Other	
CBD Parking Area	*Not within CBD Parking Area*
Third Party Advertising Devices Exclusion Area	*Not within Third Party Advertising Devices Exclusion Area*
Preliminary Planning Approval	*Not within Preliminary Planning Approval Area*
Charges Resolution (No.1) 2021	*Hinterland Partially Serviced (no wastewater and no water supply) Infrastructure Charge Area*
High Density Residential Zone - Bargara Building Height Control Area	*Not Applicable*
State Development Area	*Not within Bundaberg State Development Area (SDA)*
Development Footprint Plan Provision	*No Development Footprint Plan*
Local Government Infrastructure Plan (LGIP)	
Priority Infrastructure Area (PIA)	*Not Within PIA*
Future Trunk Infrastructure	*Not within vicinity of property*
Existing Trunk Infrastructure	*Within vicinity of property*

* Data within this overlay is based on the SPP interactive mapping. This data was last sourced on 10/03/2023. Council advises that land owners should review the SPP mapping to ensure it is the most up to date data available with relation to their land.

Lot 2 on RP868537 – BRC Property Report (4 of 4)

MAP LEGEND

- Parcels
- High Density Residential Zone – Bargara Building Height Control Area
- Bargara Height Control 5 Storey Limit
- Bargara Height Control 6 Storey Limit

Appendix H – BRC FLOOD REPORTS LOTS 183, 73 & 2

Lot 183 on CK2771 – BRC Flood Report (1 of 3)

BUNDABERG REGIONAL COUNCIL

PO Box Box 3130, Bundaberg QLD 4670
Local Call 1300 883 699 Fax (07) 4150 5410
ABN 72 427 835 198

FLOOD PLANNING CONTROL PROPERTY REPORT

Property Details:

Property Address: *143 Gastons Rd Bucca*
Plan Lot: *CK2771/183*
Existing Floor Level (mAHD): *No information*
Minimum Ground Level (mAHD): *No information*
Maximum Ground Level (mAHD): *No information*

Flood Information:

Within Flood Hazard Area:	*NO*
Within High Hazard Area:	*NO*
Within Flood Mitigation Area:	*NO*
Within Flood Investigation Area:	*NO*
Non-urban Creek & Overland Flow Maximum Water Level:	*NO*
Riverine DFL (mAHD):	*No Riverine DFL*
Local DFL (mAHD):	*No Local DFL*
Storm Tide DFL (mAHD):	*No Storm Tide DFL*

Flood Summary:

Maximum DFL (mAHD):	*No information*
Source of Maximum DFL:	*No information*
Existing Floor Level above Maximum DFL:	*N/A*
Flood Hazard Level* (mAHD):	*No information*

(minimum finished floor level of habitable rooms)*

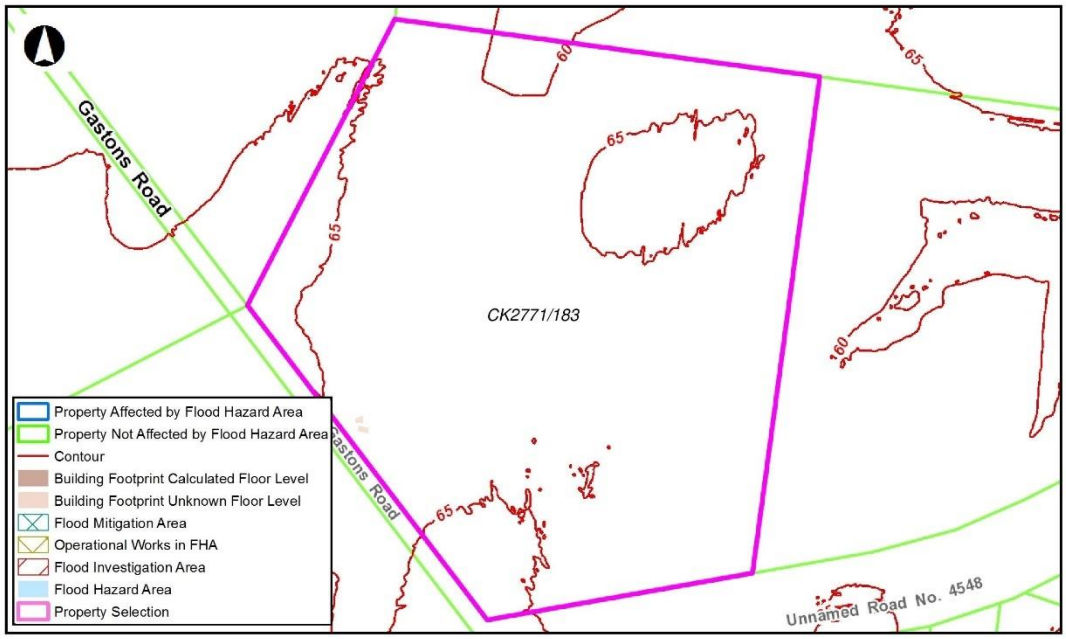
Comments:

This property is outside the Flood Hazard Area.

Data Generation Date: 4/03/2022 9:02:33 PM

Version: Flood Hazard Area Resolution 1/2021, effective 1 March 2022. Council's interactive mapping is currently being updated to reflect Council's new Flood Hazard Area Resolution 1/2023, effective 1 January 2024 –hard copy maps of the new flood hazard areas are available on Council's website (https://www.bundaberg.qld.gov.au/planning-building/planning-building-flood-information/3). Contact Council's Strategic Planning team for further information.

Figure 1 - Flood Hazard Map



Co-ordinate System: GDA94 MGA Zone 56 Date: 24/5/2024 1:52 PM Scale 1 :12,100.15 on A4 Sheet

Disclaimer:

1. The Defined Flood Levels and Flood Hazard Level are determined from the information available to Council at the date of issue. These flood levels may change when more detailed information becomes available or changes are made in the method of calculating flood levels.

2. Council makes no warranty or representation regarding the accuracy or completeness of this flood enquiry. Council disclaims any responsibility or liability in relation to the use or reliance by any person on the information contained in this flood enquiry.

Page 1 of 3

Lot 183 on CK2771 – BRC Flood Report (2 of 3)

BUNDABERG REGIONAL COUNCIL

PO Box Box 3130, Bundaberg QLD 4670
Local Call 1300 883 699 Fax (07) 4150 5410
ABN 72 427 835 198

FLOOD PLANNING CONTROL PROPERTY REPORT

Interpreting this report

Annual Exceedence Probability

The likelihood of the occurence of a flood of a given size or larger in any one year, usually expressed as a percentage. Council's adopted flood events are based on 1% AEP unless stated otherwise in Table 1.

Australian Height Datum (AHD)

The reference level for defining ground levels in Australia. The level of 0.0m AHD is approximately mean sea level.

Contour

Lines join points of equal elevation. The contour levels on the allotment are provided in Figure 1. Please note that contours are provided at 0.5 metre intervals AHD.

Defined Flood Event (DFE)

The flood event adopted by Council to define the Flood Hazard Area. The DFE and its associated inundation level are used to manage the development of a particular area. DFE are generally measured in terms of AEP but can also refer to historical flood events. Table 1 lists the adopted DFE for the Bundaberg Regional Council Area.

Defined Flood Level (DFL)

A flood water level adopted by Council that represents the defined flood event (DFE) or defined storm tide event (DSTE) at the development site. The DFL is also the adopted flood level for the purpose of section 8(1)(b) of the Building Regulation 2021 and Queensland Development Code MP3.5 – Construction of Buildings in Flood Hazard Areas. All adopted flood events are shown in Table 1 below.

Existing Floor Level (EFL)

The floor level (where available) of an existing dwelling on the subject property as recorded in either the 2004 Flood Floor Height Survey or 2013 Bundaberg and Gin Gin Mobile LiDAR Capture of Habitable and Commercial Floor Levels. A confidence level was applied to all captured floor levels to indicate the degree of certainty of the measured level. The levels used were:

1. A high expected floor level accuracy. No obstructions were present and the base of the door could be seen.
2. A minor obstruction was present around the base of the door. In general, measured levels should meet accuracy requirements.
3. The base of the door was not visible. In these cases, a patio level was captured as close to the door as possible. Additional height may need to be added particularly for brick slab buildings to achieve the final floor level.
4. The base of the door was not visible and no suitable patio level could be measured. Additional calculations will be required to obtain the actual building floor level.

Finished Floor Level

The level of the uppermost surface of a finished floor not including any floor covering. This is the same meaning as in section 13 of the Building Regulation 2006.

Flood Hazard Area

An area, whether or not mapped, designated by a local government as a flood hazard area under the Building Regulation 2021, section 8. Note - section 8 of the Building Regulation requires a local government to keep a register of the flood hazard area it designates and when the designation was made.

Flood Hazard Level (FHL)

The defined flood level (DFL) plus the freeboard. This is the same meaning as in the Queensland Development Code MP 3.5 Construction of buildings in flood hazard areas. The FHL is used to define the finished floor level of habitable rooms in the Flood Hazard Area. Please ensure that when you set out a FHL that this level is provided by a registered surveyor, as the contours are provided for information only and are not to be used as a reference during construction processes.

Flood Investigation Area

An area where Council is currently undertaking detailed flood analysis.

Flood Mitigation Area

The area protected by flood mitigation and evacuation route upgrades constructed after the 2013 Burnett River flood event. These include the Technology Park Flood Levee and the Bundaberg-Gin Gin Road and Fairymead Road evacuation route upgrades completed in 2015.

Freeboard

The height above defined flood level that takes account of matters that may cause flood waters to rise above the defined flood level. The freeboard for a lot in a flood hazard area is:

(a) if a local government has declared a freeboard for the part of the area where the lot is located, under section 8 of the Building Regulation 2021 – the height above the defined flood level declared to be the freeboard or

(b) otherwise - a height of at least 300mm.

Lot 183 on CK2771 – BRC Flood Report (3 of 3)

BUNDABERG REGIONAL COUNCIL

PO Box Box 3130, Bundaberg QLD 4670
Local Call 1300 883 699 Fax (07) 4150 5410
ABN 72 427 835 198

FLOOD PLANNING CONTROL PROPERTY REPORT

Ground Levels (Minimum & Maximum)

The lowest and highest ground levels (AHD) on the property based on available data. For more accurate information about the levels of the allotment, owners must engage a registered surveyor. The spatial resolution of the data is shown in brackets.

Habitable Room

Has the same meaning as in the Building Code of Australia. This is generally bedrooms, living rooms, kitchen, study, family and rumpus rooms.

High Hazard Area

The part of the flood hazard area where the maximum modelled flow velocity of water is greater than 1.5m/s.

Local DFL

The flood level associated with an adopted localised flood event where the rain falls on the local stream or creek catchment.

Operational Works in Flood Hazard Area

Refers to a range of development activities including excavating or filling, erecting an advertising sign, clearing vegetation, road works and infrastructure. Some of these activities can affect the Flood Hazard Area, DFL and FHL.

Riverine DFL

The flood level associated with an adopted regional flood event where the rain falls on the entire river catchment.

Storm Tide DFL

The flood level associated with an adopted regional flood event where cyclone activity affects the entire coastline of the Bundaberg Regional Council Area.

Table 1 - Flood Studies

Column 1 - Catchment	Column 2 - Author / Date	Column 3 - Adopted defined flood event detail
Riverine DFE		
Burnett River (lower)	Flood extent Queensland Government (with Council amendments)** Flood velocity and height GHD / 2013 As amended by GHD Feb 2015	Extracted from aerial photography of the 2013 Burnett River flood event Flood velocities and heights from the modelled January 2013 flood event#
Burnett River (upper)	GHD / 2013	Modelled January 2013 flood event
Kolan River and Gin Gin Creek	GHD / 2014	1% AEP with climate change
Baffle Creek	Engeny / 2019	1% AEP with climate change
Burrum, Cherwell, Isis, Gregory River	GHD / 2015 (with Council amendments)**	1% AEP with climate change
Local DFE		
Saltwater Creek	Cardno / 2010 As amended by BRC / 2013	1% AEP with climate change
Bundaberg Creek	Cardno / 2013	1% AEP with climate change
McCoy Creek	GHD / 2013 (with Council amendments)**	1% AEP with climate change
Bundaberg Coastal Small Streams	BMT WBM / 2014 including updated northern area)	1% AEP with climate change
Apple Tree Creek	Cardno / 2004	1% AEP
Palmer and O'Connell Creeks	GHD / 1997	1% AEP
Other		
Non-urban creeks and Overland Flow Path	BMT WBM / 2014	100 year ARI including climate change Clipped to SPP extent only and not used in urban areas
State Planning Policy Level 1 Queensland Floodplain Assessment Overlay Mapping In catchments where Council has no historic or modelled flood data	Queensland Government	Nil
Storm Tide	BMT WBM / 2013 (with Council amendments)**	1% AEP with climate change

 # The modelled January 2013 flood event is similar in magnitude to a 1% AEP flood event. In Bundaberg, the difference between the modelled 2013 event and a modelled 1% AEP event is mostly +/- 0.02m with a maximum difference being +0.06m.

*** See Natural Hazard Evaluation Report – Flood (BRC 2019), Appendix 1 for details. This report is available here:*
https://www.bundaberg.qld.gov.au/planning-building/planning-building-flood-information/3

Lot 73 on CK281 – BRC Flood Report (1 of 3)

BUNDABERG REGIONAL COUNCIL

PO Box Box 3130, Bundaberg QLD 4670
Local Call 1300 883 699 Fax (07) 4150 5410
ABN 72 427 835 198

FLOOD PLANNING CONTROL PROPERTY REPORT

Property Details:

Property Address: *No full property address found*
Plan Lot: *CK281/73*
Existing Floor Level (mAHD): *No information*
Minimum Ground Level (mAHD): *No information*
Maximum Ground Level (mAHD): *No information*

Flood Information:

Within Flood Hazard Area:	*NO*
Within High Hazard Area:	*NO*
Within Flood Mitigation Area:	*NO*
Within Flood Investigation Area:	*NO*
Non-urban Creek & Overland Flow Maximum Water Level:	*NO*
Riverine DFL (mAHD):	*No Riverine DFL*
Local DFL (mAHD):	*No Local DFL*
Storm Tide DFL (mAHD):	*No Storm Tide DFL*

Flood Summary:

Maximum DFL (mAHD):	*No information*
Source of Maximum DFL:	*No information*
Existing Floor Level above Maximum DFL:	*N/A*
Flood Hazard Level* (mAHD):	*No information*

(minimum finished floor level of habitable rooms)*

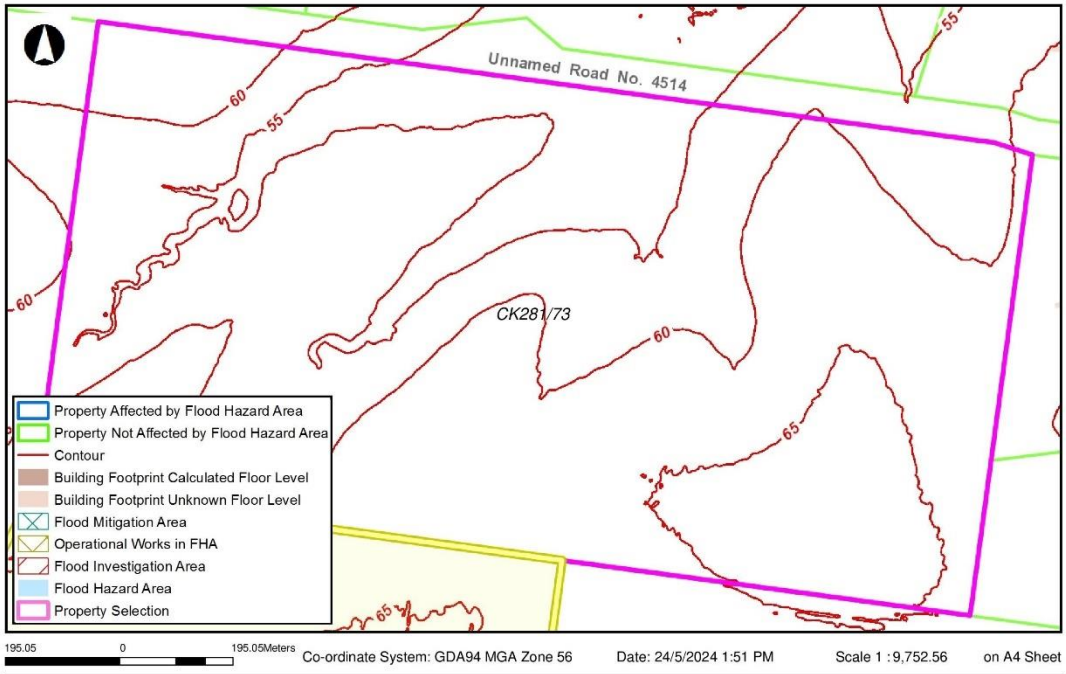
Comments:

This property is outside the Flood Hazard Area.

Data Generation Date: 4/03/2022 9:02:33 PM

Version: Flood Hazard Area Resolution 1/2021, effective 1 March 2022. Council's interactive mapping is currently being updated to reflect Council's new Flood Hazard Area Resolution 1/2023, effective 1 January 2024 –hard copy maps of the new flood hazard areas are available on Council's website (https://www.bundaberg.qld.gov.au/planning-building/planning-building-flood-information/3). Contact Council's Strategic Planning team for further information.

Figure 1 - Flood Hazard Map



Disclaimer:

1. The Defined Flood Levels and Flood Hazard Level are determined from the information available to Council at the date of issue. These flood levels may change when more detailed information becomes available or changes are made in the method of calculating flood levels.

2. Council makes no warranty or representation regarding the accuracy or completeness of this flood enquiry. Council disclaims any responsibility or liability in relation to the use or reliance by any person on the information contained in this flood enquiry.

Page 1 of 3

Lot 73 on CK281 – BRC Flood Report (2 of 3)

BUNDABERG REGIONAL COUNCIL

PO Box Box 3130, Bundaberg QLD 4670
Local Call 1300 883 699 Fax (07) 4150 5410
ABN 72 427 835 198

FLOOD PLANNING CONTROL PROPERTY REPORT

Interpreting this report

Annual Exceedence Probability

The likelihood of the occurence of a flood of a given size or larger in any one year, usually expressed as a percentage. Council's adopted flood events are based on 1% AEP unless stated otherwise in Table 1.

Australian Height Datum (AHD)

The reference level for defining ground levels in Australia. The level of 0.0m AHD is approximately mean sea level.

Contour

Lines join points of equal elevation. The contour levels on the allotment are provided in Figure 1. Please note that contours are provided at 0.5 metre intervals AHD.

Defined Flood Event (DFE)

The flood event adopted by Council to define the Flood Hazard Area. The DFE and its associated inundation level are used to manage the development of a particular area. DFE are generally measured in terms of AEP but can also refer to historical flood events. Table 1 lists the adopted DFE for the Bundaberg Regional Council Area.

Defined Flood Level (DFL)

A flood water level adopted by Council that represents the defined flood event (DFE) or defined storm tide event (DSTE) at the development site. The DFL is also the adopted flood level for the purpose of section 8(1)(b) of the Building Regulation 2021 and Queensland Development Code MP3.5 – Construction of Buildings in Flood Hazard Areas. All adopted flood events are shown in Table 1 below.

Existing Floor Level (EFL)

The floor level (where available) of an existing dwelling on the subject property as recorded in either the 2004 Flood Floor Height Survey or 2013 Bundaberg and Gin Gin Mobile LiDAR Capture of Habitable and Commercial Floor Levels. A confidence level was applied to all captured floor levels to indicate the degree of certainty of the measured level. The levels used were:

1. A high expected floor level accuracy. No obstructions were present and the base of the door could be seen.
2. A minor obstruction was present around the base of the door. In general, measured levels should meet accuracy requirements.
3. The base of the door was not visible. In these cases, a patio level was captured as close to the door as possible. Additional height may need to be added particularly for brick slab buildings to achieve the final floor level.
4. The base of the door was not visible and no suitable patio level could be measured. Additional calculations will be required to obtain the actual building floor level.

Finished Floor Level

The level of the uppermost surface of a finished floor not including any floor covering. This is the same meaning as in section 13 of the Building Regulation 2006.

Flood Hazard Area

An area, whether or not mapped, designated by a local government as a flood hazard area under the Building Regulation 2021, section 8. Note - section 8 of the Building Regulation requires a local government to keep a register of the flood hazard area it designates and when the designation was made.

Flood Hazard Level (FHL)

The defined flood level (DFL) plus the freeboard. This is the same meaning as in the Queensland Development Code MP 3.5 Construction of buildings in flood hazard areas. The FHL is used to define the finished floor level of habitable rooms in the Flood Hazard Area. Please ensure that when you set out a FHL that this level is provided by a registered surveyor, as the contours are provided for information only and are not to be used as a reference during construction processes.

Flood Investigation Area

An area where Council is currently undertaking detailed flood analysis.

Flood Mitigation Area

The area protected by flood mitigation and evacuation route upgrades constructed after the 2013 Burnett River flood event. These include the Technology Park Flood Levee and the Bundaberg-Gin Gin Road and Fairymead Road evacuation route upgrades completed in 2015.

Freeboard

The height above defined flood level that takes account of matters that may cause flood waters to rise above the defined flood level. The freeboard for a lot in a flood hazard area is:

(a) if a local government has declared a freeboard for the part of the area where the lot is located, under section 8 of the Building Regulation 2021 – the height above the defined flood level declared to be the freeboard or

(b) otherwise - a height of at least 300mm.

Lot 73 on CK281 – BRC Flood Report (3 of 3)

BUNDABERG REGIONAL COUNCIL

PO Box Box 3130, Bundaberg QLD 4670
Local Call 1300 883 699 Fax (07) 4150 5410
ABN 72 427 835 198

FLOOD PLANNING CONTROL PROPERTY REPORT

Ground Levels (Minimum & Maximum)

The lowest and highest ground levels (AHD) on the property based on available data. For more accurate information about the levels of the allotment, owners must engage a registered surveyor. The spatial resolution of the data is shown in brackets.

Habitable Room

Has the same meaning as in the Building Code of Australia. This is generally bedrooms, living rooms, kitchen, study, family and rumpus rooms.

High Hazard Area

The part of the flood hazard area where the maximum modelled flow velocity of water is greater than 1.5m/s.

Local DFL

The flood level associated with an adopted localised flood event where the rain falls on the local stream or creek catchment.

Operational Works in Flood Hazard Area

Refers to a range of development activities including excavating or filling, erecting an advertising sign, clearing vegetation, road works and infrastructure. Some of these activities can affect the Flood Hazard Area, DFL and FHL.

Riverine DFL

The flood level associated with an adopted regional flood event where the rain falls on the entire river catchment.

Storm Tide DFL

The flood level associated with an adopted regional flood event where cyclone activity affects the entire coastline of the Bundaberg Regional Council Area.

Table 1 - Flood Studies

Column 1 - Catchment	Column 2 - Author / Date	Column 3 - Adopted defined flood event detail
Riverine DFE		
Burnett River (lower)	Flood extent Queensland Government (with Council amendments)** Flood velocity and height GHD / 2013 As amended by GHD Feb 2015	Extracted from aerial photography of the 2013 Burnett River flood event Flood velocities and heights from the modelled January 2013 flood event#
Burnett River (upper)	GHD / 2013	Modelled January 2013 flood event
Kolan River and Gin Gin Creek	GHD / 2014	1% AEP with climate change
Baffle Creek	Engeny / 2019	1% AEP with climate change
Burrum, Cherwell, Isis, Gregory River	GHD / 2015 (with Council amendments)**	1% AEP with climate change
Local DFE		
Saltwater Creek	Cardno / 2010 As amended by BRC / 2013	1% AEP with climate change
Bundaberg Creek	Cardno / 2013	1% AEP with climate change
McCoy Creek	GHD / 2013 (with Council amendments)**	1% AEP with climate change
Bundaberg Coastal Small Streams	BMT WBM / 2014 including updated northern area)	1% AEP with climate change
Apple Tree Creek	Cardno / 2004	1% AEP
Palmer and O'Connell Creeks	GHD / 1997	1% AEP
Other		
Non-urban creeks and Overland Flow Path	BMT WBM / 2014	100 year ARI including climate change Clipped to SPP extent only and not used in urban areas
State Planning Policy Level 1 Queensland Floodplain Assessment Overlay Mapping In catchments where Council has no historic or modelled flood data	Queensland Government	Nil
Storm Tide	BMT WBM / 2013 (with Council amendments)**	1% AEP with climate change

 # The modelled January 2013 flood event is similar in magnitude to a 1% AEP flood event. In Bundaberg, the difference between the modelled 2013 event and a modelled 1% AEP event is mostly +/- 0.02m with a maximum difference being +0.06m.

*** See Natural Hazard Evaluation Report – Flood (BRC 2019), Appendix 1 for details. This report is available here:*
https://www.bundaberg.qld.gov.au/planning-building/planning-building-flood-information/3

Lot 2 on RP86537 – BRC Flood Report (1 of 3)

BUNDABERG REGIONAL COUNCIL

PO Box Box 3130, Bundaberg QLD 4670
Local Call 1300 883 699 Fax (07) 4150 5410
ABN 72 427 835 198

FLOOD PLANNING CONTROL PROPERTY REPORT

Property Details:

Property Address: *No full property address found*
Plan Lot: *RP868537/2*
Existing Floor Level (mAHD): *No information*
Minimum Ground Level (mAHD): *No information*
Maximum Ground Level (mAHD): *No information*

Flood Information:

Within Flood Hazard Area:	*NO*
Within High Hazard Area:	*NO*
Within Flood Mitigation Area:	*NO*
Within Flood Investigation Area:	*NO*
Non-urban Creek & Overland Flow Maximum Water Level:	*NO*
Riverine DFL (mAHD):	*No Riverine DFL*
Local DFL (mAHD):	*No Local DFL*
Storm Tide DFL (mAHD):	*No Storm Tide DFL*

Flood Summary:

Maximum DFL (mAHD):	*No information*
Source of Maximum DFL:	*No information*
Existing Floor Level above Maximum DFL:	*N/A*
Flood Hazard Level* (mAHD):	*No information*

(minimum finished floor level of habitable rooms)*

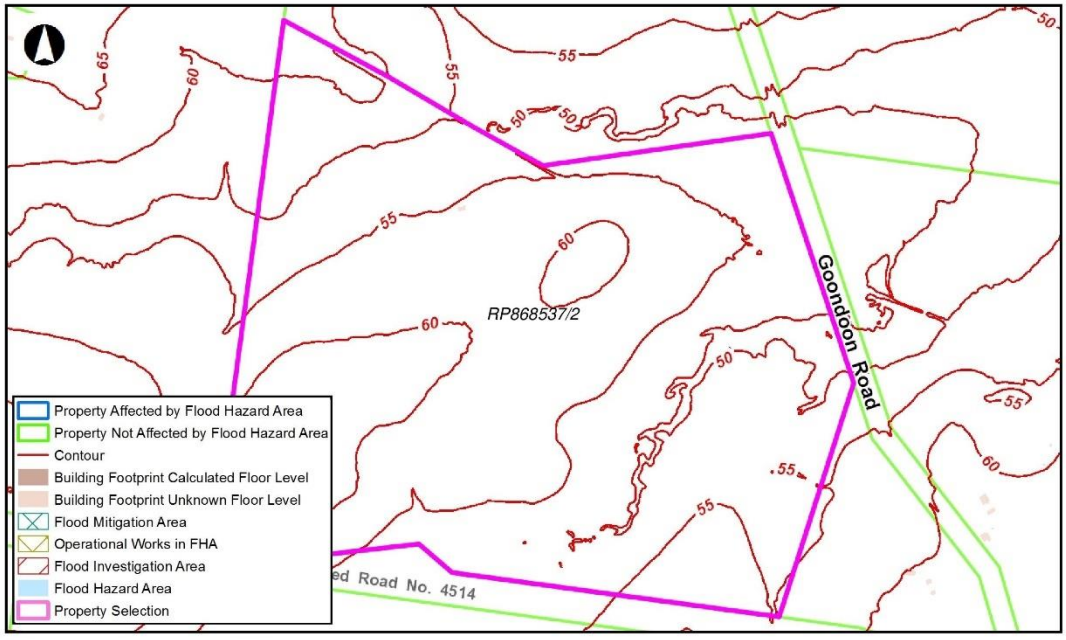
Comments:

This property is outside the Flood Hazard Area.

Data Generation Date: 4/03/2022 9:02:33 PM

Version: Flood Hazard Area Resolution 1/2021, effective 1 March 2022. Council's interactive mapping is currently being updated to reflect Council's new Flood Hazard Area Resolution 1/2023, effective 1 January 2024 –hard copy maps of the new flood hazard areas are available on Council's website (https://www.bundaberg.qld.gov.au/planning-building/planning-building-flood-information/3). Contact Council's Strategic Planning team for further information.

Figure 1 - Flood Hazard Map



Disclaimer:

1. The Defined Flood Levels and Flood Hazard Level are determined from the information available to Council at the date of issue. These flood levels may change when more detailed information becomes available or changes are made in the method of calculating flood levels.

2. Council makes no warranty or representation regarding the accuracy or completeness of this flood enquiry. Council disclaims any responsibility or liability in relation to the use or reliance by any person on the information contained in this flood enquiry.

Page 1 of 3

Lot 2 on RP868537 – BRC Flood Report (2 of 3)

BUNDABERG REGIONAL COUNCIL

PO Box Box 3130, Bundaberg QLD 4670
Local Call 1300 883 699 Fax (07) 4150 5410
ABN 72 427 835 198

FLOOD PLANNING CONTROL PROPERTY REPORT

Interpreting this report

Annual Exceedence Probability

The likelihood of the occurence of a flood of a given size or larger in any one year, usually expressed as a percentage. Council's adopted flood events are based on 1% AEP unless stated otherwise in Table 1.

Australian Height Datum (AHD)

The reference level for defining ground levels in Australia. The level of 0.0m AHD is approximately mean sea level.

Contour

Lines join points of equal elevation. The contour levels on the allotment are provided in Figure 1. Please note that contours are provided at 0.5 metre intervals AHD.

Defined Flood Event (DFE)

The flood event adopted by Council to define the Flood Hazard Area. The DFE and its associated inundation level are used to manage the development of a particular area. DFE are generally measured in terms of AEP but can also refer to historical flood events. Table 1 lists the adopted DFE for the Bundaberg Regional Council Area.

Defined Flood Level (DFL)

A flood water level adopted by Council that represents the defined flood event (DFE) or defined storm tide event (DSTE) at the development site. The DFL is also the adopted flood level for the purpose of section 8(1)(b) of the Building Regulation 2021 and Queensland Development Code MP3.5 – Construction of Buildings in Flood Hazard Areas. All adopted flood events are shown in Table 1 below.

Existing Floor Level (EFL)

The floor level (where available) of an existing dwelling on the subject property as recorded in either the 2004 Flood Floor Height Survey or 2013 Bundaberg and Gin Gin Mobile LiDAR Capture of Habitable and Commercial Floor Levels. A confidence level was applied to all captured floor levels to indicate the degree of certainty of the measured level. The levels used were:

1. A high expected floor level accuracy. No obstructions were present and the base of the door could be seen.
2. A minor obstruction was present around the base of the door. In general, measured levels should meet accuracy requirements.
3. The base of the door was not visible. In these cases, a patio level was captured as close to the door as possible. Additional height may need to be added particularly for brick slab buildings to achieve the final floor level.
4. The base of the door was not visible and no suitable patio level could be measured. Additional calculations will be required to obtain the actual building floor level.

Finished Floor Level

The level of the uppermost surface of a finished floor not including any floor covering. This is the same meaning as in section 13 of the Building Regulation 2006.

Flood Hazard Area

An area, whether or not mapped, designated by a local government as a flood hazard area under the Building Regulation 2021, section 8. Note - section 8 of the Building Regulation requires a local government to keep a register of the flood hazard area it designates and when the designation was made.

Flood Hazard Level (FHL)

The defined flood level (DFL) plus the freeboard. This is the same meaning as in the Queensland Development Code MP 3.5 Construction of buildings in flood hazard areas. The FHL is used to define the finished floor level of habitable rooms in the Flood Hazard Area. Please ensure that when you set out a FHL that this level is provided by a registered surveyor, as the contours are provided for information only and are not to be used as a reference during construction processes.

Flood Investigation Area

An area where Council is currently undertaking detailed flood analysis.

Flood Mitigation Area

The area protected by flood mitigation and evacuation route upgrades constructed after the 2013 Burnett River flood event. These include the Technology Park Flood Levee and the Bundaberg-Gin Gin Road and Fairymead Road evacuation route upgrades completed in 2015.

Freeboard

The height above defined flood level that takes account of matters that may cause flood waters to rise above the defined flood level. The freeboard for a lot in a flood hazard area is:

(a) if a local government has declared a freeboard for the part of the area where the lot is located, under section 8 of the Building Regulation 2021 – the height above the defined flood level declared to be the freeboard or

(b) otherwise - a height of at least 300mm.

Lot 2 on RP868537 – BRC Flood Report (3 of 3)

BUNDABERG REGIONAL COUNCIL

PO Box Box 3130, Bundaberg QLD 4670
Local Call 1300 883 699 Fax (07) 4150 5410
ABN 72 427 835 198

FLOOD PLANNING CONTROL PROPERTY REPORT

Ground Levels (Minimum & Maximum)

The lowest and highest ground levels (AHD) on the property based on available data. For more accurate information about the levels of the allotment, owners must engage a registered surveyor. The spatial resolution of the data is shown in brackets.

Habitable Room

Has the same meaning as in the Building Code of Australia. This is generally bedrooms, living rooms, kitchen, study, family and rumpus rooms.

High Hazard Area

The part of the flood hazard area where the maximum modelled flow velocity of water is greater than 1.5m/s.

Local DFL

The flood level associated with an adopted localised flood event where the rain falls on the local stream or creek catchment.

Operational Works in Flood Hazard Area

Refers to a range of development activities including excavating or filling, erecting an advertising sign, clearing vegetation, road works and infrastructure. Some of these activities can affect the Flood Hazard Area, DFL and FHL.

Riverine DFL

The flood level associated with an adopted regional flood event where the rain falls on the entire river catchment.

Storm Tide DFL

The flood level associated with an adopted regional flood event where cyclone activity affects the entire coastline of the Bundaberg Regional Council Area.

Table 1 - Flood Studies

Column 1 - Catchment	Column 2 - Author / Date	Column 3 - Adopted defined flood event detail
Riverine DFE		
Burnett River (lower)	Flood extent Queensland Government (with Council amendments)** Flood velocity and height GHD / 2013 As amended by GHD Feb 2015	Extracted from aerial photography of the 2013 Burnett River flood event Flood velocities and heights from the modelled January 2013 flood event#
Burnett River (upper)	GHD / 2013	Modelled January 2013 flood event
Kolan River and Gin Gin Creek	GHD / 2014	1% AEP with climate change
Baffle Creek	Engeny / 2019	1% AEP with climate change
Burrum, Cherwell, Isis, Gregory River	GHD / 2015 (with Council amendments)**	1% AEP with climate change
Local DFE		
Saltwater Creek	Cardno / 2010 As amended by BRC / 2013	1% AEP with climate change
Bundaberg Creek	Cardno / 2013	1% AEP with climate change
McCoy Creek	GHD / 2013 (with Council amendments)**	1% AEP with climate change
Bundaberg Coastal Small Streams	BMT WBM / 2014 including updated northern area)	1% AEP with climate change
Apple Tree Creek	Cardno / 2004	1% AEP
Palmer and O'Connell Creeks	GHD / 1997	1% AEP
Other		
Non-urban creeks and Overland Flow Path	BMT WBM / 2014	100 year ARI including climate change Clipped to SPP extent only and not used in urban areas
State Planning Policy Level 1 Queensland Floodplain Assessment Overlay Mapping In catchments where Council has no historic or modelled flood data	Queensland Government	Nil
Storm Tide	BMT WBM / 2013 (with Council amendments)**	1% AEP with climate change

 # The modelled January 2013 flood event is similar in magnitude to a 1% AEP flood event. In Bundaberg, the difference between the modelled 2013 event and a modelled 1% AEP event is mostly +/- 0.02m with a maximum difference being +0.06m.

*** See Natural Hazard Evaluation Report – Flood (BRC 2019), Appendix 1 for details. This report is available here: https://www.bundaberg.qld.gov.au/planning-building/planning-building-flood-information/3*

Appendix I – 5.4 CATEGORIES OF DEVELOPMENT – MATERIAL CHANGE OF USE

Table 5.4.17 Rural Zone (categories of development – material change of use)

5.4 Categories of development and assessment – Material change of use
Table 5.4.17 Rural zone

Use	Categories of development and assessment	Assessment benchmarks for assessable development and requirements for accepted development					
		Rural zone code	Landscaping code	Nuisance code	Transport and parking code	Works, services and infrastructure code	Applicable use code
Rural industry	Accepted if:- (a) employing not more than 6 persons (including those resident); (b) having a total use area not exceeding 400m²; and (c) no part of the use area is within 250m of a premises in the Rural residential zone or 500m in a residential zone.	Not applicable					
	Code assessment if not accepted.	✓	✓	✓	✓	✓	Rural uses code
Wholesale nursery	Accepted subject to requirements						Rural uses code
Winery	Code assessment	✓	✓	✓	✓	✓	Rural uses code
Other activities							
Landing	Accepted	Not applicable					
Major electricity infrastructure	Code assessment	✓	✓	✓	✓	✓	Utility code
Renewable energy facility	Code assessment	✓	✓	✓	✓	✓	Utility code
Substation	Code assessment	✓	✓	✓	✓	✓	Utility code
Utility installation	Accepted if a local utility.	Not applicable					
Not specified							
Uses not specified and uses that do not meet the description in the categories of development and assessment column	Impact assessment	The planning scheme					

Appendix J – 6.2.17 RURAL ZONE - BENCHMARKS FOR ASSESSABLE DEVELOPMENT

6.2.17 Rural zone code

6.2.17.1 Application

This code applies to development: -

(a) within the Rural zone as identified on the zone maps contained in **Schedule 2 (Mapping)**; and

(b) identified as requiring assessment against the Rural zone code by the tables of assessment in **Part 5 (Tables of assessment)**.

6.2.17.2 Purpose and overall outcomes

(1) The purpose of the Rural zone is to: -

(a) provide for rural uses and activities; and

(b) provide for other uses and activities that are compatible with: -

(i) existing and future rural uses and activities; and

(ii) the character and environmental features of the zone; and

(c) maintain the capacity of land for rural uses and activities by protecting and managing significant natural resources and processes.

(2) The purpose of the Rural zone code will be achieved through the following overall outcomes: -

(a) development provides for a broad range of rural activities as well as more intensive rural activities, provided that adverse environmental and amenity impacts are avoided or appropriately managed;

(b) permanent residential accommodation in the zone is generally limited in scale and intensity;

(c) complementary uses such as on-farm rural workers' accommodation, visitor accommodation and non-rural uses that support rural enterprise or rural tourism activities may be established in the zone;

(d) development minimises conflicts with existing and future rural uses and activities on the surrounding rural lands and ensures that the productive capacity of rural land is protected for rural uses and associated value adding industries;

(e) development provides for the protection of agricultural land classification (ALC) Class A and Class B land for sustainable agricultural use;

(f) further subdivision of rural lands is minimised, and fragmentation is prevented, to maintain viable farm sizes and to support the ability of landowners to continue rural pursuits;

(g) development maintains the rural and landscape character, scale and amenity of the zone;

(h) development has a predominantly low rise-built form to maintain the rural character and amenity of the zone; and

(i) development encourages and facilitates the efficient provision and safe operation of physical and social infrastructure.

6.2.17.3 Specific benchmarks for assessment

Table 6.2.17.3.1 Benchmarks for assessable development

Performance outcomes	Acceptable outcomes	Compliance/Representations
Land use composition		
PO1 Development in the Rural zone provides for a broad range of rural activities to support the ongoing productive use of rural lands. Note—such rural activities include animal husbandry, aquaculture, cropping, permanent plantations, intensive horticulture, roadside stalls, wholesale nurseries and wineries.	**AO1** No acceptable outcome provided.	**PO1** Although a renewable energy facility does not fall within the 'rural activities' activity group, it is widely recognised that rural areas are ideal for solar farms due to their unimpeded access to high solar irradiation, proximity to suitable grid connection points, and large areas of undeveloped land. The proposed solar farm on Lots 183, 73, and 2 will enhance sustainability by reducing carbon emissions by approximately 62,612.8 metric tonnes CO2e annually, including savings from ceasing cattle farming operations. This development aligns with state and federal renewable energy targets and supports local economic and employment opportunities. The solar farm's design ensures minimal ground disturbance by using non-invasive installation methods, avoiding extensive excavation for footing support and concrete foundations. This approach facilitates easier rehabilitation of the site to its natural state upon cessation of use. The temporary nature of the solar farm, with a decommissioning period of 25-30 years, ensures that the land can be restored. Council-imposed conditions will require the removal of all solar panels and structures within six months of cessation.
PO2 More intensive rural activities are supported in the zone, provided that adverse environmental and amenity impacts are avoided or appropriately managed. Note—such activities include animal keeping, intensive animal industry and rural industry.	**AO2** No acceptable outcome provided.	**PO2** While the proposed use is not an intensive rural activity, its design respects the site's environmental values. The solar farm's footprint avoids key watercourse buffer areas, preserving significant natural features. The site, despite containing watercourses, any significant environmental values as indicated by MSES and MNES mapping are not within the development footprint. The project's low-impact construction and operational phases minimise environmental disruption. This design choice protects the land's agricultural viability and maintains the rural character, integrating best environmental management practices to safeguard the site's natural attributes.
PO3 Permanent forms of residential accommodation in the zone are generally limited to dwelling houses and caretaker's accommodation on existing lots.	**AO3** No acceptable outcome provided.	**PO3** N/A - The proposed solar farm does not include any permanent residential accommodation, ensuring compliance with the performance outcome. The design of the solar farm ensures that it

		does not interfere with or displace existing residential uses on adjacent properties.
PO4 Visitor accommodation and other non-rural uses that support rural enterprise or rural based tourism activities may be established in the zone where such uses:- (a) complement rural uses; (b) promote the sustainable use of rural land; (c) do not compromise the use of the land for rural activities; and (d) would not be more appropriately located in, and do not undermine the role of, a nearby rural town or village.	**AO4** No acceptable outcome provided.	N/A - The proposed development is not for visitor accommodation or a non-rural use that supports rural enterprise or rural-based tourism activities and therefore this performance outcome is not applicable.
Effects of development		
PO5 Non-rural uses are located, designed and operated to minimise conflicts with existing and future rural uses and activities on the surrounding rural lands.	**AO5** No acceptable outcome provided.	**PO5** The proposed solar farm, considered a quasi-rural use, is compatible with the surrounding rural activities. The design allows for agricultural use, such as grazing, under the solar panels, providing economic benefits while ensuring minimal conflict with adjacent land uses. The project's low operational impact, including minimal noise and emissions, supports the continued viability of nearby agricultural operations. The solar farm's design includes low-profile structures and the use of non-reflective coatings on the panels to reduce glare, maintaining the visual quality of the area. Additionally, the implementation of landscape buffers using natural vegetation and planted screening will blend the solar farm into the surrounding landscape, minimising visibility from nearby roads and properties. To enhance visual screening, these buffers will use native vegetation to ensure that the solar farm is not visible from neighbouring houses and adjacent macadamia farms, which will be using the immediately adjacent land for cropping. The strategic placement of the solar panels and the incorporation of visual screening measures ensure that the scenic and rural character of the landscape is preserved and even enhanced. Moreover, the temporary nature of the solar farm allows the site to return to its natural state at the end of its lifespan. This capability for site rehabilitation ensures that the solar farm does not permanently alienate the land from its rural uses and maintains the long-term agricultural viability of the site.
PO6 Intensive rural activities are not located adjacent to sensitive land uses and are designed and operated to maintain the rural character and amenity of the zone.	**AO6** No acceptable outcome provided.	N/A - The proposed development is not an intensive rural activity. Solar farms are considered low impact uses with minimal operational noise, emissions, and disturbances. The design of the solar farm includes landscape screening and low-profile structures, ensuring it

		maintains the rural character and amenity of the zone. Furthermore, the temporary nature of the solar farm allows for the site to be rehabilitated to its natural state at the end of its operational lifespan, ensuring no long-term impact on sensitive land uses.
PO7 Development for extractive industry uses is appropriately designed, operated and managed to minimise significant nuisance and environmental impacts on surrounding premises.	**AO7** No acceptable outcome provided.	N/A - The proposed development is not for an extractive industry use and therefore this performance outcome is not applicable.
Protection of agricultural land		
PO8 Development does not alienate, fragment or diminish productivity of agricultural land classification (ALC) Class A and Class B land, unless:- (a) there is an overriding need for the development in terms of public benefit; and (b) no other site is suitable for the particular purpose.	**AO8** No acceptable outcome provided.	**PO8** The proposed solar farm addresses the urgent need for renewable energy to meet state and federal targets for carbon emissions reduction, which constitutes an overriding public benefit (a). Government policies strongly support the development of renewable energy sources to ensure a sustainable future. Additionally, the proposal addresses issues related to energy pricing and the need for stable, renewable energy sources as outlined in various government policies . The site selection for solar energy production is crucial due to specific criteria such as large, contiguous land areas with high solar irradiation, proximity to grid connection points, and suitable topography. This location meets these criteria, making it an optimal choice for the proposed solar farm. Although there may be other sites, finding a suitable site that meets all necessary criteria and does not have other ecological or land-use conflicts is challenging (b). Although the site is partially affected by the State Planning Policy's mapping for Classes A or B Agricultural Land, the actual quality of the land is low for agricultural purposes. The land has been historically used for cattle grazing, and its classification as high-grade agricultural land is inconsistent with its actual use and quality. The DNRM land use category designates all three parcels as 'Cattle-breeding & fattening,' indicating low productivity for intensive agricultural use. The temporary nature of the solar farm, with a decommissioning period of 25-30 years, allows the land to be restored to its natural state, ensuring that the productivity of the land is not permanently diminished. Additionally, the design allows for co-locating agricultural activities, such as grazing, under the solar panels, further maintaining the land's productivity during the operational life of the solar farm. Given these factors, the proposed development does not alienate, fragment, or diminish the productivity of the agricultural land, aligning with the requirements of PO8.
Building height and built form		

PO9 Development has a maximum building height of:- (a) 2 storeys and 8.5m for residential and other non-rural activities; and (b) 10m for rural activities.	**AO9** No acceptable outcome provided.	**PO9** The proposed solar farm will adhere to the maximum building height criteria set forth in PO9, ensuring that it maintains the rural character and amenity of the zone. The solar panels themselves are low-profile structures, designed to be unobtrusive and integrate seamlessly into the landscape. There are no residential buildings planned for the site. Any additional necessary structures related to non-rural activities will not surpass 8.5 metres in height, while structures related to rural activities will remain within the 10 metre height limit. This adherence to height restrictions ensures that all buildings are visually unobtrusive. By ensuring that no structures exceed these maximum heights, the development preserves the visual amenity and character of the rural landscape. The incorporation of appropriate screening where necessary further minimises visual impact, ensuring that the development complements rather than detracts from the existing setting.
PO10 The built form of development:- (a) integrates with and complements the predominant rural character and scale of the zone; and (b) sensitively responds to the environmental and topographical features of the landscape.	**AO10** No acceptable outcome provided.	**PO10** The proposed solar farm is designed to integrate with and complement the rural character and scale of the zone. The development features low-profile solar panels that align with the existing landscape, ensuring minimal visual disruption and maintaining the area's aesthetic integrity. (a) The built form will adhere to the rural character by using materials and colours that blend with the natural surroundings. Structures will be designed to be visually unobtrusive, ensuring they do not dominate the landscape. There are no residential buildings planned for the site, and any necessary structures related to the solar farm's operation will not exceed the height limits specified for rural activities, thereby maintaining the rural scale. (b) The design of the solar farm sensitively responds to the site's environmental and topographical features. The site comprises cleared grazing land with generally gentle sloping topography, which is ideal for solar panel installation. The development avoids areas with significant environmental constraints, such as waterway buffers and protected vegetation, ensuring that natural features are preserved. Appropriate screening, using both natural vegetation and additional planted buffers, will be implemented to minimise visual impact and enhance the integration of the solar farm into the landscape. By adhering to these design principles, the solar farm will maintain the visual amenity and character of the rural landscape, ensuring that

		the development complements the existing setting and respects the environmental and topographical features of the site.
Infrastructure and services		
PO11 Development provides for infrastructure and services that are commensurate with the very limited range of small scale and low-key activities that are expected to occur in the zone.	**AO11** No acceptable outcome provided.	**PO11** The proposed solar farm will be self-sufficient and not reliant on council reticulated services, ensuring minimal impact on existing rural infrastructure: Infrastructure: Includes internal access roads and electrical connections, designed to support operations without overwhelming the rural character. Services: Water for maintenance and cleaning will be sourced sustainably from on-site collection, and waste management will follow environmental guidelines. This approach ensures compatibility with the expected range of small scale and low-key activities in the Rural zone, maintaining the area's character and functionality.
PO12 Irrigation areas and associated infrastructure are protected from potential damage or encroachment by incompatible rural and non-rural uses.	**AO12** No acceptable outcome provided.	**PO12** The proposed solar farm development will not damage or encroach upon any existing irrigation areas or associated infrastructure, both within and external to the site. The site is primarily used for grazing and does not contain significant irrigation infrastructure internally. A Sunwater pipeline runs through the property and is covered by a registered easement; our design avoids this area, ensuring it is not affected. The development will ensure that any potential conflicts with irrigation areas are avoided, maintaining the functionality and integrity of existing infrastructure.
PO13 Development does not adversely impact on the continued operation, viability and maintenance of existing infrastructure (including rural infrastructure) or compromise the future provision of planned infrastructure.	**AO13** No acceptable outcome provided.	**PO13** The development ensures that it does not adversely impact the continued operation, viability, or maintenance of existing infrastructure (including rural infrastructure). The 66kV Ergon Energy powerline, which traverses Lot 183, is respected by positioning all solar panels and structures outside the easement area, ensuring uninterrupted access for maintenance and operation. Similarly, the Cane Rail corridor affecting the northern part of Lot 2, although no longer in use, is preserved by avoiding any encroachment on the easement, ensuring it remains available for potential future use. The proposal would not impact rural infrastructure external to the site. BRC interactive mapping does not indicate that there is any planned infrastructure in the immediate vicinity of the site.

Appendix K – 9.2.19 UTILITY CODE - BENCHMARKS FOR ASSESSABLE DEVELOPMENT

9.2.19 Utility code

9.2.19.1 Application

This code applies to development identified as requiring assessment against the Utility code by the tables of assessment in **Part 5 (Tables of assessment)**.

9.2.19.2 Purpose and overall outcomes

(1) The purpose of the Utility code is to ensure major utilities and other large scale infrastructure projects are provided in a co-ordinated and efficient way and are developed in a manner which effectively services and protects local communities.

(2) The purpose of the Utility code will be achieved through the following overall outcomes: -

(a) major utility infrastructure and facilities are provided in a co-ordinated and efficient manner;

(b) major utility infrastructure and facilities do not adversely affect the amenity of surrounding sensitive uses;

(c) major utility infrastructure and facilities maximise the efficient use of natural resources, including water and energy;

(d) major utility infrastructure and facilities do not adversely impact upon community wellbeing; and

(e) where essential community infrastructure, major utility infrastructure and facilities are designed to function during and immediately after flood events.

9.2.19.3 Specific benchmarks for assessment

Table 9.2.19.3.1 Benchmarks for assessable development

Performance outcomes	Acceptable outcomes	Compliance/Representations
Location and site suitability		
PO1 The utility is located such that:- (a) it is well placed relative to the infrastructure network that is services; (b) opportunities for cost efficiencies and reduction in environmental and social impacts are maximised; and (c) a high standard of accessibility is available for maintenance purposes and at times of emergency.	**AO1.1** The utility is established on a site that is well located relative to any supply or distribution network. **AO1.2** Where practicable, the utility is co-located with another utility of a similar or compatible type. **AO1.3** The utility is located on a site that can be easily accessed for maintenance purposes or at times of emergency.	**AO1.1, AO1.2 & AO1.3** The proposed development of the Bullyard Solar Project is strategically located to optimise the use of existing infrastructure, specifically the 132kV Ergon Energy electricity lines immediately south of lot 183. This placement ensures that the solar farm is well integrated into the existing supply network, thereby maximising cost efficiencies and minimising both environmental and social impacts. The location is further enhanced by its proximity to the Ergon Substation at McLeod's Road, Bullyard, approximately 2 kilometres southwest of the site. This proximity eliminates the need for an on-site substation, resulting in significant cost savings. The strategic positioning within approximately 5 kilometres of the grid connection point ensures cost-effective interconnection, as solar farms typically need to be located within this distance to optimise connectivity and minimise infrastructure costs. The site is designed to provide high accessibility for maintenance and emergency purposes. The infrastructure layout allows for efficient access routes, ensuring that maintenance teams can easily reach critical

		components of the utility. In case of emergencies, the site can be quickly and effectively shut down remotely, adding an additional layer of safety. While co-location with other utilities is generally preferred, it is not applicable in this instance due to the specific requirements and constraints of the project. Therefore, AO1.2 does not apply. The strategic use of the existing Ergon Energy 132kV lines immediately south of the site, ensures that the project meets the specific Performance Outcome PO1 by maximising cost efficiencies, minimising environmental impacts, and ensuring high accessibility.
Visual and amenity impacts		
PO2 The utility is sited and designed to:- (a) minimise adverse visual impacts beyond the boundaries of the site; and (b) minimise adverse impacts on the amenity of nearby residential, community or other sensitive uses.	**AO2** No acceptable outcome provided.	**PO2** The Bullyard Solar Project is designed to minimise visual and amenity impacts through strategic siting, the use of existing natural features, and the implementation of additional screening measures. The topography and existing vegetation of the site play a significant role in naturally buffering the solar farm from surrounding properties. The site is bordered by macadamia farms to the north and west, a reserve to the south, and hobby farms to the east. The hobby farm dwellings will not be visually impacted, and appropriate screening will be provided where necessary. The adjacent macadamia farms, which will be using the immediately adjacent land for cropping, are unaffected. Should the existing vegetation prove insufficient, additional screening will be provided to create a more robust visual barrier. The solar panels and associated structures are designed to be low-profile and oriented to minimise glare, particularly towards sensitive receptors. This design ensures that the height and positioning of the structures protect the visual amenity of the area. The operations of the solar farm are non-intrusive, generating no dust, minimal noise, and low glare, thereby preserving the amenity of the surrounding residential and community areas. The strategic layout of the solar panels, combined with significant separation distances and natural barriers such as watercourses and vegetation, ensures minimal visual impacts. For instance, the orientation of the panels and any reasonably necessary screening will mitigate any potential visual intrusion for the hobby farm dwellings to the east, although we expect that screening will be unnecessary. By adhering to these design principles and site-specific strategies, the proposed Bullyard Solar Project effectively ensures minimal adverse visual and amenity impacts on the surrounding area.
PO3	**AO3** No acceptable outcome provided.	**PO3** The Bullyard Solar Project is located in a rural setting, not an urban one which presumes low traffic volumes. The Gastons Road frontage is

The utility provides an attractive street front address with unsightly elements screened from view by walls and landscaping strips.		unconstructed, and the site opposite is a Reserve. Goondoon Road is a gravel rural road providing access to very few rural properties, including a macadamia farm, with the property opposite Lot 2 used for cattle grazing. This rural context means the site is not within a high use viewing corridor or significant viewing catchment, thereby protecting the visual amenity of the local area. The existing vegetation along Gastons Road and within the site itself, along with the natural topography, assists in mitigating the visual impact of the development. The strategic layout of the solar panels, combined with the low-profile design and orientation to minimise glare, further ensures that the solar farm integrates seamlessly into the rural landscape. Given the immediate relatively isolated location and the nature of the surrounding land uses, there are no significant viewing corridors that cannot be managed by appropriate screening. This approach ensures that the visual amenity of the local area is protected while maintaining compatibility with the rural character.
Water, energy and waste use efficiency		
PO4 The utility is designed, constructed and operated in a manner that:- (a) minimises energy use and greenhouse gas emissions; (b) minimises the use of water; and (c) maximises the re-use and recycling of by-products associated with the operation of the utility.	**AO4** No acceptable outcome provided.	**PO4** The Bullyard Solar Project, by its very nature, is designed to operate sustainably, ensuring the efficient use of resources, resilience to natural hazards, and minimal environmental impact. The development maximises the use of renewable solar energy to provide a sustainable resource for end users. The solar farm is partly powered by its own power generation, enhancing its resource efficiency. Unlike other energy generation methods, solar farms do not consume significant amounts of water, further contributing to sustainability. The infrastructure is built to withstand local climatic conditions and potential natural events, maintaining operational integrity and reliability. Solar farms produce minimal by-products, generating no emissions or harmful pollutants. Solar panels have a long lifespan of 25 to 30 years and are recyclable, supporting environmental sustainability. Occasional maintenance, such as replacing failed cells or panels, ensures continued efficient operation without significant environmental impact. By adhering to these principles, the Bullyard Solar Project efficiently uses resources, is resilient to natural hazards, and maintains a minimal environmental footprint, aligning with the sustainable goals of the development.
Building siting and design		
PO5 The siting and design of any buildings or structures associated with the utility are	**AO5** No acceptable outcome provided.	**PO5** Structures within the Bullyard Solar Project, including the 66kV switching station in the southeast corner of Lot 183, are intended to be of a low-rise

compatible with the setting and character of the local area in which the facility is located.		built form. This area is screened by existing vegetation along Gastons Road, which is unconstructed, and is opposite a reserve. The other abutting unnamed road reserve is also vegetated and unconstructed, ensuring minimal visual impact. Solar structures are inherently compatible with the rural character, blending with the anticipated visual characteristics of rural lands. The design and scale of the low-profile solar panels and associated infrastructure maintain the visual amenity of the locality. While there are anticipated to be maintenance buildings in the final Ops works design, these will have minimal impact because of the rural nature of the area and built form profile; where necessary they will be appropriately screened where natural site vegetation or topography leaves gaps in the viewing corridors.
Health and safety		
PO6 Public access is discouraged to those parts of the utility that pose a health or safety risk.	**AO6.1** Security fencing is provided to prevent unauthorised access to those parts of the utility that pose a health or safety risk. **AO6.2** Safety and warning signage is displayed where necessary.	**AO6.1:** The Bullyard Solar Project is designed to ensure the safety and security of people and property. The site will be securely fenced to prevent unauthorised access, in compliance with AO6.1. To enhance security and monitor the site, CCTV cameras will be installed at strategically determined positions. The exact number and layout of the CCTV cameras will be established during the detailed design phase, ensuring comprehensive coverage and effective monitoring of the site. By implementing these security measures, public access to areas posing health or safety risks is effectively discouraged. **AO6.2:** Warning signage will be displayed at appropriate locations to alert individuals to potential hazards, meeting the requirements of AO6.2. These measures collectively ensure that the Bullyard Solar Project provides a secure environment for both people and property. It is anticipated that the Council will impose conditions requiring the implementation of these safety and security measures, further enhancing the overall safety of the project.
Recommended flood level		
PO7 The functioning of a utility that is essential community service infrastructure is maintained during and immediately after flood and storm tide inundation events. Editor's note—essential community service infrastructure is defined in **Schedule 1 (Definitions)**.	**AO7** A utility that is essential community service infrastructure is:- (a) located in an area that is above the recommended flood levels identified in **Table 9.2.19.3.2** (**Recommended flood level for a utility that is essential community service infrastructure)**; or (b) located and designed to ensure any components of the infrastructure that are likely to fail to function or may result in contamination when inundated by	**AO7** N/A Not applicable. The flood reports for the three parcels comprising the Bullyard Solar Project site—Lot 183 on CK2771, Lot 73 on CK281, and Lot 2 on RP868537—indicate that none of these parcels are within the Flood Hazard Area (Appendix C). Additionally, the pre-lodgement meeting outcomes document does not specify the need for a Flood and Storm Water Assessment and Management to be submitted with this application, corroborating the verbal advice received from the council. Therefore, PO7 does not apply to this development.

	floodwaters (e.g. electrical switchgear and motors, water supply pipeline air valves) are: (i) located above the recommended flood level; or (ii) designed and constructed to exclude floodwater intrusion/infiltration.	

Table 9.2.19.3.2 Recommended flood level for a utility that is essential community service

Type of utility	Recommended flood level	Compliance/Representations
Major switch yards and substations (refer to note)	0.5% AEP	N/A. The Bullyard Solar Project includes a switching station. However, since the site is located outside the Flood Hazard Area, the switching station is not at risk from flood events.
Power stations	0.2% AEP	N/A. The Bullyard Solar Project does not include any power stations.
Sewage treatment plants (refer to note)	1% AEP	N/A. The site will include facilities for treating toilet and grey water for on-site staff, but these are not utility-scale sewage treatment plants and are located outside the Flood Hazard Area.
Water treatment plants (refer to note)	0.5% AEP	N/A. The Bullyard Solar Project does not include water treatment plants.
• Works of an electricity entity not otherwise listed in this table • Communication network facilities	No specific recommended flood level but development proponents should ensure that the infrastructure is optimally located and designed to achieve suitable levels of service, having regard to the processes and policies of the administering government agency.	N/A

Note—the recommended flood level applies only to electrical and other equipment that, if damaged by floodwater or debris, would prevent the infrastructure from functioning. This equipment should either be protected from damage or designed to withstand inundation.

Appendix L – 9.3.2 LANDSCAPING CODE - BENCHMARKS FOR ASSESSABLE DEVELOPMENT

9.3.2 Landscaping code[8]

9.3.2.1 Application

This code applies to development identified as requiring assessment against the Landscaping code by the tables of assessment in **Part 5 (Tables of assessment)**.

9.3.2.2 Purpose and overall outcomes

(1) The purpose of the Landscaping code is to ensure that landscaping is provided in a manner which is consistent with the desired character and amenity of the Bundaberg Region.

(2) The purpose of the Landscaping code will be achieved through the following overall outcomes:- (a) development provides for landscaping that complements and enriches the natural landscapes and built environment of the Bundaberg Region;

(b) development provides for landscaping that integrates the built form with its surroundings and adds to the desired character of places;

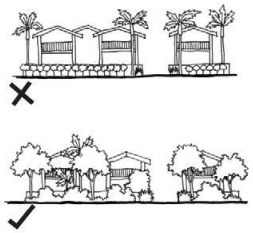
(c) development provides landscaping that minimises the consumption of energy and water, and encourages the use of local provenance plant species and landscape materials; and

(d) development provides landscaping that enhances personal safety and security, is functional and durable, and is practical and economic to maintain.

9.3.2.3 Specific benchmarks for assessment

Table 9.3.2.3.1 Benchmarks for assessable development – general requirements

Performance outcomes	Acceptable outcomes	Compliance/Representations
Landscape design generally		
PO1 Development provides for landscaping that:- (a) protects and enhances the character and amenity of the site, street and surrounding locality; (b) promotes the character of the Bundaberg Region as a sub-tropical environment; (c) is sensitive to site conditions, natural landforms and landscape characteristics; (d) as far as practicable, retains, protects and enhances existing trees, vegetation and topographic features of ecological, recreational, aesthetic and cultural value; (e) clearly defines public and private spaces;	**AO1.1** Existing significant trees, vegetation and topographic features are retained and integrated within the landscaping concept for the development. **OR** Where significant trees and vegetation cannot practicably be retained, mature vegetation of the same or similar species is provided elsewhere on the development site. **AO1.2** Development provides landscaping which:- (a) defines territory and ownership of public, common, semi-private and private space and does not create ambiguous spaces that encourage loitering; and (b) allows passive surveillance into, and visibility within, communal recreational	**AO1.1** The proposed landscaping for the Bullyard Solar Project is designed to integrate seamlessly with the natural and built environment of the Bundaberg Region. The Ecological Impact Assessment (EIA) will identify trees for retention, ensuring that significant vegetation is preserved. Trees identified by the EIA will be protected, and other significant trees will be retained as part of the landscaping and protection buffers. To mitigate potential visual impacts, the solar panels are equipped with anti-reflective coatings that significantly reduce glare, making them less reflective than standard glass windows. This ensures that the panels will not create visual disturbances for nearby roads or adjoining properties. Additionally, the panels are strategically sited and oriented to minimise visibility from public vantage points, further supported by the use of landscape buffers and screening. The combination of native vegetation and anti-reflective technology ensures that the development will not only blend into its surroundings but also contribute positively to the local landscape character. This approach aligns with the overall outcomes of the Landscaping Code by enhancing visual amenity. **AO1.2**

(f) promotes passive surveillance of public and semi-public spaces; and (g) is of an appropriate scale to integrate successfully with development.	spaces, children's play areas/playgrounds, pathways and car parks. **AO1.3** Elements of built form are softened and integrated within a broader landscape that incorporates structured landscape planting. Note—**Figure 9.3.2A (Landscaping screening of built form elements)** demonstrates how landscape screening is intended to soften and integrate with the built form. **Figure 9.3.2A Landscaping screening of built form elements**  **AO1.4** Unless otherwise specified in an applicable use code, driveways and car parking areas are screened by a landscaping strip with a minimum width of:- (a) 1.5m where adjacent to a residential use; or (b) 3m where adjacent to a street frontage or public open space. **AO1.5** Car parking areas are provided with a minimum of 1 shade tree for every 6 car parking spaces. Trees within car parking areas are planted within a deep natural ground/structured soil garden bed, and are protected by raised kerbs, wheel stops or bollards as required.	Given the security measures in place for the Bullyard Solar Project, AO1.2 is not applicable as the facility is not a public space. The primary function of the site is to generate solar energy, and it is not designed for public access or use. As such, the landscaping will focus on creating visual barriers and enhancing the natural landscape rather than defining public and private spaces or promoting passive surveillance. However, the overall landscaping strategy will still contribute to the visual amenity of the area by integrating the facility into its surroundings and using native vegetation to blend with the natural landscape. This approach ensures that the development will not detract from the character and amenity of the Bundaberg Region while maintaining the necessary security and functionality of the solar farm. **AO1.3** The landscaping for the Bullyard Solar Project is designed to ensure the facility integrates seamlessly with the broader landscape. The primary focus is on using native vegetation to create visual barriers and blend the development into its natural surroundings. This approach not only enhances the visual amenity but also supports local biodiversity. The plantings will be strategically placed to minimise the visual impact of the solar panels and other infrastructure. By using vegetation that is native to the region, the landscaping will complement the existing natural environment and contribute to the ecological health of the area. This strategy ensures that the built form of the solar farm is effectively integrated into the broader landscape, maintaining the character and amenity of the Bundaberg Region. Additionally, the use of anti-reflective coatings on the solar panels reduces glare, further helping the development blend into its surroundings without creating visual disturbances for nearby areas. **AO1.4** The Bullyard Solar Project will provide landscaping screening that meets or exceeds the minimums specified in AO1.4. Specifically, driveways and any operational parking areas will be screened by a landscaping strip with a minimum width of 3 metres where adjacent to street frontages or public open spaces. This ensures that the development maintains visual amenity and integrates seamlessly into its natural surroundings, while adhering to the specified landscaping requirements. **AO1.5** While a formal car park design is not yet in place for the Bullyard Solar Project and the facility is not intended for public access, it is intended to comply with this section. The landscaping strategy will ensure that any necessary operational parking areas are appropriately landscaped. The plan will include measures to provide shade and integrate the car parking areas into the broader landscape.

	AO1.6 Any solid screen fence or wall greater than 1.2m in height provided along a street frontage is set behind landscaping strips or articulated by recesses to allow for dense vegetative screening. **AO1.7** Storage and utility areas are screened by vegetation or built screens.	We anticipate that the car park design will be subject to council review under DA conditions. This approach ensures that any car parking areas are visually integrated into the broader landscape, aligning with the overall outcomes of the Landscaping Code. **AO1.6** The Bullyard Solar Project will have a security fence, with landscaping and screening appropriately placed to ensure minimal visual impact. Native vegetation will be used to create visual barriers along the security fence, helping it blend into the surrounding landscape and maintaining the visual amenity of the area. Given the remote location and the design of the site, view lines from roadways are not likely to be present. However, the landscaping strategy will ensure that the security fencing does not detract from the character and amenity of the region. **AO1.7** The Bullyard Solar Project will include screening provisions for any on-site buildings to ensure they blend into the landscape. Native vegetation will be strategically planted to create visual barriers around the buildings, minimising their visual impact and addressing view lines. Storage and utility areas will be screened by vegetation or built screens to ensure they do not detract from the visual character of the site.
PO2 Development provides sufficient areas to cater for landscaping.	**AO2** Site layout and design provides sufficient area, in appropriate locations, for landscaping, including catering for water sensitive urban design devices.	**AO2** The Bullyard Solar Project, located in the Rural Zone, will ensure that sufficient areas are allocated for landscaping to soften the built form and enhance the natural environment. The site layout and design will provide appropriate locations for landscaping, but no water-sensitive urban design devices are included in the development because such devices are typically not required for rural developments.
Streetscape landscaping		
PO3 Development provides for streetscape landscaping that:- (a) incorporates shade trees; (b) contributes to the continuity, character and form of existing and proposed streetscapes in the locality, including streetscape works; (c) in established urban areas, towns and villages, incorporates landscape design (including planting,	**AO3** No acceptable outcome provided.	**PO3** While PO3 focuses on urban streetscape landscaping, the Bullyard Solar Project will incorporate landscaping measures within the site to align with its rural context. The development will include native vegetation to create visual barriers and enhance the natural landscape. The planting for landscaping and retention of existing vegetation will be within the site, contributing to the visual amenity and supporting local biodiversity. Although the site does not include traditional urban streetscape elements, it will maintain the rural character and contribute positively to the local environment.

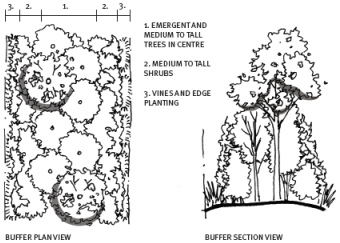
pavements, furniture, structures, etc.) that reflect and enhance the character of the streetscape; and (d) in new or establishing urban areas, incorporates landscape design that is consistent with and complementary to the natural landscape character of the local area.		
Climate control and energy efficiency		
PO4 Development provides landscaping that assists in passive solar access, the provision of shade, microclimate management and energy conservation.	**AO4.1** Landscaping elements are positioned to shade walls, windows and outdoor areas from summer sun. **AO4.2** Landscaping allows winter sun access to living areas, north facing windows and public spaces. **AO4.3** Landscaping, fences and walls allow exposure of living and public areas to prevailing summer breezes and protection against winter winds.	**AO4.1** The landscaping plan will include the use of native vegetation strategically placed to provide shade for operational buildings and outdoor areas, helping to reduce the need for mechanical cooling. This approach ensures that the working environment remains comfortable for employees while promoting energy efficiency. **AO4.2** While the primary focus of the Bullyard Solar Project is on solar energy generation rather than residential living, the design will ensure that any necessary operational areas receive adequate sunlight during the winter. This design consideration supports energy efficiency by maximizing passive solar heating where applicable. **AO4.3** Given the nature of the Bullyard Solar Project as a commercial operation with infrastructure-type buildings, the landscaping, fences, and walls will be designed to facilitate airflow for cooling during summer while providing protection against winter winds. The operational buildings will prioritise functionality, with appropriate landscaping to enhance worker comfort and energy efficiency. **General Compliance/Representations:** The operational buildings at the Bullyard Solar Project are designed with functionality and purpose in mind. The design will prioritise energy efficiency and worker comfort, incorporating features that reduce dust accumulation and facilitate maintenance. While there are no public spaces, the buildings will include worker amenities that consider environmental factors and operational needs. This comprehensive approach ensures that the design and landscaping of the solar farm support both functionality and sustainability.

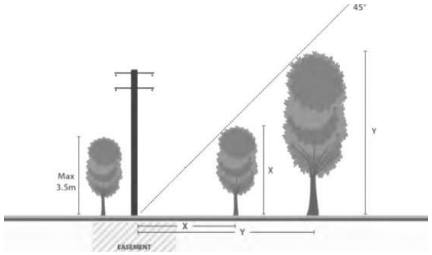
Table 9.3.2.3.2 Benchmarks for assessable development – additional requirements for operational work only

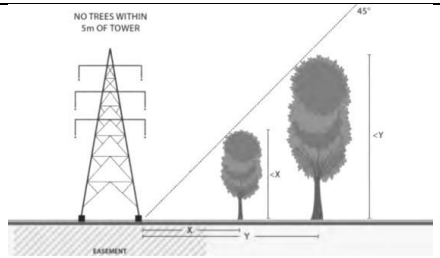
Species selection	

PO5 Development provides for landscaping which incorporates plant species that are:- (a) fit for the intended purpose; (b) suited to local environmental conditions; (c) non-toxic; and (d) not declared environmental weeds.	**AO5.1** Landscape planting utilises locally endemic and/or other native species as specified in the **Planning scheme policy for development works**. **AO5.2** Species that have the potential to become an environmental weed or are known to be toxic to people or animals are not used in landscaping.	N/A. This requirement will be addressed during the operational works application.
Safety, security and accessibility		
PO6 Development provides for landscaping that:- (a) enhances personal safety and security; and (b) provides universal and equitable access.	**AO6** Development provides landscaping which:- (a) incorporates trees with a minimum of 1.8m clear trunk and understorey planting that is a maximum of 0.3m in height where located immediately adjacent to pathways, entries, parking areas, street corners, street lighting and driveways; (b) minimises the use of dense shrubby vegetation over 1.5m in height along open street frontages and adjacent to open space areas; (c) incorporates pedestrian surfaces that are slip-resistant, stable and trafficable in all weather conditions; (d) provides security and pathway level lighting to site entries, driveways, parking areas, building entries and pedestrian pathways; and (e) facilitates universal access.	N/A. This requirement will be addressed during the operational works application.
Water sensitive urban design and environmental management		
PO7 Development provides for landscaping that promotes the efficient and sensitive use of water through	**AO7** Landscaping maximises the infiltration and conservation of water by:-	N/A. This requirement will be addressed during the operational works application.

appropriate plant selection and layout and by maximising opportunities for water infiltration.	(a) selecting locally endemic and/or other native plant species and appropriate turf species that require minimal irrigation after establishment; (b) grouping plants and street trees (where appropriate) in mulched beds; (c) minimising impervious surfaces; (d) incorporating semi-porous pavement surfaces as an alternative to impervious surfaces; and (e) draining hard surface areas to landscaped areas and water sensitive urban design devices.	
Landscape buffers		
PO8 Development provides for landscape buffers that:- (a) effectively protect the edges of existing native vegetation or another area of environmental significance; (b) achieve visual screening of acoustic attenuation devices; and (c) provide separation between incompatible land uses or between major infrastructure elements (such as State-controlled roads) and land uses.	**AO8** Where a landscape buffer is required by an applicable planning scheme code, it is designed, constructed and maintained in accordance with the following:- (a) earth mounding is provided where necessary to achieve satisfactory acoustic attenuation, visual screening or land use separation; (b) selected plant species are appropriate to the location, drainage and soil type; meet the buffer's functional requirements and require minimal ongoing maintenance; (c) plant selection includes a range of species to provide variation in form, colour and texture to contribute to the natural appearance of the buffer;	N/A. This requirement will be addressed during the operational works application.

	(d) planting density results in the creation of upper, mid and understorey strata with:- (i) large trees planted at 6m centres; (ii) small trees planted at 2m centres; (iii) shrubs planted at 1m centres; and (e) tufting plants, vines and groundcovers are planted at 0.5m to 1m centres; and (f) where adjoining the edge of native vegetation or watercourse understorey, shrubs and vines are used to bind appropriately the buffer edges against degradation and weed infestation. Note—**Figure 9.3.2B (Design of landscape buffers)** demonstrates the preferred form and structure of landscape buffers. **Figure 9.3.2B Design of landscape buffers** 	
Traffic safety and infrastructure		
PO9 Development ensures that landscaping does not adversely impact upon the provision, operation and maintenance of infrastructure.	**AO9.1** Development ensures that landscaping (including fencing) does not impede traffic visibility at access points, speed control devices and intersections. **AO9.2**	N/A. This requirement will be addressed during the operational works application.

	Planting and landscape structures are located to enable tradespersons to access, view and inspect switchboards, substations, service meters and the like. **AO9.3** Root barriers are installed around tree root balls to minimise the risk of damage to infrastructure, services or utilities. **AO9.4** Trees and large shrubs are located a minimum of:- (a) 6m from electricity poles and pillars; (b) 4m from streetlights and landscape pole top lights; (c) 2m from stormwater catchment pits; and (d) 1m from underground services and utilities. **AO9.5** Vegetation planted in the vicinity of major electricity infrastructure complies with the vegetation clearance dimensions illustrated in **Figure 9.3.2C Vegetation within or adjoining major electricity infrastructure.** **Figure 9.3.2C Vegetation within or adjoining major electricity infrastructure** 	

	 NO TREES WITHIN 5m OF TOWER 45° <Y <X X Y BASEMENT	

Appendix M – 9.3.3 NUISANCE CODE - BENCHMARKS FOR ASSESSABLE DEVELOPMENT

9.3.3 Nuisance code

9.3.3.1 Application

This code applies to development identified as requiring assessment against the Nuisance code by the tables of assessment in **Part 5 (Tables of assessment)**.

9.3.3.2 Purpose and overall outcomes

(1) The purpose of the Nuisance code is to maintain community wellbeing and protect environmental values by preventing or mitigating:-

(a) nuisance emissions from development adversely impacting on surrounding sensitive land use; and

(b) the exposure of proposed sensitive land uses to nuisance emissions from surrounding development.

(2) The purpose of the Nuisance code will be achieved through the following overall outcomes:-

(a) development is located, designed, constructed and operated to maintain appropriate levels of amenity and environmental performance by:-

(i) not imposing unacceptable noise, light, glare, dust or odour emissions on surrounding sensitive land uses; and

(ii) ensuring that proposed sensitive land uses are not subject to unacceptable nuisance emissions generated from surrounding development; and

(b) environmental values are protected by preventing or minimising potential environmental harm or environmental nuisance resulting from the release of contaminants or emissions, particularly noise, odour, light, glare, dust and particulates.

9.3.3.3 Specific benchmarks for assessment[9]

Table 9.3.3.3.1 Benchmarks for assessable development

Performance outcomes	Acceptable outcomes	Compliance/Representations
Acoustic amenity10		
PO1 Development is located, designed, constructed and operated to ensure that noise emissions do not adversely impact upon surrounding sensitive land uses. Note—this performance outcome also applies to noise emissions generated by sensitive land uses, from sources such as communal areas, service areas, plant and equipment (e.g. air conditioning units) and the like.	**AO1** No acceptable outcome provided.	**PO1** 4. Noise Emissions During Construction: • Control Measures: Construction activities will be scheduled to minimize noise impacts, adhering to standard construction hours. Measures will be taken to ensure that equipment and machinery operate within acceptable noise levels. • Barriers and Buffers: Temporary measures will be employed where necessary to shield nearby sensitive areas from construction noise. 5. Noise Emissions During Operation: • Location and Context: Operational equipment will be sited to reduce noise impacts on nearby sensitive land uses. The rural setting and site layout will help mitigate potential noise disturbances to adjacent properties. 6. Compliance with Standards: • Standards Compliance: The development will adhere to the Environment Protection (Noise) Policy 2019 (EPP Noise) and other

		relevant guidelines to ensure compliance with acceptable noise levels. **Proposed Conditional Statement:** "Detailed noise management solutions, including the placement of noise-reducing measures, will be addressed at the Operational Works approval stage following an assessment by appropriate experts. This approach ensures that all necessary noise control measures comply with the EPP Noise and other relevant standards."
PO2 Development that is a sensitive land use is located, designed, constructed and operated to achieve a satisfactory level of acoustic amenity where there is potential for noise emissions generated from surrounding development to adversely affect the sensitive land use. Editor's note—this is often referred to as a "reverse amenity" situation where a proposed sensitive land use may be adversely affected by nuisance emissions from surrounding development. In such cases it is contingent upon the proposed sensitive land use to implement measures to ensure that a satisfactory level of acoustic amenity is provided to prospective occupants and users of the development.	**AO2** The sensitive land use achieves the acoustic environment and acoustic quality objectives for sensitive receiving environments set out in the *Environment Protection (Noise) Policy*.	**AO2** 4. Noise Mitigation for Surrounding Sensitive Land Uses: • Strategic Location: Components such as inverters and transformers will be positioned to minimize noise impacts on surrounding sensitive land uses. • Noise Barriers and Buffers: Measures such as barriers or vegetative buffers may be considered to further reduce noise impacts where necessary. 5. Design and Operation: • Design Considerations: The design will incorporate noise reduction features for equipment and maintain appropriate distances from habitable buildings. • Operational Controls: The solar farm's operation will include regular maintenance and noise monitoring to ensure compliance with relevant standards. 6. Compliance with Environmental Standards: • Standards Compliance: The development will comply with the Environment Protection (Noise) Policy 2019 (EPP Noise) to meet acoustic environment and quality objectives for sensitive receiving environments. **Proposed Conditional Statement:** "Detailed noise management measures, including equipment placement and noise mitigation strategies, will be addressed at the Operational Works approval stage following expert assessment. This approach ensures compliance with the acoustic environment and quality objectives set out in the EPP (Noise)."

PO3 A satisfactory level of acoustic amenity is achieved for:- (a) external private and communal open space areas (including gardens and balconies) of sensitive land uses; and (b) parks and other areas of public open space (where not used for outdoor sport, recreation and entertainment). Note—this performance outcome will not be met if significant increases (i.e. more than 3 dB(A)) over and above pre-existing noise levels are likely to occur post-development.	**AO3** No acceptable outcome provided.	**PO3** 6. Rural Context and Activities: • The surrounding area consists of rural activities such as macadamia farms and hobby farms, which naturally generate noise (e.g., machinery, pumps) that is consistent with rural environments. • Typical rural noise levels are already above the very low background levels found in purely residential settings, making additional noise from the solar farm less impactful. 7. Vegetative Buffers: • The design includes natural vegetative buffers around the site to absorb and reduce noise transmission. This aligns with the existing rural landscape and provides effective noise mitigation. 8. Distance to Residences: • The nearest habitable buildings are at least 100m away from any solar farm structures. This significant distance, combined with the rural setting, further minimises any potential noise impact on sensitive land uses. 9. Operational Noise Minimisation: • Inverters and transformers, the primary sources of operational noise, will be equipped with noise-reducing enclosures and strategically located to minimise impact. • Construction activities are limited to 12 hours per day, 6 days per week, reducing noise during sensitive times. 10. No Public Open Space Impact: • There are no public open spaces or likely external private spaces in the immediate vicinity that would be affected by noise emissions from the solar farm. Conclusion: Given the rural environment, typical noise-generating activities, vegetative buffers, and the distance to residences, the Bullyard Solar Project is unlikely to cause significant noise impacts post-development. It is unlikely that a baseline noise assessment will be deemed necessary. **Proposed Conditional Statement:** "Detailed noise mitigation measures for both construction and operational phases will be addressed at the Operational Works approval stage following expert noise assessment. This will ensure that the development achieves a satisfactory level of acoustic amenity in line with the Environmental Protection (Noise) Policy 2019 and local planning standards."
Live entertainment and amplified sound		

PO4 Development involving live entertainment or amplified music and voices maintains a satisfactory level of acoustic amenity for surrounding sensitive land uses.	**AO4** No acceptable outcome provided.	N/A. The Bullyard Solar Project does not involve live entertainment or amplified sound.
Odour, dust and particulate nuisance		
PO5 Development is located, designed, constructed and operated to ensure that odour, dust and particulate emissions do not cause environmental nuisance to sensitive land uses (whether existing or proposed uses) in the surroundings of the proposed development.	**AO5.1** Dust emissions do not result in levels at sensitive land uses which exceed the Air Quality Objectives contained in the *Environmental Protection (Air) Policy 2008* and do not cause environmental nuisance by dust deposition. **AO5.2** For odour and particulate emissions—no acceptable outcome provided.	**AO5.1** The Bullyard Solar Project will implement dust control measures to comply with the Air Quality Objectives contained in the Environmental Protection (Air) Policy 2008. Potential measures include regular wetting of the ground, application of dust suppressants, and use of vegetative buffers to minimise dust dispersion. These measures are examples and not exhaustive; the final selection will be determined during the detailed design and construction phases, based on the specific conditions and requirements at that time. Monitoring will be conducted to ensure dust levels remain within acceptable limits and do not cause nuisance to surrounding sensitive land uses. **AO5.2** The Bullyard Solar Project does not produce odour emissions. Particulate emissions will be controlled through dust control measures similar to those outlined for AO5.1. While specific measures will be tailored during the detailed design and construction phases, they will include potential solutions such as wetting, dust suppressants, and vegetative buffers. These measures will be adjusted as necessary to manage particulate emissions effectively, ensuring no environmental nuisance to surrounding sensitive land uses. **Proposed Conditional Statement:** "Dust, odour, and particulate emissions will be managed to prevent environmental nuisance to surrounding sensitive land uses. Measures to control these emissions may include, but are not limited to, regular wetting of disturbed areas, application of dust suppressants, and use of vegetative buffers. The final control measures will be determined during the detailed design and construction phases and conditioned in the Development Approval to ensure compliance with the Air Quality Objectives contained in the Environmental Protection (Air) Policy 2008."
PO6 Development that is a sensitive land use is located, designed, constructed and operated to ensure that the proposed use is not subject to odour, dust or particulate emissions from surrounding development that would cause environmental nuisance.	**AO6** No acceptable outcome provided.	**PO6** N/A. The Bullyard Solar Project is not a sensitive land use, and the surrounding area is rural with agricultural activities. The only potentially sensitive land use nearby is residential but given the distance to residences and effective dust and particulate control measures in place, this requirement does not apply.
Lighting and glare nuisance		

PO7 Development ensures that lighting and glare does not have any significant adverse amenity impacts or create nuisance to surrounding premises.	**AO7.1** Lighting devices are located, designed and installed to:- (a) minimise light spillage on surrounding premises; (b) preserve an acceptable degree of lighting amenity at surrounding premises; (c) provide covers or shading around lights; (d) direct lights downwards; (e) position lights away from possibly affected areas; and (f) enable brightness of lights to be adjusted to low levels. **AO7.2** Streets, driveways and servicing areas are located and designed to minimise vehicle headlight impacts on any surrounding residential premises. **AO7.3** Reflective glare that would cause a nuisance to residents or the general public at surrounding premises and public spaces is avoided or minimised through the use of:- (a) external building materials and finishes with low reflectivity; or (b) building design/architectural elements or landscape treatments to block or reduce excessive reflective glare.	**AO7.1** **Lighting Design and Installation:** The Bullyard Solar Project will ensure that lighting devices are strategically located and designed to minimise light spillage on surrounding premises. Covers and shading will be provided around lights to direct them downwards and away from sensitive areas, and lights will be positioned to avoid impacting nearby residences and rural properties. Given the rural setting and the nature of the development, enabling brightness of lights to be adjusted to low levels is not deemed necessary beyond standard design measures. **Reflective Glare:** The solar panels are equipped with anti-reflective coatings that significantly reduce glare. This ensures that the panels do not create visual disturbances for nearby roads or adjoining properties. The panels are also strategically sited and oriented to minimise visibility from public vantage points, further supported by the use of landscape buffers and screening. **AO7.2** Vehicle access is typically restricted to mostly daylight hours (12 hours). The site is in a rural environment, screened, and buffered, with visual impacts off the property being very unlikely, including for adjacent rural residences. The main switching station is in a relatively remote part of the site and is lit for security reasons. The layout of streets, driveways, and servicing areas within the solar farm will be designed to direct vehicle headlights away from surrounding residential premises. This minimises any potential nuisance from vehicle lights. **AO7.3** The use of anti-reflective coatings on solar panels, along with low-reflectivity external materials and landscape treatments, ensures that reflective glare is minimized. Buildings are strategically positioned and designed with low-reflectivity materials to minimize visual impact. Landscape treatments, including vegetative buffers and screening, further block or reduce excessive reflective glare, preventing any nuisance to residents or the general public in surrounding areas.
Management of impacts to fauna		
PO8 Effective measures are implemented during the construction and operation of development to protect fauna that is sensitive to disturbance from noise, vibration, odour, light, dust and particulates.	**AO8.1** Any noise, odour, light, dust, particulates or vibration generated during the construction and operation of development is managed to ensure it does not have an adverse impact on fauna within an area of environmental significance.	**AO8.1** The Bullyard Solar Project is committed to implementing effective measures to protect fauna during both the construction and operation phases. Key strategies include: 5. Noise and Vibration Management:

		• Construction Scheduling: Construction activities will be scheduled to minimise noise and vibration impacts, with consideration given to the timing and duration of potentially disruptive activities. • Equipment Maintenance: Regular maintenance of equipment and machinery will be conducted to ensure they operate efficiently and quietly, reducing noise and vibration. • Noise Mitigation: Noise-reducing enclosures will be used for inverters and transformers during operation, and their location will be carefully selected to minimise disturbance to fauna. 6. Dust and Particulate Control: • Dust Suppression: Effective dust control measures, such as regular wetting of the ground and the use of dust suppressants, will be implemented during construction to limit dust and particulate emissions. • Vegetative Buffers: Natural vegetative buffers will be established to help contain dust and particulate dispersion, providing a protective barrier for sensitive fauna habitats. 7. Light Management: • Strategic Lighting: Lighting devices will be strategically located and designed to minimise light spillage and direct lights downwards to avoid impacting nocturnal fauna. • Controlled Brightness: Lights will be set at the minimum necessary brightness for safety and security to reduce potential disruption to fauna. 8. Odour Control: • Operational Characteristics: The solar farm is not expected to produce significant odour emissions, ensuring that odour does not adversely impact fauna in the surrounding areas. **Proposed Conditional Statement:** • "The implementation of noise, dust, light, and other impact mitigation measures will be conditioned in the Development Approval and further refined at the Operational Works approval stage based on expert assessments.

[9] Editor's note—the Council may require an impact assessment report prepared in accordance with the **Planning scheme policy for information the Council may request and preparing well made applications and technical reports** to demonstrate compliance with certain performance outcomes of this code.

[10] Note—Council will take the order of occupancy of new and existing noise sources into consideration in implementing the Performance outcomes for the Acoustic amenity section of this code. The intent of these particular Performance outcomes is not to require existing lawful uses to control noise emissions in response to encroachment by proposed sensitive land uses.

Appendix N – 9.3.5 TRANSPORT AND PARKING CODE - BENCHMARKS FOR ASSESSABLE DEVELOPMENT

9.3.5 Transport and parking code[16 17]

9.3.5.1 Application

This code applies to development identified as requiring assessment against the Transport and parking code by the tables of assessment in **Part 5 (Tables of assessment)**.

9.3.5.2 Purpose and overall outcomes

(1) The purpose of the Transport and parking code is to ensure that transport infrastructure (including pathways, public transport infrastructure, roads, parking and service areas) is provided in a manner which meets the needs of the development, whilst maintaining a safe and efficient road network, promoting active and public transport use and preserving the character and amenity of the Bundaberg Region.

(2) The purpose of the Transport and parking code will be achieved through the following overall outcomes:-

(a) development is consistent with the objectives of the strategic transport network, which are to:- (i) provide for a highly permeable and integrated movement network;

(ii) improve coordination between land use and transport so as to maximise the potential for walking, cycling and public transport use;

(iii) achieve acceptable levels of access, convenience, efficiency and legibility for all transport users;

(iv) limit road construction to the minimum necessary to meet the endorsed levels of service for ultimate development of the Bundaberg Region;

(v) provide for staging of Council's limited trunk road construction program to maximise sustainability; and

(vi) maintain the safety and efficiency of the road network;

(b) transport infrastructure is designed and constructed to acceptable standards and operates in a safe and efficient manner that meets community expectations, prevents unacceptable off-site impacts and reduces whole of life cycle costs, including ongoing maintenance costs; and

(c) development provides for on-site parking, access, circulation and servicing areas that are safe, convenient and meet the reasonable requirements of the development.

9.3.5.3 Specific benchmarks for assessment

Table 9.3.5.3.1 Requirements for development accepted subject to requirements and benchmarks for assessable development

Performance outcomes	Acceptable outcomes	Compliance/Representations
On-site parking and access		
PO1 Development ensures that the location, layout and design of vehicle access, on-site circulation systems and parking and service areas:- (a) is safe, convenient and legible for all users including people with disabilities, pedestrians, cyclists and public transport services, where relevant;	**AO1.1** The location, design and provision of any site access, access driveways, internal circulation and manoeuvring areas, service areas and parking areas is in accordance with the standards specified in the **Planning scheme policy for development works**, including ensuring:-	**AO1.1** The location, design, and provision of any site access, access driveways, internal circulation and manoeuvring areas, service areas, and parking areas will be in accordance with the standards specified in the Planning Scheme Policy for Development Works and the requirements of relevant authorities. The Bullyard Solar Project will ensure that all transport infrastructure, including roads, pathways, and public transport facilities, is designed and constructed to these standards. **On-site access, circulation, and service areas:** • The proposal plan provides a clear layout of on-site access, internal circulation, and parking areas that accommodate all necessary

(b) does not interfere with, and minimises any adverse impacts on, the planned function, safety, capacity, efficiency and operation of the transport network; (c) provides sufficient on-site parking to meet the needs of, and anticipated demand generated by, the development; (d) limit potential conflict between service vehicles, other vehicles and pedestrians; and (e) minimises adverse impacts on the local streetscape character and amenity of the surrounding area.	(a) the number and type of vehicles planned for the development can be accommodated on-site; (b) on-site vehicle parking and manoeuvring areas provide for vehicles to enter and leave the site in a forward motion; and (c) a progressive reduction in vehicle speed between the external transport corridor and internal parking spaces such that lower speeds occur near areas of high pedestrian activity. **AO1.2** For assessable development, the number of site access driveways is minimised (usually one), with access to the lowest order transport corridor to which the site has frontage, consistent with amenity impact constraints. **AO1.3** Development provides on-site parking spaces at the rate specified in **Table 9.3.5.3.3 (Minimum on-site parking requirements).** Note—where the calculated number of spaces in not a whole number, the required number of parking spaces is the nearest whole number. Note—the minimum on-site parking rates specified in Table 9.3.5.3.3 provide for the needs of all users of the development including employees, customers, students and visitors. **AO1.4**	vehicles associated with the project. The main parking area (108m x 48m and 108m x 22m) is designed to accommodate up to 180 cars, and the Office/Extra Parking area (50m x 40m) can hold an additional 20 cars, ensuring a total capacity of 200 cars. • As advised by the client, car-pooling and shared transportation are expected to reduce the peak number of vehicles to around 150 cars. The additional 50 spaces provide flexibility and contingency, ensuring smooth on-site operations even during peak periods. • The layout ensures safe and efficient circulation for B-Doubles, rigid body trucks, and other vehicles associated with the construction phase, with designated areas for loading/unloading and storage. **Proposed Conditional Statement:** "This element is to be conditioned in the Development Approval to be dealt with at the Operational Works approval stage following detailed engineering design." **AO1.2** The Bullyard Solar Project will ensure that the number of site access driveways is minimised. For this project, there are two entrances: the main entrance for construction and operations from Goondoon Road, and a secondary entrance from Gastons Road. This approach is consistent with amenity impact constraints and is subject to the formal design and treatment to be addressed in the Traffic Impact Assessment. **Proposed Conditional Statement:** "This element is to be conditioned in the Development Approval to be dealt with at the Operational Works approval stage following detailed engineering design." **AO1.3** The Bullyard Solar Project will ensure that the number of on-site parking spaces is appropriate for the use. According to Table 9.3.5.3.3, which categorizes our development under "all other activities," specific parking requirements for cars, service vehicles, and bicycles are not explicitly listed. Given the nature of the solar farm, parking requirements will cater to operations staff, maintenance staff, service vehicles, and occasional visitors. The design and location of car parking areas will be aimed at achieving a high standard of amenity and safety for users. This includes accommodating the necessary types and volumes of vehicles in accordance with relevant standards and guidelines to be determined by the engineers during the formal design phase. **Provision of on-site parking spaces:** • The amended plan provides the required number of parking spaces based on practical experience from similar projects. Although 300

	Development provides clearly defined pedestrian paths within and around on-site vehicle parking areas that:- (a) are located in areas where people will choose to walk; and (b) ensure pedestrian movement through vehicle parking areas is along aisles rather than across them. **AO1.5** The layout and design of the development provides for the manoeuvring and parking of all vehicles associated with the use to be accommodated on the site. Driveways, internal circulation areas, manoeuvring areas and service areas (including loading and unloading areas and refuse collection facilities) are:- (a) designed and provided to accommodate the nominated design vehicles for each development type and other vehicles likely to be associated with the use; and (b) constructed in accordance with the standards specified in the **Planning scheme policy for development works**. **AO1.6** For assessable development in a centre zone or Specialised centre zone, development provides for inter-connectivity with the internal vehicle circulation, pedestrian movement, and car parking areas of adjacent development, to enable the sharing of access and merging of customer car parking where appropriate, and	personnel are anticipated during peak construction, 150 vehicles are expected due to car-pooling and shared transport arrangements. • The 200 spaces provided across the Main Parking and Office/Extra Parking areas exceed the expected demand, ensuring sufficient parking for all personnel, with additional capacity as a contingency. **Proposed Conditional Statement:** "The final number of on-site parking spaces and the design of car parking areas will be conditioned in the Development Approval to be dealt with at the Operational Works approval stage following detailed engineering design generally in accordance with the proposed plan." **AO1.4** Pedestrian paths will be located in areas where people are likely to walk, ensuring convenience and safety. The design will guide pedestrian movement along aisles rather than across vehicular traffic, reducing potential safety hazards. **Proposed Conditional Statement:** "The design and location of pedestrian paths within and around on-site vehicle parking areas will be conditioned in the Development Approval to be dealt with at the Operational Works approval stage following detailed engineering design." **AO1.5** The layout and design of the development will provide for the manoeuvring and parking of all vehicles associated with the use on-site. Driveways, internal circulation areas, manoeuvring areas, and service areas (including loading and unloading areas and refuse collection facilities) will be designed and provided to accommodate the nominated design vehicles and other vehicles likely to be associated with the use. These areas will be constructed in accordance with the standards specified in the Planning Scheme Policy for Development Works. **On-site manoeuvring and parking design:** • The layout of driveways, internal circulation areas, and manoeuvring zones has been designed to accommodate the vehicles anticipated for the project, allowing for easy ingress and egress without causing congestion. • All vehicles will be able to enter and leave the site in a forward motion, as required by the code, ensuring safety and compliance. • Propose Designated areas are provided for loading/unloading, storage, and manoeuvring to prevent congestion and allow smooth on-site operations. **Proposed Conditional Statement:** "The layout and design of driveways, internal circulation areas, manoeuvring areas, and service areas will be conditioned in the Development Approval to be dealt with at the Operational Works approval

	to reduce impacts on the external road network.	stage following detailed engineering design generally in accordance with the proposed plan." **AO1.6** N/A. This element is not applicable to the Bullyard Solar Project as it is located in a rural zone and classified as a utility installation. The provisions for inter-connectivity with adjacent developments in a centre zone or Specialised centre zone are not relevant to this project.

16 Editor's note—the Council may require the preparation of a traffic impact assessment report to demonstrate compliance with certain outcomes of the **Transport and parking code**.

17 Editor's note—the **Planning scheme policy for development works** provides guidance for satisfying certain outcomes of the Transport and parking code.

Table 9.3.5.3.2 Benchmarks for assessable development only

Performance outcomes	Acceptable outcomes	Compliance/Representations
Strategic transport network		
PO2 Development, particularly where involving high trip generating land uses or the creation of new roads and other transport corridors, ensures provision of a transport network that:- (a) accords with the Strategic transport network as shown on **Strategic Framework Map SFM-003 (Transport and infrastructure elements) and the Local Government Infrastructure Plan**; (b) provides visible distinction of roads, with the design of streets and roads based on function, safety and efficiency; (c) provides convenient, safe and efficient movement for all modes of transport between land use activities with priority given to pedestrian movement and bicycle use over vehicle movements; (d) allows for unimpeded and practical access to the development site and each proposed lot; (e) facilitates and promotes the use of public and active transport, including access to cycle and pedestrian pathways; (f) facilitates a high standard of urban design which reflects a grid pattern (or modified grid pattern) to assist in connectivity and permeability, particularly for pedestrians and cyclists;	**AO2** No acceptable outcome provided.	**PO2** The Bullyard Solar Project will ensure that the transport network meets all elements of PO2, aligning with the Strategic Framework Map SFM-003 and the Local Government Infrastructure Plan. The development will be designed to support safe, efficient, and convenient transport for all users, minimising impact on the surrounding environment and infrastructure. **Proposed Conditional Statement:** "The layout and design of the transport network will be conditioned in the Development Approval to be dealt with at the Operational Works approval stage following detailed engineering design."

(g) connects to and integrates with existing roads and other relevant facilities within and external to the land to be developed or subdivided; (h) provides for the dedication and construction of roads where required to allow access to, and proper development of, adjoining land that is intended for development; (i) provides for the construction and adequate drainage of all proposed roads, pathways, laneways and bikeways within and adjoining the land to be developed; (j) minimises any adverse impacts on the existing transport network, surrounding land uses, and the amenity of the surrounding environment; and (k) does not adversely impact on wildlife movement corridors.		
PO3 In Woodgate Beach, development provides for the extension and continuation of residential access streets between First Avenue and Seventh Avenue, including but not limited to Palm Court, Jacaranda Court, Oleander Court and Banksia Court, consistent with the established cadastral and road alignment pattern in the area, and so as not to preclude or prejudice access to and development of adjacent and nearby properties.	**AO3** No acceptable outcome provided.	**PO3** N/A. PO3 is not applicable to the Bullyard Solar Project, as it addresses a specific coastal development in Woodgate Beach.
Pedestrian and bicycle network and facilities		
PO4 Development provides for the establishment of a safe and convenient network of pedestrian and bicycle paths that:- (a) provides a high level of permeability and connectivity; (b) provide for joint usage where appropriate; (c) maximises opportunities to link activity centres, employment areas, residential areas, community facilities, open space and public transport stops located internally and externally to the site; (d) have an alignment that maximises visual interest, allows for the retention of trees and other significant	**AO4** No acceptable outcome provided. Editor's note—**the Planning scheme policy for development works** specifies standards and provides guidance for the design and construction of pedestrian and bicycle paths.	**PO4** N/A. PO4 is not applicable to the Bullyard Solar Project, as it pertains to developments where managing conflicts between vehicles, pedestrians, and cyclists is a primary concern in urban environments. There is no public access to this secure site. The solar farm is located in a rural area with essentially no pedestrian (other than staff and occasional visitors) and cyclist traffic. However, the engineering design for the development will manage safety for staff and visitors as part of the Operational Works design.

features and does not compromise the operation of or access to other infrastructure; (e) incorporates safe street crossings with adequate sight distances, pavement markings, warning signs and safety rails; and (f) is well lit and located where there is casual surveillance from nearby premises.		
PO5 Appropriate on-site end of trip facilities are provided to encourage walking and cycling as an alternative to private car travel.	**AO5.1** Development for a business activity, community activity, sport and recreation activity, or for rooming accommodation, short-term accommodation, resort complex or air services provides residents, employees and visitors with shower cubicles and ancillary change rooms and lockers (including provision for both males and females) at the following rates:- (a) 1 cubicle and 5 lockers for the first 5,500m2 of gross floor area, provided that the development exceeds a minimum gross floor area of 1,500m²; plus (b) 1 additional cubicle and 5 additional lockers for that part of the development that exceeds 5,500m2 gross floor area up to a maximum of 30,000m² gross floor area; plus (c) 2 additional cubicles and 10 additional lockers for that part of the development that exceeds 30,000m2 gross floor area. **AO5.2** Development provides bicycle access, parking and storage facilities that:- (a) are located close to the building's pedestrian entrance;	N/A. PO5 PO5 and its associated acceptable outcomes (AO5.1 and AO5.2) are not applicable to the Bullyard Solar Project. The project is classified as a utility installation located in a rural area with minimal pedestrian and cyclist traffic. It does not involve development activities that require end-of-trip facilities such as shower cubicles, change rooms, lockers, or bicycle storage.

	(b) are obvious and easily and safely accessible from outside the site; (c) do not adversely impact on visual amenity; and (d) are designed in accordance with the **Planning scheme policy for development works**.	
Public transport facilities		
PO6 Development encourages the use of public transport through:- (a) appropriate development design which maximises accessibility via existing and planned public transport facilities; and (b) appropriate provision of on-site or off-site public transport facilities, having regard to the specific nature and scale of development, and the number of people or lots involved.	**AO6.1** Development is designed and arranged to provide safe, convenient and functional linkages to existing and proposed public transport facilities. **AO6.2** On-site public transport facilities are provided in conjunction with the following development:- (a) shopping centre, where having a gross floor area of greater than 10,000m²; (b) tourist attraction, having a total use area of greater than 10,000m²; (c) educational establishment, where accommodating more than 500 students; (d) major sport, recreation and entertainment facility; (e) indoor sport and recreation, where having a gross floor area of more than 1,000m2 or for spectator sports; and (f) outdoor sport and recreation where for spectator sports. **AO6.3**	N/A. PO6 PO6 and its associated acceptable outcomes (AO6.1, AO6.2, AO6.3, AO6.4, AO6.5) are not applicable to the Bullyard Solar Project. The project is classified as a utility installation located in a rural area without existing or proposed public transport facilities. It does not involve development activities that require public transport linkages or facilities

	On-street public transport facilities are provided as part of the following development:- (a) shopping centre, where having a gross floor area of 10,000m2 or less; (b) tourist attraction, where having a gross floor area of 10,000m2 or less; (c) educational establishment, where accommodating 500 or less students; and (d) indoor sport and recreation where having a gross floor area of 500m2 or less and not for spectator sports. **AO6.4** Where not otherwise specified above, on-street public transport facilities are provided where development is located on an existing or future public transport route. **AO6.5** Public transport facilities are located and designed in accordance with the standards specified in the **Planning scheme policy for development works.**	
Amenity and environmental impacts of transport infrastructure		
PO7 Development ensures that on-site vehicle access, manoeuvring and parking facilities do not have adverse impacts on people, properties or activities, with regard to light, noise, emissions or stormwater run-off.	**AO7** No acceptable outcome provided.	**PO7** The Bullyard Solar Project will ensure that on-site vehicle access, manoeuvring, and parking facilities do not have adverse impacts on people, properties, or activities with regard to light, noise, emissions, or stormwater run-off. The project will adhere to the standards specified in the Planning Scheme Policy for Development Works to manage these potential impacts effectively. **Proposed Conditional Statement:** "The design and layout of on-site vehicle access, manoeuvring, and parking facilities, ensuring they do not have adverse impacts with regard to light, noise, emissions, or stormwater run-off, will be conditioned in the Development Approval to be dealt with at the Operational Works approval stage following detailed engineering design."

Transport corridor widths, pavement, surfacing and verges		
PO8 Development provides the reserve width and external road works along the full extent of the site frontage, and other transport corridors where appropriate, to support the function and amenity of the transport corridor, including where applicable:- (a) paved roadway; (b) kerb and channel; (c) safe vehicular access; (d) safe footpaths and bikeways; (e) safe on-road cycle lanes or verges for cycling. (f) stormwater drainage; (g) provision of public utility services; (h) streetscaping and landscaping; and (i) provision of street lighting systems, road signage and line marking.	**AO8** The design and construction of road works, including external road works, is:- (a) undertaken in accordance with the **Planning scheme policy for development works**; and (b) consistent with the characteristics intended for the particular type of transport corridor specified in the **Planning scheme policy for development works.**	**AO8** The design and construction of road works, including external road works, will be managed by the engineers at the Operational Works approval stage to ensure compliance with the Planning Scheme Policy for Development Works. **Proposed Conditional Statement:** "The design and construction of road works, including external road works, ensuring they support the function and amenity of the transport corridor, will be conditioned in the Development Approval to be dealt with at the Operational Works approval stage following detailed engineering design."
Intersections and traffic controls		
PO9 Development provides for traffic speeds and volumes to be catered for through the design and location of intersections and traffic controls so as to:- (a) ensure the function, safety and efficiency of the road network is maintained; (b) minimise unacceptable traffic noise to adjoining land uses; and (c) maintain convenience and safety levels for pedestrians, cyclists and public transport.	**AO9** Intersections and speed control devices are designed and constructed in accordance with the **Planning scheme policy for development works**.	**AO9** Intersections and speed control devices will be managed by the engineers at the Operational Works approval stage to ensure compliance with the Planning Scheme Policy for Development Works. **Proposed Conditional Statement:** "The design and construction of intersections and speed control devices, ensuring they cater for traffic speeds and volumes to maintain the function, safety, and efficiency of the road network, will be conditioned in the Development Approval to be dealt with at the Operational Works approval stage following detailed engineering design."

Development staging		
PO10 Staged development is planned, designed and constructed to ensure that:- (a) each stage of the development can be constructed without interruption to services and utilities provided to the previous stages; (b) transport infrastructure provided is capable of servicing the entire development; (c) early bus access and circulation is achieved through the connection of collector roads; and (d) materials used are consistent throughout the development.	**AO10** No acceptable outcome provided.	N/A. PO10 is not applicable to the Bullyard Solar Project, as it likely pertains to staged commercial, residential, or industrial developments. The solar farm is a single-stage project and does not require considerations related to the integration of services, utilities, and transport infrastructure across multiple stages.

Table 9.3.5.3.3 Minimum on-site parking requirements

Column 1 **Land use**	**Column 2** **Cars**	**Column 3** **Service vehicles**	**Column 4** **Bicycles**
Rural activities			
Rural industry	Not specified	AV	Not specified
Wholesale nursery	Not specified	AV	Not specified
Winery	Not specified	Not specified	Not required
All other rural activities	Not specified	Not specified	Not specified
Other activities			
All other activities	Not specified	Not specified	Not specified

Appendix O – 9.3.7 WORKS, SERVICES AND INFRASTRUCTURE CODE - BENCHMARKS FOR ASSESSABLE DEVELOPMENT

9.3.7 Works, services and infrastructure code

9.3.7.1 Application

This code applies to development identified as requiring assessment against the Works, services and infrastructure code by the tables of assessment in **Part 5 (Tables of assessment)**.

9.3.7.2 Purpose and overall outcomes

(1) The purpose of the Works, services and infrastructure code is to ensure that development works and the provision of infrastructure and services meets the needs of the development and is undertaken in a professional and sustainable manner.

(2) The purpose of the Works, services and infrastructure code will be achieved through the following overall outcomes:-

(a) works are undertaken such that environmental harm and nuisance resulting from construction activities is avoided or minimised and the environmental values of water are protected;

(b) development is designed and constructed to a standard that meets community expectations, maintains public health and safety, prevents unacceptable off-site impacts and minimises whole of life cycle costs;

(c) physical and human infrastructure networks that provide basic and essential services and facilities to local communities are able to meet the planned increase in demand resulting from a planned increase in development density;

(d) development is provided with an appropriate standard of water supply, wastewater treatment and disposal, drainage, energy and communications infrastructure and other services;

(e) infrastructure is designed, constructed and provided in a manner which maximises resource efficiency and achieves acceptable maintenance, renewal and adaptation costs;

(f) infrastructure is integrated with surrounding networks;

(g) development over or near infrastructure does not compromise or interfere with the integrity of the infrastructure;

(h) filling and excavation does not adversely or unreasonably impact on the natural environment, drainage conditions or adjacent properties;

(i) development has appropriate infrastructure and access for emergency services vehicles for the protection of people, property and the environment from fire and chemical incidents; and

(j) marina development facilitates the installation, maintenance and availability of reception facilities for ship-sourced pollutants to prevent marine pollution.

9.3.7.3 Specific benchmarks for assessment

Table 9.3.7.3.1 Requirements for operational work accepted subject to requirements

Performance outcomes	Acceptable outcomes	Compliance/Representations
Infrastructure, services and utilities		
PO1 The design and construction of works ensures safe and convenient use by users of the site and the general public.	**AO1** All development works are designed and constructed in accordance with the **Planning scheme policy for development works**.	**PO1** The Bullyard Solar Project will ensure that the design and construction of works provide safe and convenient use for users of the site. **AO1**

		All development works will be managed by the engineers at the Operational Works approval stage to ensure compliance with the Planning Scheme Policy for Development Works. **Proposed Conditional Statement:** "The design and construction of works, ensuring they provide safe and convenient use for users of the site, will be conditioned in the Development Approval to be dealt with at the Operational Works approval stage following detailed engineering design."
PO2 Development works and connections to infrastructure and services are undertaken in accordance with acceptable engineering standards.	**AO2.1** All development works are certified by a Registered Professional Engineer Queensland (RPEQ). **AO2.2** All connections to infrastructure and services are in accordance with the requirements of the relevant infrastructure entity.	**PO2** The Bullyard Solar Project will ensure that development works and connections to infrastructure and services are undertaken in accordance with acceptable engineering standards. **AO2.1** All development works will be certified by a Registered Professional Engineer Queensland (RPEQ). **AO2.2** All connections to infrastructure and services will be made in accordance with the requirements of Ergon Energy and other relevant infrastructure entities. **Proposed Conditional Statement:** "All development works and connections to infrastructure and services, ensuring they meet acceptable engineering standards, will be conditioned in the Development Approval to be dealt with at the Operational Works approval stage following detailed engineering design and certification by a Registered Professional Engineer Queensland (RPEQ). This includes adhering to the requirements set by Ergon Energy and other relevant infrastructure entities."

Table 9.3.7.3.2 Benchmarks for assessable development

Performance outcomes	Acceptable outcomes	Compliance/Representations
Infrastructure, services and utilities		
PO3 Development is provided with infrastructure, services and utilities that:- (a) are appropriate to its location and setting; (b) are commensurate with the needs of the development and its users; and	**AO3.1** Subject to availability, development is provided with an appropriate connection to reticulated sewerage, water supply, stormwater drainage, electricity, gas and telecommunications services at no cost to the Council, including provision by way of	**PO3** The Bullyard Solar Project will ensure that development is provided with infrastructure, services, and utilities that: (a) are appropriate to its location and setting; (b) are commensurate with the needs of the development and its users; and (c) maintain acceptable public health and environmental standards.

(c) maintain acceptable public health and environmental standards.	dedicated road, public reserve or as a minimum by way of easements to ensure continued access is available to these services. **AO3.2** Where not located in a sewered area, development is provided with an on-site effluent treatment and disposal system in accordance with the requirements of the *Plumbing and Drainage Act 2018*. **AO3.3** Where development is located in an area where reticulated water supply is not available, appropriate on-site rainwater collection and/or other means to service the anticipated water supply needs of the development is provided, including but not limited to potable water supply and fire fighting needs. **AO3.4** Where reticulated water supply is not available and the development involves persons working, visiting and temporarily staying on premises (i.e. not permanently residing on the site), potable water supply complies with the *Australian Drinking Water Guidelines* (NHMRC, 2011).	**AO3.1** The Bullyard Solar Project site does not have access to reticulated sewerage, water supply, stormwater drainage, electricity, gas, or telecommunications services. The development will provide the required services on-site at no cost to the Council. **AO3.2** As the site is not located in a sewered area, the development will include an on-site effluent treatment and disposal system in accordance with the requirements of the Plumbing and Drainage Act 2018. **AO3.3** The development will provide on-site rainwater collection and other means to meet the anticipated water supply needs, including potable water and firefighting requirements. **AO3.4** The potable water supply for the development will comply with the Australian Drinking Water Guidelines (NHMRC, 2011) for persons working, visiting, and temporarily staying on the premises. **Proposed Conditional Statement:** "The provision of infrastructure, services, and utilities, ensuring they meet the needs of the development and comply with relevant standards, will be conditioned in the Development Approval to be dealt with at the Operational Works approval stage following detailed engineering design."
PO4 Development provides for infrastructure, services and utilities that are planned, designed and constructed in a manner which:- (a) ensures appropriate capacity to meet the current and planned future needs of the development; (b) is integrated with and efficiently extends existing networks; (c) minimises risk to life and property; (d) avoids areas of environmental significance; (e) minimises risk of environmental harm;	**AO4.1** Infrastructure is planned, and appropriate contributions made, in accordance with the Local Government Infrastructure Plan or any other applicable infrastructure charging instrument. **AO4.2** Infrastructure is planned, designed and constructed in accordance with the Council's Local Government Infrastructure Plan, and the **Planning scheme policy for development works,** or where applicable, the requirements of the service provider. **AO4.3** Compatible public utility services are co-located in common trenching in order to	**AO4.1** **Proposed Conditional Statement:** "Infrastructure planning and contributions, ensuring they meet the requirements of the Local Government Infrastructure Plan or any other applicable infrastructure charging instrument, will be conditioned in the Development Approval to be dealt with at the Operational Works approval stage following detailed engineering design." **AO4.2** **Proposed Conditional Statement:** "Infrastructure planning, design, and construction, ensuring they comply with the Council's Local Government Infrastructure Plan, the Planning Scheme Policy for Development Works, and the requirements of relevant service providers, will be conditioned in the Development Approval to be dealt with at the Operational Works approval stage following detailed engineering design." **AO4.3**

(f) achieves acceptable maintenance, renewal and adaptation costs; (g) can be easily and efficiently maintained; (h) ensures the ongoing construction or operation of the development is not disrupted; (i) where development is staged, each stage is fully serviced before a new stage is released; (j) ensures adequate clearance zones are maintained between utilities and dwellings to protect residential amenity and health; and (k) minimises adverse visual impacts, to the extent practicable.	minimise the land required and the costs for underground services. **AO4.4** Stormwater drainage, sewerage and sullage systems are designed so that overflows do not enter residences. **AO4.5** Infrastructure, services and utilities are located, designed and constructed to:- (a) avoid disturbance of areas of environmental significance; (b) minimise earthworks; and (c) avoid crossing watercourses or wetlands. **AO4.6** The selection of materials used in the construction of infrastructure is suitable, durable, easy to maintain and cost effective, taking into account the whole of life cycle cost, and achieves best practice environmental management and energy savings. **AO4.7** In urban areas, electrical and telecommunications reticulation infrastructure is provided underground.	The Bullyard Solar Project will ensure that compatible public utility services are co-located in common trenching where feasible, to minimise land requirements and reduce the costs for underground services. **Proposed Conditional Statement:** "The planning and design of utility services will consider the co-location of compatible public utility services in common trenching as a preferred solution where practical, to minimise land requirements and reduce costs for underground services. However, the condition will allow for alternative innovative solutions to be considered and implemented, subject to detailed engineering design and approval at the Operational Works stage." **AO4.4** While AO4.4 is typically applicable to residential developments, the Bullyard Solar Project will ensure that stormwater drainage, sewerage, and sullage systems are designed for operational works and other buildings used particularly by staff and for staff amenity to prevent overflows. The systems will be planned and approved to accommodate the needs of the site, ensuring they do not adversely impact the surrounding rural environment. **Proposed Conditional Statement:** "The design of stormwater drainage, sewerage, and sullage systems, ensuring they prevent overflows and accommodate the needs of operational works and other buildings, will be conditioned in the Development Approval to be dealt with at the Operational Works approval stage following detailed engineering design." **AO4.5** The Bullyard Solar Project will ensure that the location, design, and construction of infrastructure, services, and utilities minimise disturbance to areas of environmental significance, reduce earthworks, and manage impacts on watercourses or natural drainage lines where practical but in some instances will be unavoidable due to site characteristics, subject to approved engineering treatments. The solar panels' design footprint will be outside these areas to protect the sensitive environmental areas. **Proposed Conditional Statement:** "The location, design, and construction of infrastructure, services, and utilities will be conditioned in the Development Approval to be dealt with at the Operational Works approval stage following detailed engineering design. The design will aim to minimise disturbance to environmentally significant areas, reduce earthworks, and manage impacts on watercourses or natural drainage lines particularly where crossings are unavoidable, subject to approved engineering treatments. The solar panels' design footprint will remain outside watercourses and sensitive environmental areas."

		AO4.6 **Proposed Conditional Statement:** "The selection of materials for the construction of infrastructure, ensuring suitability, durability, ease of maintenance, cost-effectiveness, and alignment with best practice environmental management and energy savings, will be conditioned in the Development Approval to be dealt with at the Operational Works approval stage following detailed engineering design." **AO4.7** While AO4.7 typically applies to urban areas, the Bullyard Solar Project, located in a rural setting, will ensure that electrical and telecommunications reticulation infrastructure is designed in a manner that is appropriate for the rural environment. The specific approach will be subject to engineering review and approval, considering practicality and efficiency in the rural context. **Proposed Conditional Statement:** "The design of electrical and telecommunications reticulation infrastructure, ensuring it is appropriate for the rural setting of the Bullyard Solar Project, will be conditioned in the Development Approval to be dealt with at the Operational Works approval stage following detailed engineering design. The infrastructure will be designed considering practicality and efficiency in a rural context."
Development over or near sewerage, water and stormwater drainage infrastructure		
PO5 Development near or over the Council's stormwater infrastructure and/or sewerage and water infrastructure:- (a) protects the infrastructure from physical damage; and (b) allows ongoing necessary access for maintenance purposes.	**AO5** Development near or over the Council's stormwater infrastructure and/or sewerage and water infrastructure complies with the **Planning scheme policy for development works**. Editor's note—QDC MP1.4 applies to building work for a building or structure proposed to be carried out on a lot that contains, or is adjacent to a lot that contains, relevant infrastructure.	**AO5** N/A - PO5 is not applicable to the Bullyard Solar Project, as there are no Council stormwater, sewerage, or water infrastructure services on the property.
Excavation and filling		
PO6 Excavation and filling:- (a) does not cause environmental harm; (b) does not impact adversely on visual amenity; (c) does not impact adversely on adjoining properties;	**AO6.1** Development provides that:- (a) on sites of:- (i) 15% or more in slope, the extent of excavation (cut) and fill does not involve a total change of more than 1.5m	**AO6.1** The Bullyard Solar Project will ensure that excavation and filling: (a) are limited to maintaining the natural landforms as much as practical, recognising that on areas with slopes of 15% or more, changes will not exceed 1.5m relative to the natural ground level at any point, and in other areas, changes will not exceed 1m relative to the natural ground level at any point;

(d) maintains natural landforms as far as reasonably practicable; (e) is stable in both the short and long term; (f) does not prevent or create difficult access to the property; and (g) does not result in ponding, concentration or diversion of overland runoff flows that cause damage to adjacent lands or infrastructure.	relative to the natural ground level at any point; or (ii) in other areas, the extent of excavation (cut) and fill does not involve a total change of more than 1m relative to the natural ground level at any point; (b) no part of any cut or fill batter is within 1.5m of any property boundary except cut and fill involving a change in ground level of less than 200mm that does not necessitate the removal of any vegetation; (c) retaining walls are no greater than 1m high; and (d) retaining walls are constructed a minimum 150mm from property boundaries. **AO6.2** Driveways are able to be constructed and maintained accordance with the requirements of the **Planning scheme policy for development works.** **AO6.3** For filling and excavation work altering overland runoff flows, no acceptable outcome is provided.	(b) do not involve cut or fill batter within 1.5m of any property boundary unless the change in ground level is less than 200mm and does not require vegetation removal; (c) ensure that any retaining walls are no greater than 1m high; and (d) ensure that retaining walls are constructed a minimum of 150mm from property boundaries. **Proposed Conditional Statement:** "The extent of excavation and filling will be conditioned in the Development Approval to be dealt with at the Operational Works approval stage following detailed engineering design. The design will aim to maintain natural landforms as much as practical, manage changes in ground level according to site slope characteristics, and ensure compliance with setback and height requirements for retaining walls." **AO6.2** **Proposed Conditional Statement:** "The design, construction, and maintenance of driveways, ensuring compliance with the requirements of the Planning Scheme Policy for Development Works, will be conditioned in the Development Approval to be dealt with at the Operational Works approval stage following detailed engineering design." **AO6.3** The Bullyard Solar Project will ensure that any filling and excavation work is designed to manage and mitigate alterations to overland runoff flows, preventing damage to adjacent lands or infrastructure. **Proposed Conditional Statement:** "The design of filling and excavation work, ensuring management and mitigation of alterations to overland runoff flows to prevent damage to adjacent lands or infrastructure, will be conditioned in the Development Approval to be dealt with at the Operational Works approval stage following detailed engineering design."
Fire services in developments accessed by common private title19 20 19 Note—these outcomes apply where the development: (a) is for a material change of use or reconfiguring a lot where part of the development or any dwelling is more than 90 metres from the nearest located fire hydrant; and (b) for buildings not covered in other legislation or planning provisions mandating fire hydrants; and (c) the proposed development will include streets and common access ways within a common private title in areas serviced by reticulated water. 20 Editor's note—the term common private title covers areas such as access roads in community title developments or strata title unit access which are private and under group or body corporate control.		
PO7 Hydrants are located in positions that will enable fire services to access water safely, effectively and efficiently.	**AO7.1** Residential streets and common access ways within a common private title should have hydrants placed at intervals of no more than 120 metres and at each intersection. Hydrants	**Combined AO7.1 & AO7.2 Response** The Bullyard Solar Project will ensure that fire hydrants are located and provided to enable fire services to access water safely, effectively, and efficiently. Although AO7.1 and AO7.2 typically apply to residential, commercial, and industrial streets, the placement of hydrants will be adapted to the specific needs and layout of the solar farm. This will

	may have a single outlet and be situated above or below ground. **AO7.2** Commercial and industrial streets and access ways within streets serving commercial properties such as factories, warehouses and offices should be provided with above or below ground fire hydrants at not more than 90 metre intervals and at each street intersection. Above ground fire hydrants should have dual valved outlets.	ensure safe and efficient access for fire services, taking into account the operational buildings, switch station, service infrastructure, and rural setting of the project. **Proposed Combined Conditional Statement:** "The placement and provision of fire hydrants, ensuring they enable safe and efficient access for fire services, will be conditioned in the Development Approval to be dealt with at the Operational Works approval stage following detailed engineering design. Hydrant placement will be tailored to the specific needs and layout of the Bullyard Solar Project, including operational buildings, switch station, and service infrastructure, considering the rural environment and complying with relevant guidelines."
PO8 Road widths and construction within the development area adequate for fire emergency vehicles to gain access to a safe working area close to dwellings and near water supplies whether or not on-street parking spaces are occupied.	**AO8** Road access minimum clearances of 3.5 metres wide and 4.8 metres high are provided for safe passage of emergency vehicles.	**AO8** **Proposed Conditional Statement:** "The design and construction of internal roads and access routes, ensuring minimum clearances of 3.5 metres wide and 4.8 metres high for safe passage of emergency vehicles, will be conditioned in the Development Approval to be dealt with at the Operational Works approval stage following detailed engineering design."
PO9 Hydrants are suitably identified so that fire services can locate them at all hours.	**AO9** Hydrants are identified as specified in the DTMR Traffic and Road Use Management manual (TRUM) Volume 1: Guide to Traffic Management, Part 10. Editor's note—For further information on how to address the above benchmarks please see Queensland Fire and Emergency Service: Fire hydrant and vehicle access guidelines for residential, commercial and industrial lots.	**AO9** Proposed Conditional Statement: "The identification and marking of hydrants, ensuring they are suitable for the solar farm layout and accessible for fire services at all hours, will be conditioned in the Development Approval to be dealt with at the Operational Works approval stage following detailed engineering design. Hydrant identification will be adapted from the DTMR Traffic and Road Use Management manual (TRUM) Volume 1: Guide to Traffic Management, Part 10, to meet the specific requirements of the Bullyard Solar Project."
Ship-sourced pollutants reception facilities in marinas with six or more berths		
PO10 Marina development provides facilities for the handling and disposal of ship-sourced pollutants.	**AO10.1** Common user facilities for the handling and disposal of ship-sourced pollutants including oil, garbage and sewerage are provided at a suitable location at the marina; **AND** Facilities shall be designed and operated to ensure the risk of spillage from operations is minimised; **AND** Appropriate equipment to contain and remove spillages is stored in a convenient position	**PO10** N/A - PO10 is not applicable to the Bullyard Solar Project, as it pertains specifically to marina developments and the handling and disposal of ship-sourced pollutants. There are no facilities related to marinas or boat handling on the solar farm site.

	near the facility and is available for immediate use; **AND** Boats visiting the marina are able to use the ship-sourced pollutants reception facilities. Editor's note—Refer to: Australian and New Zealand Environment and Conservation Council (ANZECC), 1997, Best Practice Guidelines for Waste Reception Facilities at Ports, Mariners and Boat Harbours in Australia and New Zealand. **AO10.2** Where practical, the marina pollutant reception facility is connected to sewerage or other waste reception infrastructure. Editor's note—Reception facilities require compliance assessment under the Plumbing and Drainage Act 2018. The plumbing compliance assessment process will ensure that the proposed facilities address 'peak load'.	

Table 9.3.7.3.3 Additional benchmarks for operational work only

Performance outcomes	Acceptable outcomes	Compliance/Representations
Excavation and filling		
PO11 Filling or excavation is consistent with the intended use of the site and does not:- (a) result in any contamination of land or water; (b) pose a health or safety risk to users and neighbours of the site; and (c) directly, indirectly or cumulatively cause any flooding or drainage problems or worsen any existing problems.	**AO11.1** Development provides that:- (a) the extent of filling or excavation is in accordance with a current development approval for material change of use, reconfiguring a lot or building work; (b) all stored material is:- (i) contained wholly within the site; (ii) located in a single manageable area that does not exceed 50m2; and (iii) located at least 10m from any property boundary; and	N/A. This requirement will be addressed during the operational works application.

	(c) any batter or retaining wall is structurally adequate. **AO11.2** Development provides that:- (a) no contaminated material is used as fill; (b) for excavation, no contaminated material is excavated or contaminant disturbed; and (c) waste materials are not used as fill, including:- (i) commercial waste; (ii) construction/demolition waste; (iii) domestic waste; (iv) garden/vegetation waste; and (v) industrial waste. **AO11.3** Filling and excavation material must be sourced from and disposed to lawfully approved sites.	
PO12 Filling or excavation, including the associated transportation of materials:- (a) does not cause significant impacts through truck movements, dust or noise, on the amenity of the locality in which the works are undertaken or along routes taken to transport the material; and (b) minimises adverse impacts on the road system. .	**AO12** Filling or excavation, and transportation of material, is undertaken in accordance with the requirements of the **Planning scheme policy for development works**.	N/A. This requirement will be addressed during the operational works application.
Construction management		
PO13	**AO13.1**	N/A. This requirement will be addressed during the operational works application.

Air emissions, noise or lighting arising from construction activities and works do not adversely impact on surrounding areas.	Dust emissions do not extend beyond the boundary of the site. **AO13.2** Air emissions, including odours, are not detectable at the boundary of the site. **AO13.3** Noise generating equipment is enclosed, shielded or acoustically treated in a manner which ensures the equipment does not create environmental harm. **AO13.4** Outdoor lighting complies with *AS4282-1997 Control of the Obtrusive Effects of Outdoor Lighting.*	
PO14 Construction activities and works provide for:- (a) the protection of the aesthetic and environmental values of retained vegetation; and (b) impacts on fauna to be minimised.	**AO14.1** The health and stability of retained vegetation is maintained during construction activities by:- (a) clearly marking vegetation to be retained with temporary fencing and flagging tape; (b) installing secure barrier fencing around the outer drip line and critical root zone of the vegetation; (c) preventing any filling, excavation, stockpiling, storage of chemicals, fuel or machinery within the fenced protection area; (d) using low impact construction techniques in the vicinity of vegetation to minimise interference with the vegetation; and (e) removing all declared noxious weeds and environmental weeds from the site. **AO14.2** All works carried out in the vicinity of retained vegetation comply with *AS4970 Protection of Trees on Development Sites* and *AS4687 Temporary Fencing and Hoarding*. **AO14.3**	N/A. This requirement will be addressed during the operational works application.

	Where construction activities will result in adverse impacts upon fauna and/or the clearing and/or removal of fauna habitat:- (a) all vacant hollows and nests are relocated or rendered unusable to prohibit fauna return during clearing works; and (b) all fauna is suitably relocated or humanely dealt with during the pre-clearing inspections or during clearing.	
PO15 Construction activities and works, including disposal of cleared vegetation:- (a) minimises waste; (b) maximises reuse and/or recycling; (c) minimises impacts on public health and safety and on the amenity of the surrounding area; and (d) minimises the spread of weed species and non-indigenous plants.	**AO15** No acceptable outcome provided.	N/A. This requirement will be addressed during the operational works application.
PO16 Construction activities and works (including traffic and parking generated by construction activities) are managed to ensure that:- (a) existing utilities and road and drainage infrastructure continue to function efficiently and can be accessed by the relevant authority for maintenance purposes; (b) Impacts on the transport network and on the amenity of the surrounding area are minimised; and (c) the environmental values of water and the functionality of stormwater infrastructure are protected from the impacts of erosion, turbidity and sedimentation.	**AO16.1** Existing utilities and road and drainage infrastructure are protected or relocated in accordance with the standards specified in the **Planning scheme policy for development works.** **AO16.2** The costs of any alterations or repairs to utilities and road and drainage infrastructure are met by the developer. **AO16.3** Traffic and parking generated by construction activities is managed in accordance with a Traffic and Parking Management Plan. **AO16.4** Development is located, designed and constructed in accordance with an Erosion and Sediment Control Plan prepared in	N/A. This requirement will be addressed during the operational works application.

	accordance with the requirements specified in the **Planning scheme policy for development works**.	

Appendix P – TRAFFIC IMPACT ASSESSMENT REPORT

- Traffic Impact Assessment provided separately

Appendix Q – ECOLOGICAL IMPACT ASSESSMENT

- Ecological Impact Assessment provided separately

Appendix R – SARA Enquiry Response

From: WBBSARA <WBBSARA@dsdilgp.qld.gov.au>
Date: Thursday, 18 July 2024 at 4:13 PM
To: Wayne Drinkwater <wayned@energydevcorp.com>
Cc: WBBSARA <WBBSARA@dsdilgp.qld.gov.au>
Subject: RE: Bullyard Solar Farm - Contact request

Hi Wayne,

Thank you for your call earlier. From our conversation it does not sound like SARA will be a party to the MCU application. However, I would suggest that you request pre-lodgement advice to confirm. To determine if the mapped waterways are present on-ground, I would also suggest that you request pre-lodgement advice.

The State Assessment and Referral Agency's (SARA) online system known as MyDAS2, allows applicants to request pre-lodgement advice (you will need to create a user account). Please include any plans you have prepared of the proposed solar farm and images of the on-ground features of the 'waterway' (preferably geo-referenced) in your request. Please also provide any other information you think would be relevant and a list of advice requested (e.g. confirm referral triggers, confirm if waterway is present, etc.).

If you need a hand with the MyDAS2 system or have any more questions, please let us know.

Regards,

Cavannah Deller (she/her)

Senior Planning Officer - Wide Bay Burnett
Planning and Development Services
Planning Group
Department of Housing, Local Government, Planning and Public Works

P 07 4331 5614
E WBBSARA@dsdilgp.qld.gov.au
Level 1, 7 Takalvan Street, Bundaberg Qld 4670

housing.qld.gov.au

I acknowledge the Traditional Custodians of the land on which we walk, work and live. I pay my respects to Elders past, present, and emerging.

Queensland Government

Appendix S - References for Section 4 PROPOSAL JUSTIFICATION

- Australian Industry Group. (2024). Report on Energy Prices and Industry Impact. Retrieved from https://cdn.aigroup.com.au/Reports/2018/AiGroup_Report_Eastern_Australian_Energy_Prices_July_2018.pdf
- Australian Government. (2024). Investing in a Future Made in Australia | Budget 2024–25. Retrieved from https://www.wolterskluwer.com/en-au/events/2024-australian-federal-budget-update
- Australian Renewable Energy Agency (ARENA). Various reports and project updates. Retrieved from https://arena.gov.au/
- Bundaberg Regional Council. (2024). Renewable Energy Strategy and Economic Development Strategy. Retrieved from https://www.bundaberg.qld.gov.au/homepage/101/economic-development
- Queensland Government. (2024). Renewable Energy and Emissions Reduction Act 2024. Retrieved from https://www.energyandclimate.qld.gov.au/about/initiatives/renewable-energy-targets
- Australian Government Department of Industry, Science, Energy, and Resources. (2024). National Energy Security Assessment. Retrieved from https://www.energy.gov.au/government-priorities/energy-security/national-energy-security-assessment
- Queensland Government. (2024). Powering North Queensland Plan. Retrieved from https://www.dews.qld.gov.au/__data/assets/pdf_file/0003/1253541/Fact-sheet-Powering-North-Queensland-Plan.pdf
- Clean Energy Regulator. (2024). Renewable Energy Target (RET). Retrieved from https://www.cleanenergyregulator.gov.au/RET
- Australian Government Department of Foreign Affairs and Trade. (2024). Paris Agreement. Retrieved from https://www.dfat.gov.au/international-relations/themes/climate-change/climate-change-agreements/paris-agreement
- Australian Medical Association. (2024). Health Impacts of Air Pollution. Retrieved from https://ama.com.au/health-in-the-news/air-pollution
- Australian Renewable Energy Agency (ARENA). (2024). Water Conservation and Renewable Energy. Retrieved from https://arena.gov.au/projects/
- Community Engagement for Renewable Energy Projects. (2024). Renewable Energy Community Engagement. Retrieved from https://arena.gov.au/community/
- Australian Renewable Energy Agency (ARENA). (2024). Battery Storage Technology. Retrieved from https://arena.gov.au/funding-and-programs/battery-storage/
- Clean Energy Council. (2024). Renewable Energy Technology Improvements. Retrieved from https://www.cleanenergycouncil.org.au/resources/technologies
- Australian Energy Market Operator (AEMO). (2024). Smart Grid Technologies. Retrieved from https://www.aemo.com.au/initiatives/major-programs/smart-grid-program
- Hybrid Renewable Energy Systems. (2024). Hybrid Systems. Retrieved from https://arena.gov.au/projects/hybrid-systems/
- Accenture. (2024). Why Sustainable Supply Chain is Good Business. Retrieved from https://www.accenture.com/au-en/insight-outlook-why-sustainable-supply-chain-is-good-business
- Business Queensland. (2024). Environmental Responsibility Benefits. Retrieved from https://www.business.qld.gov.au/running-business/environment/environment-business/benefits
- Apple. (2017). Environmental Responsibility Report. Retrieved from https://images.apple.com/environment/pdf/Apple_Environmental_Responsibility_Report_2017.pdf
- Eraring Power Station extension and updates. Retrieved from https://wattclarity.com.au and https://www.abc.net.au/news/2022-02-16/eraring-power-station-to-close-2025/100836648
- International Energy Agency. (2016). World Energy Outlook Special Report: Energy and Air Pollution. Retrieved from https://www.iea.org/publications/freepublications/publication/WorldEnergyOutlookSpecialReport2016EnergyandAirPollution.pdf

- Doctors for the Environment Australia. (2017). The Health Toll of Coal Fact Sheet. Retrieved from https://www.dea.org.au/wp-content/uploads/2017/07/DEA-Health-Toll-of-Coal-Fact-Sheet_final.pdf
- Environmental Justice Australia. (2013). Clearing the Air: Why Australia Urgently Needs Effective National Air Pollution Laws. Retrieved from https://envirojustice.org.au/sites/default/files/files/Submissions%20and%20reports/Envirojustice_air_pollution_report_final.pdf
- Solar Quotes Blog. (2017). Registration Period Opens for Queensland's Renewables 400. Retrieved from https://www.solarquotes.com.au/blog/registration-period-opens-for-queenslands-renewables-400/
- Ministerial Media Statements. (2017). 'Renewables 400' accelerates Queensland's clean energy boom. Retrieved from https://statements.qld.gov.au/statements/83040
- Australian Government Department of Industry, Science, Energy, and Resources. (2024). Australian Energy Statistics. Retrieved from https://www.energy.gov.au/data/australian-energy-statistics
- Utility Magazine. (2024). Budget 2024-25: Pathway to a Clean Energy Future. Retrieved from https://utilitymagazine.com.au/budget-2024-25-pathway-to-a-clean-energy-future
- Clean Energy Council. (2023). Clean Energy Australia Report 2023. Retrieved from https://assets.cleanenergycouncil.org.au/documents/Clean-Energy-Australia-Report-2023.pdf

Appendix T – Solar Panel Modules (Longi)

Hi-MO 7

LR7-72HGD
585~620M

- High-performance PV modules for utility power plants
- Advanced HPDC cell technology delivers superior module efficiency and power
- High bifaciality and excellent power temperature coefficient achieves high energy yield
- LONGi lifecycle quality ensures long-term performance

12 12-year Warranty for Materials and Processing

30 30-year Warranty for Extra Linear Power Output

Complete System and Product Certifications

IEC 61215, IEC 61730, UL 61730
ISO9001:2015: ISO Quality Management System
ISO14001: 2015: ISO Environment Management System
ISO45001: 2018: Occupational Health and Safety
IEC62941: Guideline for module design qualification and type approval

LONGi

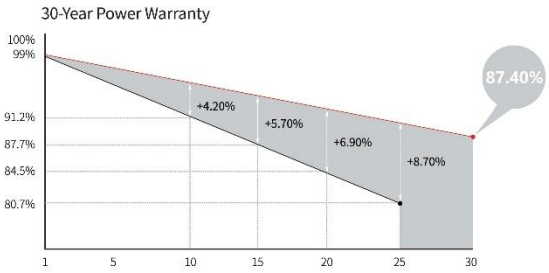
ENERGY DEVELOPMENT CORPORATION

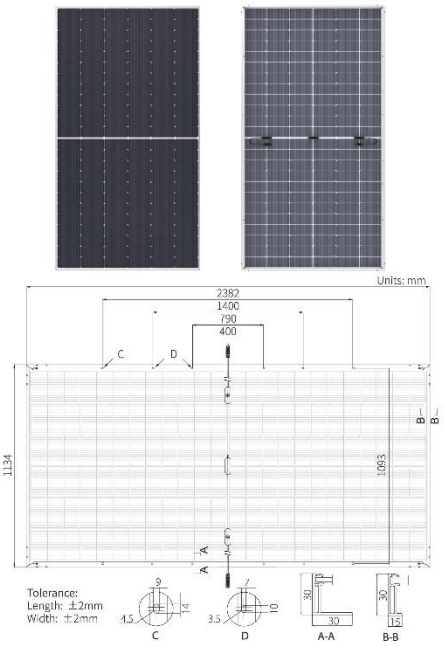
Hi-MO 7

LR7-72HGD 585~620M

23.0%	0~3%	<1%	0.4%	HALF-CELL
MAX MODULE EFFICIENCY	POWER TOLERANCE	FIRST YEAR POWER DEGRADATION	YEAR 2-30 POWER DEGRADATION	Lower operating temperature

Additional Value





Mechanical Parameters

Cell Orientation	144 (6×24)
Junction Box	IP68, three diodes
Output Cable	4mm², +400, -200mm/±1400mm length can be customized
Glass	Dual glass, 2.0+2.0mm semi-tempered glass
Frame	Anodized aluminum alloy frame
Weight	33.5kg
Dimension	2382×1134×30mm
Packaging	36pcs per pallet / 144pcs per 20' GP / 720pcs per 40' HC

Electrical Characteristics

STC : AM1.5 1000W/m² 25°C NOCT : AM1.5 800W/m² 20°C 1m/s

Test uncertainty for Pmax: ±3%

Module Type	LR7-72HGD-585M		LR7-72HGD-590M		LR7-72HGD-595M		LR7-72HGD-600M		LR7-72HGD-605M		LR7-72HGD-610M		LR7-72HGD-615M		LR7-72HGD-620M	
Testing Condition	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT
Maximum Power (Pmax/W)	585	445.3	590	449.1	595	452.9	600	456.7	605	460.6	610	464.4	615	468.2	620	472.0
Open Circuit Voltage (Voc/V)	52.01	49.43	52.12	49.53	52.23	49.64	52.34	49.74	52.44	49.84	52.55	49.94	52.66	50.04	52.77	50.15
Short Circuit Current (Isc/A)	14.29	11.48	14.37	11.54	14.45	11.61	14.53	11.67	14.61	11.74	14.69	11.80	14.77	11.86	14.85	11.92
Voltage at Maximum Power (Vmp/V)	43.57	41.41	43.68	41.51	43.79	41.63	43.90	41.72	44.00	41.82	44.11	41.92	44.22	42.03	44.33	42.13
Current at Maximum Power (Imp/A)	13.43	10.76	13.51	10.82	13.59	10.88	13.67	10.95	13.75	11.02	13.83	11.08	13.91	11.14	13.99	11.21
Module Efficiency(%)	21.7		21.8		22.0		22.2		22.4		22.6		22.8		23.0	

Electrical characteristics with different rear side power gain (reference to 605W front)

Pmax /W	Voc/V	Isc /A	Vmp/V	Imp /A	Pmax gain
635	52.44	15.35	44.00	14.44	5%
666	52.44	16.08	44.00	15.13	10%
696	52.54	16.81	44.10	15.81	15%
726	52.54	17.54	44.10	16.50	20%
756	52.54	18.27	44.10	17.19	25%

Operating Parameters

Operational Temperature	-40°C ~ +85°C
Power Output Tolerance	0 ~ 3%
Maximum System Voltage	DC1500V (IEC/UL)
Maximum Series Fuse Rating	30A
Nominal Operating Cell Temperature	45±2°C
Protection Class	Class II
Bifaciality	80±5%
Fire Rating	UL type 29 IEC Class C

Mechanical Loading

Front Side Maximum Static Loading	5400Pa
Rear Side Maximum Static Loading	2400Pa
Hailstone Test	25mm Hailstone at the speed of 23m/s

Temperature Ratings (STC)

Temperature Coefficient of Isc	+0.045%/°C
Temperature Coefficient of Voc	-0.230%/°C
Temperature Coefficient of Pmax	-0.280%/°C

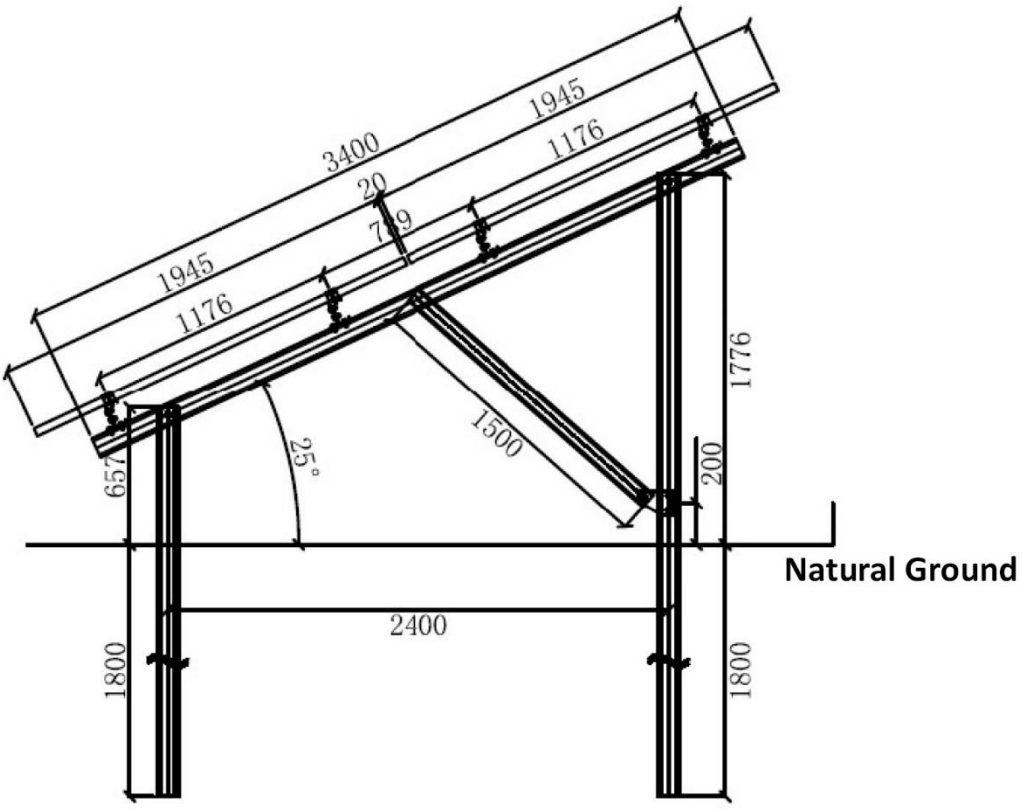
LONGi

No.8369 Shangyuan Road, Xi'an Economic And Technological Development Zone, Xi'an, Shaanxi, China.

Web: www.longi.com

Specifications included in this datasheet are subject to change without notice. LONGi reserves the right of final interpretation. (20231108PreliminaryV07)

Appendix U – Solar Panel Standard Elevation



SOLAR PANEL STANDARD ELEVATION
– Subject to final design

Appendix V – 8.2.4 BIODIVERSITY AREAS OVERLAY CODE - BENCHMARKS FOR ASSESSABLE DEVELOPMENT

8.2.4 Biodiversity areas overlay code

8.2.4.1 Application

This code applies to development:-

(a) subject to biodiversity areas identified in the SPP interactive mapping system or on premises otherwise determined to contain areas of environmental significance; and

(b) identified as requiring assessment against the Biodiversity areas overlay code by the tables of assessment in **Part 5 (Tables of assessment)**.

8.2.4.2 Purpose and overall outcomes

(1) The purpose of the Biodiversity areas overlay code is to ensure that:- (a) areas of environmental significance are protected;

(b) ecological connectivity is maintained or improved, habitat extent is maintained or enhanced and degraded areas are rehabilitated;

(c) wetlands and watercourses are protected, maintained, rehabilitated and enhanced;

(2) The purpose of the code will be achieved through the following overall outcomes:- (a) development conserves and enhances the Bundaberg region's biodiversity values and associated ecosystem services;

(b) development is not located in an ecologically important area, unless:- (i) there is an overriding need for the development in the public interest;

(ii) there is no feasible alternative; and

(iii) any adverse impacts incurred are minimised and, where appropriate to the circumstances, compensated by ecological improvements elsewhere that result in a net gain and enhancement to the overall habitat values of the Bundaberg Region.

(c) development protects and establishes appropriate buffers to native vegetation and significant fauna habitat;

(d) development protects known populations and supporting habitat of:- (i) endangered, vulnerable and near threatened flora and fauna species, as listed in the (State) *Nature Conservation Act 1992*, *Nature Conservation (Wildlife) Regulation 2006;*

(ii) threatened species and ecological communities as listed in the (Commonwealth) *Environment Protection and Biodiversity Conservation Act 1999*;

(e) development protects environmental values and achieves the prescribed water quality objectives for waterways and wetlands in accordance with the *Environmental Protection Policy (Water) 2009*;

(f) development protects and enhances the ecological values and processes, physical extent and buffering of watercourses and wetlands.

8.2.4.3.1 Specific benchmarks for assessment

Table 8.2.4.3.1 Benchmarks for assessable development

Performance outcomes	Acceptable outcomes	Compliance/Representations
Protection of matters of environmental significance		
PO1 Development avoids significant impacts on, areas of environmental significance, unless there is an overriding	**AO1** Development is located outside of areas of environmental significance and will not result	**AO1** • The amended proposal plan demonstrates that the solar arrays have been carefully positioned to avoid significant impacts on MSES-regulated vegetation, wildlife habitat, and watercourse buffers. A

need for the development in the public interest and there is no feasible alternative.	in a significant impact on the relevant environmental values. OR The development site does not contain any matters of environmental significance. Editor's note—a report certified by an appropriately qualified person may be required to demonstrate:- (a) that the development will not result in significant impacts on relevant environmental values; (b) that a site does not contain any matters of environmental significance, or that the extent of the area of environmental significance is different to that mapped; (c) how the proposed development mitigates impacts, including on water quality, hydrology and biological processes.	setback of at least 10 metres has been provided specifically for the solar array from regulated vegetation. Additionally, a 50-metre buffer has been maintained on either side of watercourses classified as Stream Orders 1 and 2, ensuring compliance with environmental regulations. • *No works, including earthworks, will extend beyond the nearest road reserve boundary, to be marked prior to the commencement of works, to MSES areas or watercourse buffers, except for the necessary crossings and fire breaks. the 6m-wide road reserve may fall within the minimum 10m offset, excluding these exceptions*. • The internal road network remains outside the watercourse buffers and regulated vegetation, except where crossings are required. Crossings have been limited to existing farm road locations and are strategically managed through avoidance alignment strategies to limit the environmental footprint, ensuring minimal disturbance. • The REDLEAF Group's ecological report confirms that the project site consists primarily of non-remnant category X vegetation, meaning that most of the site has already been disturbed, minimising the potential for significant environmental impacts. Where impacts could occur, the report recommends setbacks and buffers that have been adopted in the amended plan. • The General Treatment for Watercourse and Mapped Vegetation Crossings (Appendix W) outlines a framework for addressing impacts during the operational works phase, ensuring that detailed designs protect sensitive environmental areas. Further consultation with SARA will ensure compliance with environmental standards as the project progresses. • Crossing points, though requiring some minor clearing, will be carefully located and managed to minimise their environmental footprint, with the design strategy intended to avoid clearing wherever possible. • Any necessary clearing associated with these habitats will comply with **Schedule 10, Part 3, Division 4, Table 3, Item 1(b) of the Planning Regulation 2017**, as detailed in the **General Treatment for Watercourse and Mapped Vegetation Crossings** document. Discussions with SARA will be required to ensure that all regulatory requirements for protecting endangered species habitats are met during the operational works phase. • Ecologists Redfleaf Group have provided a supporting review of the proposed internal road network and crossing treatments, Appendix X – Redleaf Group Technical Memorandum - Internal Access Tracks Environmental Input.

PO2 Development is located, designed and operated to mitigate significant impacts on the relevant environmental values.	**AO2** No acceptable outcome provided.	**PO2** • The amended proposal plan ensures that the solar arrays and internal roads are located outside watercourse buffers and protected vegetation areas, except where crossings are necessary. By utilising existing farm tracks and employing avoidance alignment strategies, the design minimises the need for clearing and protects significant environmental values, including native vegetation and fauna habitats. • *No works, including earthworks, will extend beyond the nearest road reserve boundary, to be marked prior to the commencement of works, to MSES areas or watercourse buffers, except for the necessary crossings and fire breaks. the 6m-wide road reserve may fall within the minimum 10m offset, excluding these exceptions.* • Where crossings over watercourses or through regulated vegetation are required, these have been carefully located at existing farm road locations to limit disturbance. The crossings will incorporate culverts or low-flow pipe systems to ensure watercourse connectivity and allow for the safe passage of aquatic species, such as fish, while maintaining natural flow conditions. • Fauna movement corridors will be maintained by ensuring that internal roads do not create barriers to wildlife movement. The design will prevent habitat fragmentation and ensure minimal disruption to local fauna. • During the operational phase, human activities such as lighting, noise, and vehicle movement will be carefully managed. Low-intensity lighting will be used only when necessary, and vehicle movements will be restricted to minimise disruption to sensitive habitats. These operational considerations ensure minimal impact on the local ecosystem. • **The General Treatment for Watercourse and Mapped Vegetation Crossings (Appendix W)** provides further guidance for addressing impacts during the operational works phase. • Ecologists Redfleaf Group have provided a supporting review of the proposed internal road network and crossing treatments, Appendix X – Redleaf Group Technical Memorandum - Internal Access Tracks Environmental Input.
PO3 Development avoids the introduction of non-native pest species (plant or animal) that pose a risk to ecological integrity, and manages existing pest species.	**AO3** No acceptable outcome provided.	**PO3** The regular maintenance operations of the solar farm will include weed and pest control as part of ongoing site management. This will prevent the introduction and spread of non-native pest species and ensure that vegetation around the solar panels is properly managed. The pest management measures will include routine monitoring, targeted weed control, and maintaining clear access paths. Any existing pest species

Editor's note—Pest species may need to be controlled by adopting pest management practices that provide for long-term ecological integrity.		will be controlled using approved techniques, minimising the risk to ecological integrity.
Development adjacent to a wetland		
PO4 An adequate buffer to a wetland is provided and maintained to assist in the maintenance of water quality, existing hydrological characteristics, habitat and visual amenity values.	**AO4.1** A wetland buffer is provided and maintained which has a minimum width of:- (a) 50m where the wetland is located within an urban or rural residential zoned area; or (b) 200m where the wetland is located outside an urban or rural residential zoned area. Editor's note – Where an alternative wetland buffer is proposed, an evaluation of the environmental values, functioning and threats to matters of environmental significance may be required to justify the proposed width of the buffer. **AO4.2** Development involving vegetation clearing or high impact earthworks does not occur in a wetland buffer. Editor's note—high impact earthworks has the meaning given in the *Planning Regulation 2017*.	N/A There are no wetlands located within or adjacent to the development site.
Improving ecological corridors and expanding habitat extent of ecological corridors		
PO5 Existing ecological corridors are protected, and where possible enhanced, and have dimensions and characteristics that will:- (a) effectively link habitats on and/or adjacent to the development site; (b) facilitate the effective movement of terrestrial and aquatic fauna accessing and/or using the development site as habitat. Editor's note—ecological corridors are identified conceptually on **Strategic Framework Map SFM-004 (Natural environment and landscape character elements)**,	**AO5** Development retains, regenerates and rehabilitates native vegetation within a corridor. Editor's note—where an ecological corridor is required to facilitate fauna movement, access or use of on-site habitat, the dimensions and characteristics of the ecological corridor will need to be determined by a site-specific ecological assessment.	**AO5** • The amended proposal plan ensures that ecological corridors remain intact and are protected from significant disturbance. Native vegetation within these corridors will be retained, and where required, efforts will be made to regenerate and rehabilitate areas affected by the project, in compliance with AO5. • The Redleaf Group's ecological assessment has identified and evaluated the fauna movement corridors within the project area. Based on this assessment, the dimensions and characteristics of these corridors have been factored into the design to ensure the continued safe movement of fauna. • The internal roads are designed to avoid major ecological corridors, and where crossings are required, they have been aligned with existing farm roads to reduce the environmental footprint and minimise disruption to the corridors.

		• The **General Treatment for Watercourse and Mapped Vegetation Crossings (Appendix W)** further supports the preservation of these corridors by providing guidelines on minimising impacts during both the construction and operational phases. • Ecologists Redfleaf Group have provided a supporting review of the proposed internal road network and crossing treatments, Appendix X – Redleaf Group Technical Memorandum - Internal Access Tracks Environmental Input.
PO6 Development near an ecological corridor mitigates adverse impacts on native fauna feeding, nesting, breeding and roosting sites and native fauna movements, including (but not limited to):- (a) ensuring that development (e.g. roads, pedestrian access, in-stream structures) during both the construction and operation phases does not create barriers to the movement of fauna into, along or within ecological corridors; (b) providing wildlife movement infrastructure where necessary and directing fauna to locations where wildlife movement infrastructure has been provided to enable fauna to safely negotiate a development area; and (c) separating fauna from potential hazards (e.g. through appropriate fencing).	**AO6** No acceptable outcome provided.	**PO6** • The amended proposal plan ensures that development near ecological corridors avoids creating barriers to fauna movement. The design of internal roads, solar arrays, and other structures ensures that fauna can move into, along, and within the corridors without obstruction. • The development avoids disrupting critical feeding, nesting, breeding, and roosting sites, with key fauna movement routes protected as part of the design. The Redleaf Group's ecological assessment has been used to identify areas of high ecological significance and to design the layout to minimise disturbance. • Where necessary, existing farm road crossings have been utilised to limit the creation of new infrastructure, reducing the likelihood of fauna encountering barriers. Since only open roadways are being constructed, the project ensures that fauna can safely negotiate the development area without the need for additional wildlife movement infrastructure. • The project avoids hazards to fauna by minimising interaction with construction areas and maintaining safe movement paths. All operational procedures will be reviewed during the operational works phase to ensure that potential hazards to wildlife are mitigated. • The **General Treatment for Watercourse and Mapped Vegetation Crossings (Appendix W)** will guide the construction and operational phases, ensuring that fauna movement is preserved and that necessary mitigation strategies are in place.
Impact on habitat of threatened species		
PO7 Development protects the habitat of endangered, vulnerable and near threatened species and local species of significance, including by incorporating siting and design measures to protect and retain identified ecological values and underlying ecosystem processes within or adjacent to the development site.	**AO7** No acceptable outcome provided.	**PO7** • The amended proposal plan has incorporated siting and design measures that protect and retain the habitat of endangered, vulnerable, and near-threatened species identified within or adjacent to the development site. The Redleaf Group's ecological assessment has provided critical data on the presence of these

		species and their habitats, which informed the design to minimise disturbance. • The solar array footprint and internal roads have been positioned to avoid areas of high ecological significance. A minimum 10m setback from regulated vegetation has been established to protect these habitats, and a 50m buffer has been maintained around watercourses, particularly those classified as Stream Orders 1 and 2. • *No works, including earthworks, will extend beyond the nearest road reserve boundary, to be marked prior to the commencement of works, to MSES areas or watercourse buffers, except for the necessary crossings and fire breaks. the 6m-wide road reserve may fall within the minimum 10m offset, excluding these exceptions.* • The project design ensures that the underlying ecosystem processes supporting endangered and vulnerable species, including feeding, nesting, and breeding habitats, remain intact and are not significantly disturbed. Where necessary, crossings are limited to existing farm road locations to minimise additional environmental disruption. • During the operational works phase, any further measures needed to protect these habitats will be implemented in line with the **General Treatment for Watercourse and Mapped Vegetation Crossings (Appendix W)**. • Any necessary clearing associated with these habitats will comply with **Schedule 10, Part 3, Division 4, Table 3, Item 1(b) of the Planning Regulation 2017**, as detailed in the **General Treatment for Watercourse and Mapped Vegetation Crossings** document. Discussions with SARA will be required to ensure that all regulatory requirements for protecting endangered species habitats are met during the operational works phase. • Ecologists Redfleaf Group have provided a supporting review of the proposed internal road network and crossing treatments, Appendix X – Redleaf Group Technical Memorandum - Internal Access Tracks Environmental Input.
PO8 Human disturbance, such as presence of vehicles, pedestrian use, increased exposure to domestic animals, noise and lighting impacts, are avoided or adverse impacts sufficiently mitigated to retain critical life stage ecological processes (such as feeding, breeding or roosting).	**AO8** No acceptable outcome provided.	**PO8** • During both the construction and operational phases, human disturbances such as noise, light, and vehicular movement will be managed to avoid disrupting critical life-stage processes of fauna. The design incorporates measures to limit these disturbances, ensuring that the habitat remains suitable for wildlife throughout the project's lifecycle.

		• The facility will generally operate during daylight hours, with minimal traffic movement except for planned maintenance. Traffic volume and movement will be kept to a minimum, particularly in sensitive areas, to reduce disturbance to wildlife. • Apart from necessary crossings, there is generally no need to enter sensitive areas, limiting vehicle access to designated internal roads. This ensures that sensitive habitats remain undisturbed by vehicular movement. • *No works, including earthworks, will extend beyond the nearest road reserve boundary, to be marked prior to the commencement of works, to MSES areas or watercourse buffers, except for the necessary crossings and fire breaks. the 6m-wide road reserve may fall within the minimum 10m offset, excluding these exceptions.* • Lighting will be minimised, with low-intensity lighting only used when necessary, primarily during planned maintenance. Measures will be in place to prevent light spill into sensitive areas, particularly during critical times for wildlife.
Buffering and protection of watercourses		
PO9 Development:- (a) retains, enhances and maintains the environmental values and functioning of watercourses; (b) provides and maintains adequate vegetated buffers and setbacks to watercourses; (c) maintains and restores connectivity between aquatic habitats and access for fish along watercourses/waterways and into key habitats.	**AO9.1** Development is not located within a watercourse buffer. Editor's note—watercourse buffer distances on either side of a mapped watercourse are 50m in an urban or rural residential zoned area **or for a stream order 1 or 2** and 100m elsewhere. **AO9.2** Development does not involve the removal of native vegetation from a watercourse or watercourse buffer. **AO9.3** Cleared, degraded or disturbed watercourses and watercourse buffer areas within the site are rehabilitated along their full length in accordance with a detailed rehabilitation plan, approved by the Council. Note—a rehabilitation plan should include:- (a) appropriate rehabilitation and restoration methods for bed/banks and in-stream and watercourse vegetation for watercourses;	**AO9.1** • **Watercourse Buffer Requirement**: In accordance with the **editor's note** in **AO9.1**, a **50m buffer** is required on either side of mapped watercourses for **Stream Orders 1 and 2** in rural residential areas. This buffer ensures the protection of watercourses' environmental values and the preservation of aquatic connectivity. • **Stream Order Classification**: The streams on the site have been classified as **Stream Orders 1 and 2** using the following methods: 4. **Queensland Globe mapping of Water Features under the Water Act 2000**: The watercourses and drainage features on the site were identified using **Queensland Globe**, which classifies water features according to the **Water Act 2000** definitions: **Watercourse**, **Drainage Feature**, and **Undefined**. Based on these classifications, the **Stream Orders** were determined under the **Strahler System** as being either: • **Stream Order 1**: Streams with no tributaries. • **Stream Order 2**: Streams formed by the confluence of two Stream Order 1 streams. 5. **SPP mapping confirmation**: The SPP mapping diagrams, accessed via the **Bundaberg**

	(b) management measures of weed species; (c) consideration of fauna habitat (including relevant international agreements such as CAMBA, JAMBA and Ramsar); (d) provision of buffers in the form of riparian vegetation and separation by way of distance between the development and the vegetated buffers; (e) proposed planting regimes (utilising species appropriate to the area); (f) proposed measures for the protection of vegetation and habitat whilst rehabilitation works are being undertaken. **AO9.4** Development is undertaken in accordance with an approved environmental management plan that protects the watercourse.	**Regional Council interactive mapping tool**, confirm the application of the **50m buffer** for these streams, consistent with their classification as **Stream Orders 1 and 2**. The mapping further validates the correct buffer distances across the development site. 6. **Queensland Globe mapping pathway**: The **Stream Orders** were verified using **Queensland Globe** by following the pathway: • **Layer > Inland Waters > Water Feature > Watercourse Stream Order** This confirmed the correct stream classifications as **Stream Order 1 and 2**, supporting the application of the **50m buffer** on either side of the mapped watercourses. • **Development Compliance**: The proposal plan has been amended to ensure compliance with **AO9.1**. The **solar array footprint** has been fine-tuned to ensure that it remains entirely outside the **50m buffer** on either side of the mapped watercourses. Additionally, a **10m offset** from mapped protected vegetation has been applied to the **solar array footprint**. These adjustments confirm that the solar array footprint avoids encroachment within sensitive areas and complies with the Biodiversity Areas Overlay Code requirements. **Watercourse crossings**, where necessary, are confined to **existing farm road locations** to minimise disturbance to watercourse buffers and protected vegetation. These crossings are guided by the framework set out in the **General Treatment for Watercourse and Mapped Vegetation Crossings (Appendix W)**. **AO9.2** The project design prioritises the minimisation of vegetation removal within watercourse buffers. Where watercourse crossings are required, they are confined to existing farm road locations to limit the need for clearing native vegetation. The approach outlined in the **General Treatment for Watercourse and Mapped Vegetation Crossings** document **(Appendix W)** emphasises minimising disturbance and avoiding vegetation removal where possible. In the event that vegetation removal becomes unavoidable for necessary crossings, the project will follow legal protocols and mitigation strategies as described in the General Treatment document. This includes adherence to Schedule 10 Part 3 Division 4 of the Planning Regulation 2017, and ensuring that appropriate offsets, rehabilitation, or revegetation measures are implemented. Consultations with SARA will ensure that all vegetation removal complies with regulatory requirements, and sensitive areas will be protected throughout the construction and operational phases.

		AO9.3 The areas of existing farm road crossings within the watercourse buffers are already degraded due to ongoing farm use. As part of the development, these areas will be improved through the implementation of rehabilitation strategies incorporated in the design Treatment document. The **General Treatment for Watercourse and Mapped Vegetation Crossings document (Appendix W)** provides a guide for the design of these crossings, ensuring that the bed, banks, and surrounding vegetation at these degraded crossing sites are rehabilitated and stabilised. During the Operational Works stage, the design submission will include detailed plans for the rehabilitation of these areas in accordance with the **General Treatment for Watercourse and Mapped Vegetation Crossings document (Appendix W)**, which will be reviewed and approved by the Council. Some of the key focuses of the Treatment already include: • Erosion and sediment control, using riprap and other stabilisation methods to prevent further degradation. • Revegetation with native species, to restore ecological functions and enhance the watercourse and buffer zones. • Bed and bank restoration, improving the stability and integrity of the watercourses at the crossing sites. • Aquatic habitat protection, ensuring that natural flow conditions are preserved and that fauna movement is facilitated. • Ecologists Redfleaf Group have provided a supporting review of the proposed internal road network and crossing treatments, Appendix X – Redleaf Group Technical Memorandum - Internal Access Tracks Environmental Input. By rehabilitating these degraded areas, the development will enhance the environmental values of the watercourses and their buffers, contributing to long-term sustainability and compliance with the Biodiversity Areas Overlay Code. **AO9.4** The development will be carried out following the strategies outlined in the **General Treatment for Watercourse and Mapped Vegetation Crossings** document, which serves as the guiding framework for environmental management during the Operational Works stage. This document integrates design guidelines, rehabilitation strategies, and environmental management measures, ensuring the protection of watercourses and compliance with regulatory requirements. **The document covers key aspects typically required in an Environmental Management Plan (EMP), including:**

		• Monitoring and Reporting: Continuous monitoring of watercourse crossings and buffer zones during the Operational Works stage to ensure compliance with environmental regulations. • Incident and Emergency Response: Protocols for handling spills, vegetation damage, and other environmental incidents, with rapid response actions and reporting procedures. • Rehabilitation and Site Management: Detailed plans for post-construction rehabilitation, focusing on stabilising watercourse beds and banks, replanting native vegetation, and protecting sensitive areas. • Legal Compliance: Ensuring adherence to relevant environmental legislation, including Schedule 10 Part 3 Division 4 of the Planning Regulation 2017, with ongoing consultation with SARA to maintain compliance. The strategies in this document will guide all activities to ensure that the development does not negatively impact the watercourses and that protective measures are implemented and maintained throughout the project lifecycle.
PO10 All in-stream development works ensures that movement of fish across watercourse/ waterway barriers is catered for and that lateral and longitudinal migrations can be maintained within the whole of the system.	**AO10** No acceptable outcome provided.	**PO10** The **General Treatment for Watercourse and Mapped Vegetation Crossings** document **(Appendix W)** ensures that in-stream development works maintain fish passage and facilitate aquatic fauna movement. This includes using culverts and low-flow pipe systems at crossings to allow for the lateral and longitudinal migration of fish and other aquatic organisms within the system. These measures are detailed to ensure connectivity across watercourses is maintained, with the specific strategies to be finalised during the operational works stage using the guidance of the General Treatment for Watercourse and Mapped Vegetation Crossings. • Ecologists Redfleaf Group have provided a supporting review of the proposed internal road network and crossing treatments, Appendix X – Redleaf Group Technical Memorandum - Internal Access Tracks Environmental Input.
PO11 Bank stability, channel integrity and in-stream habitat is protected from degradation and maintained or improved at a standard commensurate with pre-development environmental conditions.	**AO11** No direct interference or modification of watercourse channels, banks or riparian and in-stream habitat occurs.	**PO11** The proposal avoids direct interference with watercourse channels, banks, or riparian in-stream habitats, as outlined in AO11. **The General Treatment for Watercourse and Mapped Vegetation Crossings** document provides guidance on erosion control measures, including structure such as riprap and natural vegetation reinforcement, which will be employed to stabilise banks and protect in-stream habitats during and after construction of crossings. This ensures that the development maintains or improves bank stability and channel integrity, adhering to pre-development environmental conditions.

		• Ecologists Redfleaf Group have provided a supporting review of the proposed internal road network and crossing treatments, Appendix X – Redleaf Group Technical Memorandum - Internal Access Tracks Environmental Input.
PO12 Development ensures that the natural surface water and groundwater hydrologic regimes of watercourses and associated buffers are maintained to the greatest extent possible.	**AO12** Existing natural flows of surface and groundwater are not altered through channelization, redirection of interruption of flows.	**AO12** Consistent with AO12, the internal road network and crossings are to be designed to maintain natural hydrologic regimes, minimising alterations to natural flows. The **General Treatment for Watercourse and Mapped Vegetation Crossings** includes implementing silt traps and vegetation restoration to control erosion and sedimentation, ensuring the preservation of natural surface water and groundwater flows. This ensures that the natural hydrologic regime of watercourses and their associated buffers is maintained, with detailed measures to be provided in the final Operational Works phase design.
PO13 Development on land adjacent to a watercourse maintains an appropriate extent of public access to watercourses and minimises edge effects.	**AO13** Development adjacent to a watercourse provides that:- (a) no new lots directly back onto the riparian area; and (b) any new roads are located between the watercourse buffer and the proposed development areas.	N/A - No new public access points will be created adjacent to watercourses. Access to the site is restricted to maintenance personnel for security and safety reasons.

Appendix W – General Treatment for Watercourse and Mapped Vegetation Crossings

Purpose of the Document

This document provides:

- **Design Guidelines** for watercourse and vegetation crossings,
- **Rehabilitation Strategies** to restore degraded areas, and
- **Environmental Management Measures** to ensure ongoing compliance,

*all of which will be implemented during the **Operational Works stage** to protect watercourses, vegetation, and fauna habitats, and meet regulatory requirements.*

Table of Contents

1. Watercourse Crossings

- **Objective**: To utilise existing farm road crossings and create an all-weather crossing that not only protects but also improves the condition of the watercourse bed, banks, and associated habitats while facilitating fish passage, accommodating high flows, and allowing the movement of other fauna.
- **Treatment Overview**:
    - **Location**: Utilise and enhance already disturbed ground at existing farm crossings and improve structural support and minimise environmental impact. Vegetation removal may be minimised or potentially eliminated through design strategies utilising our primary strategy of avoidance alignments, structural safeguards such as root protection barriers, and expert onsite guidance in collaboration with civil engineers, ecologists, or arborists to determine the best alignment approach.*
      Once the alignment, surveying, and final design, including adjacent rehabilitation areas, are confirmed, and prior to the commencement of works, the crossing area and adjacent rehabilitation zones will be clearly staked to ensure no disturbance to areas outside the designated works. Following the completion of construction, all disturbed areas will be restored to their natural state, with replanting and erosion control measures implemented as required.
    - **Structure**:
        - Install structures such as culverts or low-flow pipe systems designed to maintain natural water flow, accommodate high flows, and allow for fish passage.
        - Reinstate the watercourse bed and banks to their original natural state where possible, adding support structures to stabilise banks and prevent erosion.
        - Incorporate erosion control measures like riprap or natural vegetation reinforcement to protect against future degradation.
    - **Improvement Outcomes**:
        - Stabilisation of previously eroded or destabilised banks to reduce sedimentation in the watercourse.
        - Enhanced habitat connectivity by ensuring fish passage and maintaining natural water flow, even during high flow events.
        - Long-term reduction of erosion and sedimentation through strategic placement of silt traps and vegetation restoration.
    - **Sediment Control**:
        - Employ silt traps or barriers during construction to prevent sediment from entering the watercourse, ensuring better water quality.
    - **Habitat Protection**:

    - Implement spotter procedures to identify and safely relocate species present in the construction area, including aquatic and terrestrial species.
    - Design crossings to facilitate fauna movement and enhance habitat connectivity.

- **Lighting**:
    - Minimise lighting in these areas to avoid disturbing fauna, with normal operations generally limited to daylight hours and low-intensity lighting used if necessary.

2. Watercourse Crossings through Steep Land Overlay

Objective:
To address the intersection of watercourse crossings with areas identified within the **Steep Land Overlay** (slopes >15%), improving existing farm road crossings by formalising and stabilising the areas, providing support structures, and implementing erosion and sediment controls.

Treatment Overview:

- **Existing Conditions:**
  The **existing farm roads** that traverse areas within the steep land overlay have likely already been degraded or adjusted for light farm vehicle use, meaning the natural slope may have been removed or altered to some extent. As a result, the project's focus will be on **improving these existing intersections** rather than creating new disturbances. By formalising these crossings, we will enhance their structural integrity, reducing long-term impacts such as erosion and slope destabilisation.
- **Design Approach:**
  Each crossing will be subject to **site-specific investigations** during the operational works phase, which will determine the final alignment and extent of any required formalisation. This ensures that the steep land intersections are approached in a manner that not only mitigates any potential risks but also creates positive outcomes by reinforcing the existing road network and integrating sustainable erosion and sediment control measures. The final design will be adapted to suit the specific geotechnical conditions of each crossing.
  Once the alignment, surveying, and final design, including adjacent rehabilitation areas, are confirmed, and prior to the commencement of works, the crossing area and adjacent rehabilitation zones will be clearly staked to ensure no disturbance to areas outside the designated works. Following the completion of construction, all disturbed areas will be restored to their natural state, with replanting and erosion control measures implemented as required.
- **Structure and Support:**
  Where necessary, support structures such as retaining walls, riprap, and vegetation reinforcement will be used to stabilise slopes and protect against landslide risks. Erosion control measures will be applied at all watercourse crossings within the steep land overlay to ensure minimal disruption to the natural landscape and hydrological systems.

Improvement Outcomes:

- **Formalisation of crossings** through steep land areas will ensure that long-term stability is maintained, with enhanced structural support to prevent further erosion or landslide risks.
- Positive environmental outcomes will be achieved by restoring and stabilising previously degraded areas, ensuring the protection of sensitive landforms while enhancing fauna movement corridors and watercourse connectivity.

Operational Works Phase:
The final alignment of these crossings will be determined during the operational works phase, which will include site-specific geotechnical assessments and detailed design plans to ensure that the crossings are suitably designed based on the precise intersection points with the steep land overlay. These plans will also include further considerations for fauna protection, hydrological regimes, and vegetation management, ensuring that the crossing areas meet both environmental and structural requirements.

3. Crossings through Mapped Vegetation

- **Objective**: To utilise existing farm road crossings when practically available and create an access track that improves upon existing conditions by minimising impact on vegetation, reducing erosion, and maintaining fauna pathways.
- **Treatment Overview**:
    - **Location**: Utilise and enhance already disturbed ground at existing farm crossings and improve structural support and minimise environmental impact. Vegetation removal may be minimised or potentially eliminated through design strategies utilising our primary strategy of avoidance alignments, structural safeguards such as root protection barriers, and expert onsite guidance in collaboration with civil engineers, ecologists, or arborists to determine the best alignment approach*
      Once the alignment, surveying, and final design, including adjacent rehabilitation areas, are confirmed, and prior to the commencement of works, the crossing area and adjacent rehabilitation zones will be clearly staked to ensure no disturbance to areas outside the designated works. Following the completion of construction, all disturbed areas will be restored to their natural state, with replanting and erosion control measures implemented as required.
    - **Structure**:
        - Form an all-weather road base designed to minimise grading and maintain the natural terrain while improving durability for construction traffic.
        - Incorporate features such as small underpasses or open crossings to facilitate fauna movement and minimise habitat fragmentation.
    - **Improvement Outcomes**:
        - Reduction of vegetation disturbance by using a defined path with minimal clearing and incorporating erosion control measures like silt fences.
        - Long-term protection of the surrounding environment by implementing erosion control strategies and habitat conservation measures.

- **Vegetation Protection**:
    - Expert consultation will guide the final alignment to minimise disruption to retained significant vegetation. After the route is determined, significant vegetation that is to be retained will be marked and protected during construction. Any necessary vegetation removal will be carefully managed, and practices such as root protection barriers will be employed to minimise root disturbance and ensure ongoing vegetation health.
- **Lighting**:
    - Avoid permanent lighting installations at these crossings, ensuring that any necessary lighting is low lighting and minimises impact on fauna pathways.

Operational Works Phase

- A detailed **Design Risk Assessment and Mitigation Plan** will be developed, focusing on repairing, minimising, and eliminating the impacts of the crossings. This plan will outline specific engineering designs, erosion control measures, habitat enhancements tailored to each crossing, and the protection of both flora and fauna. The plan will ensure that crossings accommodate high flow conditions, maintain natural hydrologic regimes of watercourses, and minimise disturbance to protected vegetation and fauna pathways.
- **Expert consultation will be integral during the Operational Works Phase**, involving civil engineers and ecologists or arborists. They will guide the alignment and design of crossings to ensure minimal impact on significant vegetation, habitat, and fauna movement corridors.
- Both **watercourse and vegetation crossings** will be assessed for their impact on the environment, with the plan incorporating strategies to protect and enhance these areas through erosion control, vegetation retention, and fauna-friendly design principles.
- This phase will also ensure that **spotter procedures** are implemented for the safe relocation of species and that root protection barriers and fauna-friendly structures are incorporated into the design where necessary to protect significant habitats.

4. Additional Measures for Hydrologic Regimes (with reference to PO12 of the Biodiversity Areas Overlay Code)

- **Maintain Natural Hydrologic Regimes:** Ensure that the natural surface water and groundwater hydrologic regimes of watercourses and associated buffers are maintained to the greatest extent possible.
- **Minimise Flow Alteration:** Design crossings to prevent alteration of natural flow patterns, avoiding channelisation or redirection that could impact natural hydrology.
- **Erosion and Sedimentation Control:** Implement silt traps and vegetation restoration to control erosion and sedimentation, supporting the preservation of natural hydrologic functions.

Summary: By formalising these crossings using existing farm roads, the project mitigates the impact of construction while significantly improving the environmental integrity of these areas. The project addresses the informal and uncontrolled nature of previous farm crossings, reducing erosion, enhancing habitat connectivity, accommodating high flows, and supporting fish passage

and fauna movement. This approach ensures a more sustainable and environmentally conscious use of the land, improving upon the impacts of its farming predecessors.

**Note: Where vegetation removal is necessary to facilitate improvements, including watercourse crossings or access within road reserves, all works will comply with relevant legislative requirements, including Schedule 10 Part 3 Division 4 of the Planning Regulation 2017 where this applies. This includes engaging with SARA at a pre-lodgement meeting to address the specifics of vegetation clearing within the watercourse crossings and road reserve, ensuring adherence to the statutory processes and environmental protection standards.*

5. Environmental Management and Compliance (Operational Works Stage)

This section outlines the environmental management framework that will be implemented during the **Operational Works stage** to ensure the protection of watercourses, vegetation, and fauna habitats during construction and operation. It provides detailed guidance on monitoring, incident response, and legal compliance.

5.1. Monitoring and Reporting

- **Marking Works Area:** Prior to commencement, marking and staking of all areas associated with crossings and adjacent rehabilitation zones will be conducted to ensure protection of sensitive areas and limit disturbance to designated works areas only. All disturbed areas will be restored to their natural state with appropriate replanting and erosion control measures.
- **Regular Monitoring**: Continuous monitoring of watercourse crossings, buffer zones, and vegetation during the **Operational Works phase** to ensure that mitigation measures (e.g., erosion control, vegetation protection) are effective and compliant.
- **Reporting**: Regular submission of monitoring reports to the Council, documenting any environmental breaches, corrective actions taken, and ongoing compliance with environmental regulations.

5.2. Incident and Emergency Response

- **Emergency Protocols**: Procedures for handling environmental incidents (e.g., spills, unexpected vegetation damage, or watercourse contamination) that may occur during the **Operational Works**.
- **Immediate Response Actions**: Rapid containment measures to mitigate environmental damage, with full reporting to relevant authorities and the Council.

5.3. Rehabilitation and Site Management

- **Post-Construction Rehabilitation**: Upon completion of the **Operational Works**, rehabilitation will focus on restoring disturbed areas, especially around watercourse crossings. This includes stabilising watercourse beds, banks, and replanting native vegetation.
- **Vegetation Protection**: Sensitive vegetation will be protected during the **Operational Works**, with immediate measures taken to prevent damage and restore areas as needed.

5.4. Legal Compliance

- **Adherence to Planning Regulation 2017:** All work during the Operational Works stage will comply with Schedule 10 Part 3 Division 4 of the Planning Regulation 2017, particularly regarding vegetation clearing and watercourse protection.
- **Consultation with SARA:** Ongoing consultation with SARA (State Assessment and Referral Agency) will ensure that any vegetation removal or watercourse crossings comply with environmental regulations.

6. Fish-Friendly Watercourse Crossing Design Considerations

These considerations provide guidance for designing watercourse crossings that support fish passage and maintain natural flow conditions. They are not final considerations, exhaustive nor mandatory, but should be adapted based on the specific characteristics of each watercourse and proposed crossing structure.

1. **Maintain Natural Stream Width**: Ensure the crossing matches the natural stream width to avoid altering water velocity.
2. **Avoid Vertical Drops**: Design structures to avoid steep or vertical drops that can block fish passage.
3. **Incorporate Resting Places**: Include features like baffles or rocks to create resting areas in high-velocity zones.
4. **Design for Low and High Flows**: Accommodate fish passage during varying flow conditions, including flood events.
5. **Ensure Natural Stream Bed Conditions**: Use bottomless culverts or embed culverts into the stream bed to mimic natural conditions when appropriate.
6. **Minimise Construction Impact**: Schedule construction during low-flow periods and use sediment control measures, such as silt traps, to reduce sedimentation and protect water quality.
7. **Address Fish Passage Barriers**: Implement fish ladders or roughened surfaces to facilitate fish movement through the structure.
8. **Maintain Stream Connectivity**: Align culverts with the downstream channel and avoid locations that disturb the natural flow.
9. **Vegetation and Habitat Integration**: Enhance habitat quality by maintaining natural vegetation and landscape features around crossings, integrating with the surrounding environment to support ecological functions.
10. **Water Quality Protection**: Incorporate measures to filter runoff and reduce pollutants, such as using natural filtration methods and maintaining vegetation to protect the habitat.
11. **Legislative Compliance**: Ensure all designs adhere to local environmental regulations and obtain necessary permits, considering buffer zone requirements and maintaining compliance with guidelines such as Queensland's Fisheries Guidelines.

These design considerations provide a flexible framework for designers, acknowledging that specific watercourse characteristics will dictate the most suitable approach for each crossing.

Appendix X – Redleaf Group Technical Memorandum - Internal Access Tracks Environmental Input

redleaf GROUP
ENVIRONMENTAL . CULTURAL HERITAGE . SPECIAL PROJECTS

Technical Memorandum

TO	European Energy	FROM	Lachlan Harriman (Redleaf Group)
DATE	26.09.2024	REFERENCE	24914
REVISION	Final Report	PAGES (including this page)	2
SUBJECT	Bucca Solar Project – Access Tracks Environmental Input		

1 Environmental input on internal access tracks

Bucca Solar Project incorporates the construction and operation of ten solar arrays and one logistics area within the three associated lot plans. Access tracks are needed to navigate the property during and after the construction of the solar arrays. Already disturbed areas associated with farm tracks and watercourse crossings are being updated rather than installing new access tracks across the property. This method will reduce the amount of disturbance on the vegetation and watercourses. There are four watercourse crossings within the projects scope, 2 within lotplan 2RP868537, 1 within lotplan 73CK281 and 1 within lotplan 183CK2771. The General Treatment for Watercourse and Mapped Vegetation Crossings documents sets out excellent planning strategies for interactions with watercourse, vegetation and fauna management.

Watercourse crossing will incorporate structures such as culverts or pipe systems designed to maintain natural water flow, accommodate high flows, and allow for fish passage. Crossings will need to comply with state code 18, as all watercourses within the property are mapped as fish passage watercourses by DAF. The already established farm track crossings have altered the natural characteristics of the creeks from years of disturbance, affecting the banks, bed and vegetation. By upgrading the crossings, the already disturbed areas will be used rather than creating new areas of disturbance associated with creating new crossings. Improvement outcomes will be in place to not only restore natural conditions but to provide improvement on the natural conditions of the watercourses. The aim of utilising disturbed areas is to avoid and minimised disturbance and to protect and improve the conditions of the watercourses. Improvements will be employed on the watercourses bed, banks and associated habitats while facilitating fish passage, accommodating high flows and allowing the movement of fauna. Improving the natural conditions of the watercourses by reestablishing pre-disturbed conditions of the creek banks and beds will be achieved through erosion controls such as support structures or revegetation measures. Revegetation measure should aim to incorporate native species found on site.

By utilising old farm tracks to construct the new access tracks, the overall amount of disturbance is minimised and avoided entirely in areas. The outcome of natural rehabilitation and overall improvement to previously disturbed areas will provide a greater outcome to the native vegetation and the fauna passage and habitat found on the property. Solar arrays and access tracks that are not crossings all have a minimum 50 m offset from the mapped watercourses, thus reducing impacts to the watercourses. As the watercourses are ephemeral streams only flowing during periods of rainfall, water will pool in the creek's deeper areas and will remain dry with no water flow for long periods of time.

All solar arrays will be implementing an offset of minimum 10 m from MSES vegetation within the property where possible. Additionally, avoidance measures are implemented in areas that are heavily vegetated that are not mapped as a regional ecosystem, e.g. vegetation around the dam on the southern lot. The proposed access tracks follow the path requiring the least

redleafgroup.au 1300 562 494 enquiries@redleafgroup.au
Suite 11, 566 Ruthven Street, Toowoomba Qld

ABN 60 159 722 326. © Red Leaf Projects Pty Ltd 2024. Last updated 03/24.

vegetation clearing and creating least disturbance. The access track located on the western side of lotplan 73CK281 utilises the grass paddocks on the boarder of the solar arrays, thus eliminating the direct pathway though the MESE mapped vegetation. Access track placement uses previously disturbed / cleared areas that will require no native vegetation clearing an entirely navigates avoidable vegetation. Access tracks will additionally utilise firebreaks where possible along the external fence line of the property. Vegetation clearing necessary for fire safety will be used to establish access track thus reducing avoidable clearing solely for the purpose of access tracks. By completely avoiding unnecessary clearing, the overall quality of vegetation and wildlife habitat remains intact, unfragmented and undisturbed.

Sensitive vegetation such as the MESE mapped vegetation and watercourse vegetation will be protected during operational works. Avoidance with these areas will be maintained to avoid and minimised damage and disturbance with restoration practices implemented where required. The vegetation communities within the property have potential to house numerous native fauna species. Clearing of vegetation and vegetation disturbance should take all reasonable measures to avoid areas of know fauna habitat. Given the use of existing vehicle tracks and offsets around vegetation being implemented where possible, the removal of fauna habitat will likely be minimal.

Regular monitoring and reporting will be implemented on the watercourses, vegetation, erosion controls and offsets to regularly inspect the condition, maintenance and improvement to natural areas. The access tracks and crossings within the property perfectly align with avoid and minimise procedures for environmental matters. The utilisation of previous created farm tracks will reduce the disturbance of establishing new pathway, creating new watercourse crossing and vegetation clearing. Utilising placement of access tracks in previously disturbed areas to completely avoid areas of native vegetation not only prevent unnecessary clearing but also allow fauna habitat to remain. Additionally, the improvements made to the waterway crossings to maintain and improve natural conditions will benefit the surrounding environment as the disturbed areas will be reestablished to natural conditions faster than natural processes. Improvements made to the creek beds, banks and vegetation will provide improved passage and environmental conditions to both terrestrial and aquatic fauna.

Blank Page