Planning Assessment Report

Miriam Vale Solar Farm and Substation

29 May 2024

Prepared for: Private Energy Partners Pty Ltd (a subsidiary of Quinbrook Infrastructure Partners Pty Ltd)

Document Information

Document	Planning Assessment Report – Miriam Vale Solar Farm and Substation
Attexo ref	PRI-001
Date	29 May 2024
Prepared by	Leah Knight
Reviewed by	Chris Cantwell

Quality Information

Rev	Date	Details	Authorisation	
			Name/position	Signature
0	30-03-2024	Issued for Use	Chris Cantwell, Partner & Principal Consultant	Original signed
1	18-04-2024	Issued for Use	Chris Cantwell, Partner & Principal Consultant	Original signed
2	29-05-2024	Issued for Use	Chris Cantwell, Partner & Principal Consultant	

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Contents

Appendices

Figures

Tables

1. Introduction

1.1 Purpose of the Report

This Planning Assessment Report (Report) has been prepared by Attexo Group Pty Ltd (Attexo) on behalf of Private Energy Partners Pty Ltd (the Applicant) to provide supporting information for a development application to Gladstone Regional Council (GRC) under the *Planning Act 2016* (Planning Act). The application seeks approval from the Assessment Manager (GRC) for:

- Development permit for Material Change of Use for a Renewable Energy Facility (Solar Farm); and
- Development permit for Material Change of Use for a Substation.

This Report evaluates the Miriam Vale Solar Farm Project (the Project) against the *Our Place Our Plan Gladstone Regional Council Planning Scheme* (Version 2, July 2017) (GRC Planning Scheme) and relevant State planning provisions. Further details regarding the statutory framework relevant to the proposed development are provided in **Section 6.**

1.2 Project Overview

Private Energy Partners is proposing to develop a photovoltaic (PV) solar farm of up to 1 gigawatt (GW) generation capacity and associated infrastructure, including a substation, approximately 6 kilometres (km) southwest of Miriam Vale and 60 km southwest of Gladstone (refer to **Figure 4.1**). The site for the Project (Project area) is approximately 1,082.25 hectares (ha) across fourteen (14) freehold parcels wholly located within the GRC local government area. A detailed Project description is included in **Section 5**; however, in brief the Project includes:

- solar PV modules (panels);
- access tracks and cabling runs;
- an internal substation on the 275 kilovolt amperes (kVA) Calliope River-Gin Gin transmission line;
- internal collector lines;
- security fencing around the solar farm;
- 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;
- car park adjacent to control building;
- internal boundary fire trail and bushfire asset protection zone (APZ); and
- meteorological station(s).

1.3 Proponent Details

The proponent for the Project is Private Energy Partners, a subsidiary of Quinbrook Infrastructure Partners.

Quinbrook Infrastructure Partners (QIP) has over 25 years of investment in renewable energy infrastructure, with over USD$8.2B invested in renewable energy and power infrastructure across more than 200 investments. QIP is a specialist employee-owned company that focuses on value-adding investments in key markets including Australia across project origination, development and asset management. QIP is a leader in the Environment, Social and Governance (ESG) space, boasting many internationally recognised awards.

Operating as QIP's dedicated project development arm, Private Energy Partners has been active in the development, construction and operation of projects within the energy sector for over 40 years in Australia, the US and Europe. Private Energy Partners works across the technology landscape encompassing distributed scale solar PV, onshore

wind, battery storage, biomass, fugitive methane recovery, demand response, grid support and flexibility, community energy networks, industrial decarbonisation and critical minerals supporting the renewable energy industry's equipment manufacturing supply chain. Private Energy Partners has a keen interest in the opportunities for supporting the growth of the critical minerals and equipment manufacturing industries in Central Queensland and has been in recent discussions with Gladstone Regional Council about tangible opportunities in this space. Private Energy Partners is committed to long-term investment in communities and has a strong focus on ensuring positive relationships are maintained throughout the development, construction, operation and decommissioning stages of its projects.

1.4 Application Details

Duly completed forms are included in **Appendix A** and the particulars of the Development Application are included in **Table 1.1**.

Table 1.1: Application details

Site and Application Details		
Applicant	Private Energy Partners Pty Ltd (a subsidiary of Quinbrook Infrastructure Partners Pty Ltd) 4/167 Eagle Street, Brisbane, QLD, 4000 ACN 604 402 637	Development Application Form refer to **Appendix A**
Site Address	292 Cawthrays Road, Colosseum, QLD, 4677	Refer to the Project Layout Plan at **Figure 5.1** and in **Appendix C**
Real Property Descriptions	• Lot 88 on FD14 • Lot 130 on FD3 • Lot 132 on FD32 • Lot 137 on FL40301 • Lot 140 on FL40301 • Lot 133 on FL40301 • Lot 134 on FL40301 • Lot 136 on FL40301 • Lot 138 on FL40301 • Lot 251 on FD900 • Lot 139 on FL40301 • Lot 142 on FL40301 • Lot 143 on FL40301 • Lot 5 on FD112	
Project Area	1,082.25 hectares (ha)	
Project Development Footprint	921.74 ha	
Registered Owners	• Wayne Bayliss • Glenn Cox • Karl & Debbie Hills (Joint Owners)	Refer to Owner's Consent in **Appendix B**
Easements and Encumbrances	• The 275 kV Calliope River to Gin Gin Transmission Line runs north to south approximately 500 metres (m) from the eastern boundary of the Project area. · A 22 kV overhead Ergon (Energy Queensland) line runs along the eastern boundary of the Project area and connects to a substation south of Burgess Road approximately 700 m south of the Project area. • A 22 kV overhead Ergon (Energy Queensland) line intersects the southern lots of Project area east of Mossman Road and south of the unconstructed road parcel. The Development Application will be referred to Powerlink Queensland and Energy Queensland for advice.	

Site and Application Details		
Project Description	Private Energy Partners is seeking to develop a utility-scale PV solar farm and substation, and associated infrastructure, including internal collector lines.	
Local Government Area	Gladstone Regional Council	
Assessment Manager	Gladstone Regional Council	
Zone	Rural Zone	
Use Definition	'Renewable energy facility' means premises used for the generation of electricity or energy from renewable (naturally occurring) sources. 'Substation' means premises forming part of a transmission grid or supply network under the *Electricity Act 1994*, and used for: • converting or transforming electrical energy from one voltage to another · regulating voltage in an electrical circuit • controlling electrical circuits · switching electrical current between circuits • a switchyard, or • communication facilities for 'operating works' as defined under the *Electricity Act 1994* or for workforce operational and safety communications.	
Approval sought	Development permit for the following: • Material Change of Use for a Renewable Energy Facility (Solar Farm) • Material Change of Use for a Substation.	
Level of Assessment	Code Assessment	
Assessment benchmarks	The assessment benchmarks for the development application include: • GRC Planning Scheme – Strategic Framework – Rural Zone Code – Overlay codes – Agricultural Land, Biodiversity, Bushfire Hazard, Scenic Amenities, Steep Land – Development Design Code – Landscaping Code.	Refer to **Section 6.3**
State Development Assessment Provisions	Nil	Refer to **Section 6**
Referral Agencies	In accordance with Schedule 10 of the *Planning Regulation 2017* the following referral agencies have been identified: • Powerlink Australia – Material change of use of a premises near a substation site or subject to an easement (275 kV Calliope River to Gin Gin Transmission Line) – Schedule 10, Part 9, Div 2, Table 2. • Energy Queensland - Material change of use of a premises near a substation site or subject to an easement (22 kV overhead transmission line outside of an easement) – Schedule 10, Part 9, Div 2, Table 2.	Refer to **Section 6.2**

Site and Application Details	
Contact Person	Ryan Aria – Senior Development Manager Private Energy Partners Level 4, 167 Eagle Street, Brisbane, QLD, 4000 E: info@miriamvalesolarfarm.com.au or T: 1800 975 039

1.5 Pre-lodgement Meeting and Advice

A pre-lodgement meeting was held between GRC, Private Energy Partners and Attexo on 6 November 2023. The pre-lodgement meeting notes in **Appendix L** reference a Battery Energy Storage System (BESS) that is now being separately developed as a stand-alone, independent project and does not form part of this application. **Table 1.2** provides a summary of the key considerations raised by GRC during the meeting, together with reference as to where the item has been addressed in this Report. Prior to lodgement of this development application, an in-person meeting was also held with GRC planners in Gladstone to confirm approach to submission and likely timeframes.

Table 1.2: Pre-lodgement meeting summary notes

Issue	Response	Report Reference
Rural Zone Code • Design and amenity provisions (Performance Outcomes 12 to 16). • Demonstrate how the proposal maintains the rural character and intent of the Rural Zone (Performance Outcome 10). • Protection of ecological values, habitat corridors and soil and water quality (Performance Outcome 16). • An agronomist report assessing impacts to the Agricultural Land Classification • Protection of soil quality.	The potential impacts of the development on the rural amenity of the locality have been assessed through the preparation of a Landscape and Visual Impact and Assessment (LVIA). The LVIA report provides an assessment of the requirements of the Rural Zone Code.	Refer to **Section 6.4.2**, **Appendix F** and **Appendix K**.
Biodiversity Overlay Code • Detailed Environmental and Ecological Assessment to confirm the extent and nature of values required.	An Ecological Assessment Report (EAR) has been prepared. The EAR provides an assessment against the requirements of the Biodiversity Overlay Code.	Refer to **Section 7.5**, **Appendix G** and **Appendix K.**
Bushfire Hazard Overlay Code • A site-specific bushfire hazard assessment	A Bushfire Hazard Assessment and Management Plan has been prepared which addresses the requirements of the Bushfire Hazard Overlay Code.	Refer to **Section 7.6**, **Appendix H** and **Appendix K.**
Stormwater • A Stormwater Management Plan to address non-worsening between pre- and post-development states regarding stormwater quality.	A Stormwater Management Plan and Flooding Impact Assessment has been completed addressing the relevant requirements of the Planning Scheme.	Refer to **Section 7.1, Appendix D** and **Appendix K.**

Issue	Response	Report Reference
Traffic and Access • A Traffic Impact Assessment (TIA) for construction traffic for the development of the access point(s). Where appropriate, the TIA is to specify treatments and actions to manage the impacts of the increased traffic.	A TIA has been completed. Access is proposed from an unsealed road under Council's jurisdiction. Due to the negligible volumes of traffic generated for the construction and operation of the Project, road upgrades are not considered necessary for the Project.	Refer to **Section 7.2, Appendix E** and **Appendix K**
Landscaping Code	Landscaping requirements have been considered in the LVIA.	Refer to **Appendix F** and **Appendix K**.
Other • The layout plan should adequately illustrate the development footprint that avoids areas of Planning Scheme overlay constraints (e.g. Agricultural Classification / Biodiversity), shows location of buildings and structures, proposed access / egress locations, bushfire breaks and trails, watercourses, landscaping screen areas, protected vegetation and nominated setbacks from bushfire breaks and protected vegetation		Refer to layout plans included in **Appendix C.**

1.6 Additional Approvals

This application solely relates to aspects of a Material Change of Use for a Renewable Energy Facility and a Substation. A subsequent Operational Works permit through GRC may be required for earthworks and access works prior to the development commencing.

1.6.1 Commonwealth

The Project has the potential to impact on Matters of National Environmental Significance (MNES) (listed threatened species and threatened ecological communities) under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). A referral was lodged to the Commonwealth Department of Climate Change, Energy, the Environment and Water (DCCEEW) on 15 March 2024 for a determination as to whether the Project constitutes a controlled action for which approval is required under the EPBC Act. The referral did not consider the potential impacts to MNES to be significant; owing to the historical degradation of the Project area. The referral determines that the Project is unlikely to be a Controlled Action requiring assessment under the EPBC Act.

1.6.2 Queensland Government

There are a number of waterways which have been ground-truthed by Attexo as waterways for waterway barrier works (WWBW) within the Project area. Other than access tracks and temporary crossings, there are no components of the Project that are defined as waterway barrier works, as the solar array and any other ancillary infrastructure are not proposed within any ground-truthed waterways.

Any works within the bed and banks of a waterway for the Project are constructed with consideration of the Accepted Development Requirements for Operational Work that is Constructing or Raising Waterway Barrier Works (ADR). In

the event any water crossing cannot meet the specifications within the ADR, a separate development permit will be sought.

A Species Management Program (SMP) for the tampering with animal breeding places will be required under the *Nature Conservation Act 1992* (NC Act) prior to the potential removal of any animal breeding places. The field survey results confirm a Low-Risk SMP for any potential disturbance to breeding places for common species is the likely extent of this permit.

1.7 Supporting Information

The following attachments and technical reports are provided to support this Development Application:

- Development Application Form (**Appendix A**)
- Owner's Consent (**Appendix B**)
- Development Plans (**Appendix C**)
- Flooding Impact Assessment and Stormwater Assessment (**Appendix D**)
- Traffic Impact Assessment (**Appendix E**)
- Landscape and Visual Amenity Impact Assessment (**Appendix F**)
- Ecological Assessment Report (**Appendix G**)
- Bushfire Management Plan (**Appendix H**)
- Preliminary Erosion and Sediment Control Plan (**Appendix I**)
- Preliminary Agricultural Land Assessment (**Appendix J**)
- GRC Planning Scheme Code Assessment (**Appendix K**)
- GRC Pre-lodgement Advice (**Appendix L**)
- Noise Impact Assessment (**Appendix M**).

2. Project Justification

The Project has the potential to provide up to 1 GW of solar power into the National Electricity Market (NEM). The Project will have significant environmental benefits when operational, supplying clean, renewable energy to consumers.

The Project is located in the Central Queensland Renewable Energy Zone (REZ) – see **Figure 2.1**. The 2023 Queensland Renewable Energy Zone Roadmap identifies a generation potential of up to 8,200 MW within the Central Queensland REZ. The Project has the potential to generate up to 1 GW to contribute to the objective of the REZ, supporting Queensland's target of 50 per cent renewable energy by 2030, 70 per cent by 2032 and 80 per cent by 2035.

The 1,680 MW Gladstone Coal Fired Power Station is earmarked for closure in 2035; this will require approximately 5,000 MW of renewable energy to replace the baseload electricity generation.

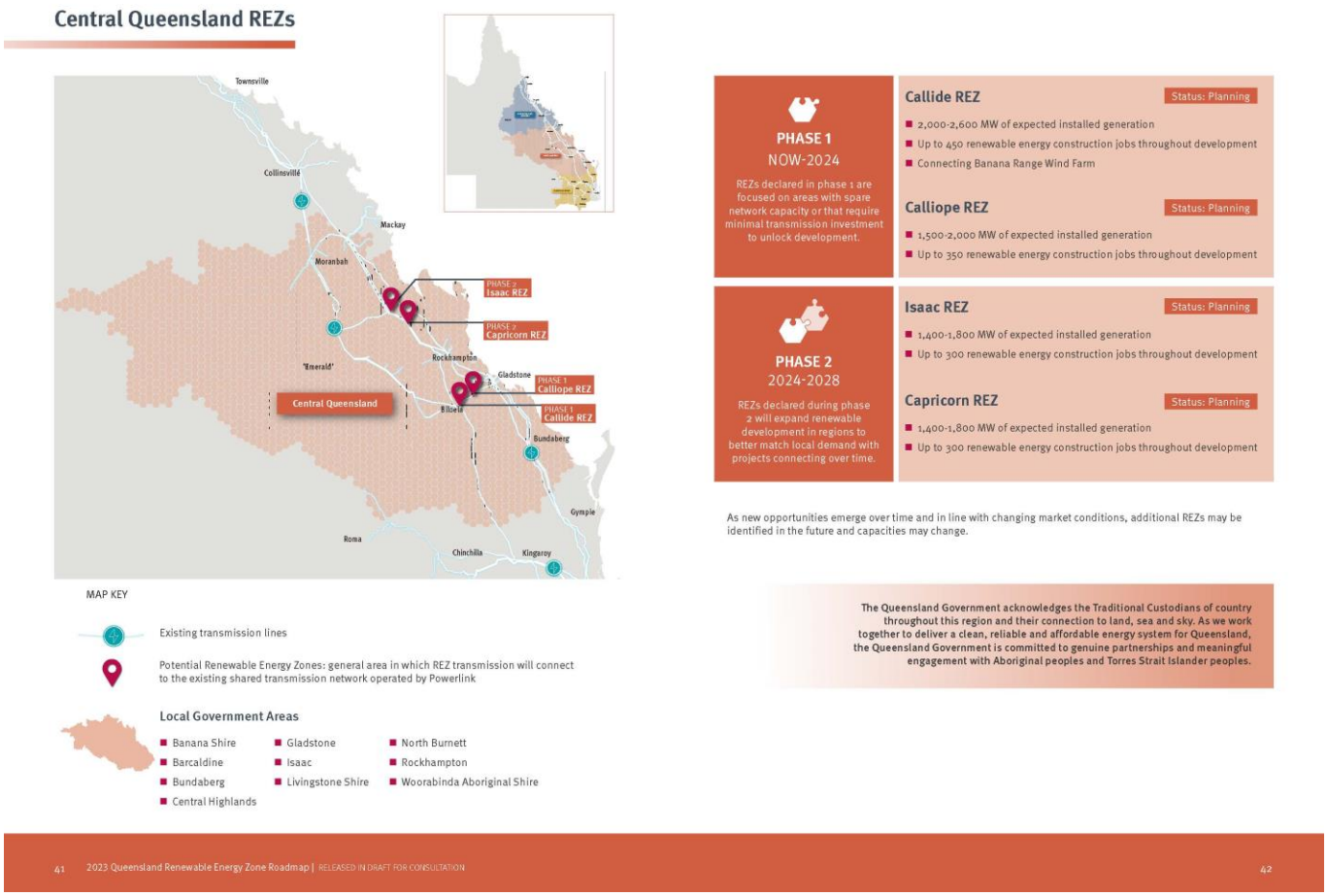

Figure 2.1: Central Queensland REZ Overview

The Project is proposed to connect to the existing Powerlink 275 kV Calliope River to Gin Gin transmission line (refer to **Figure 5.1**).

Specific benefits of the Project include:

- Power demand – The load in Gladstone is expected to increase from 9 TWh/yr to 12 TWh/yr over the next decade, not including 10 GW (up to 88 TWh/yr) of potential new load connections in Gladstone. For reference, refer to the Powerlink TAPR.
- Renewable requirements – Both the Queensland and Australian governments have committed to at least 80 per cent renewable energy by 2030-35.

- The Project will help to achieve the Queensland Energy and Jobs Plan.
- Affordable option – Large-scale solar is the cheapest form of new electricity generation.
- Jobs – Around 950 jobs are expected to be generated during the 18-24 month construction period (up to 350 direct, and 600 indirect) and up to 30 jobs during operation (direct and indirect).
- Considerable investment is expected in the local region during the construction period. Private Energy Partners is committed to maximising opportunities for local workers and businesses.
- The Project is aligned with:
  - The Gladstone 2023/24 Strategic Priorities to enhance the Gladstone region and transition the region from Queensland's industrial powerhouse to a renewable energy "superpower";
  - The Gladstone Economic Transition Roadmap (2022-2032);
  - Supporting the green industry and decarbonisation within Gladstone;
  - Supporting critical minerals projects in and around Gladstone such Central Queensland Metal's magnetite project and Private Energy Partners' Gladstone Green Iron Project;
  - Local community engagement and benefit sharing principles;
  - First Nations engagement; and
  - The aims of various government-owned corporations.

Through Quinbrook's business model of developing, building, owning and operating assets, the Project is expected to bring broad benefits to the Gladstone region that will make a tangible contribution to the local economy, workforce, supply chains, social infrastructure and communities. The Project aligns with the Gladstone Regional Council's expectations for proponents (as outlined in the New Project Guidelines), and the economic goals of the Council which include major project investment and social impact management.

3. Stakeholder and Community Engagement

Meaningful engagement with stakeholders and community members is of utmost importance to, and a core principle of, Private Energy Partners (fully affiliated with Quinbrook Infrastructure Partners). A comprehensive stakeholder and community engagement plan has been prepared for the Project and is actively maintained by Private Energy Partners.

Private Energy Partners is committed to working collaboratively with the community and other stakeholders throughout early development, construction, operation, and asset management of the Project.

Private Energy Partners builds upon its existing relationships in regional Queensland communities to form deep trust and engagement with local communities, Traditional Owners, and other key stakeholders.

A number of actions have been undertaken, or are currently underway, for the engagement activities associated with the Project. These include:

- Updating and engaging landowners during the development phase of the Project.
- Engaging with the PCCC (the relevant Indigenous party) from the initial stages of the Project.
- Requesting meetings with the Mayor and Councillors before submitting the Development Application.
- Understanding Gladstone Regional Council's planning team's expectations for the Development Application.
- Identifying adjacent landowners for the Project and informing them in advance.
- Engaging with neighbors.
- Communicating with the Gladstone Economic team to align with high-priority projects in Gladstone.
- Completing stakeholder engagement work to date.
- Planning community consultation dates and venues.
- Selecting and awarding a local consultancy to support the Project in achieving social licensing and communicating effectively with all stakeholders.
- Reserving the website (www.miriamvalesolarfarm.com.au), which will be public soon.
- Establishing networks and engagement across the Gladstone region.
- Engagement processes regarding the Project via the following:
  - Gladstone Engineering Alliance
  - Connecting Industry
  - Gladstone Chamber of Commerce and Industry

Private Energy Partners (fully affiliated with Quinbrook Infrastructure Partners) truly respects community engagement and ensures it remains a principal focus in all of its endeavors.

4. Site Description

4.1 Overview

The proposed development involves the development of a PV solar farm, substation and associated infrastructure within the following land parcels:

Table 4.1: Lots subject to the development application

Lot description	Area (ha)
Lot 88 on FD14	94.55
Lot 130 on FD3	128.38
Lot 132 on FD32	94.41
Lot 137 on FL40301	64.08
Lot 140 on FL40301	67.41
Lot 133 on FL40301	64.8
Lot 134 on FL40301	63.66
Lot 136 on FL40301	64.56
Lot 138 on FL40301	63.4
Lot 251 on FD900	8.47
Lot 139 on FL40301	65.1
Lot 142 on FL40301	128.93
Lot 143 on FL40301	123.3
Lot 5 on FD112	51.2
Total Area	**1,082.25**

The boundaries of the lots listed in **Table 4.1** are shown in the Project site location plan in **Figure 5.1** and on the Site Layout Plans in **Appendix C** along with the location of the proposed solar farm development footprint and associated infrastructure.

Project Site Location

- Cities and Towns
- Highway
- Main Road
- Watercourses
- Property Boundary
- Miriam Vale Solar Farm Development Footprint
- Proposed Substation and Switchyard Area

MIRIAM VALE SOLAR FARM

Attexo

REVIEWED: MW | **DRAWN:** FM | **SCALE (A3):** 1:300,000 | **DATE:** 17/04/2024 | **DWG No:** PRI-001_017[A] | **Figure 4-1**

GDA2020 MGA Zone 56

Data Source: World Topographic Map: Department of Resources, Dept.of Environment and Science, Esri, TomTom, Garmin, FAO, NOAA, USGS
World Imagery: Earthstar Geographics
World Hillshade: Esri, USGS

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4.2 Site Context

The land the subject of the Development Application and surrounding areas are of a rural nature and currently used primarily for grazing. The Project area has largely been historically cleared and/or thinned with the exception of limited areas of remnant vegetation along the main watercourses traversing the site.

Bulburin National Park adjoins the southwest corner of the Project area. Mount Colosseum National Park is located approximately 7 km to the southeast of the Project area.

4.2.1 Easement, Encumbrances and Infrastructure

The Project area consists of several unconstructed road parcels, these include:

- an unconstructed road parcel, spurring to the west from the junction at Burgess Road and Mossman Road intersecting Lot 142 on FL40301 and Lot 143 FL40301; and
- two unconstructed road parcels which run along the northern and southern boundaries of Lot 130 on FD32 and Lot 132 on FD3. These road parcels would connect to Cawthrays Road if formed.

The Powerlink 275 kV Calliope River to Gin Gin Transmission Line runs north to south approximately 500 m westward from the eastern boundary of the Project area through Lot 88 on FD14, Lot 132 on FD32, and Lots 133 and 134 on FL40301.

An Ergon 22 kV overhead transmission line (OHTL) runs parallel to Powerlink's transmission line easement along the eastern boundary of the Project area and connects to an existing substation south of Burgess Road, approximately 700 m from Project area. As advised by Energy Queensland, an exclusion zone buffer of 20 m (10 m either side of the OHTL centreline) has been incorporated into the Project design to ensure an acceptable distance from the transmission infrastructure is maintained during construction and operation of the Project.

Another Ergon 22 kV OHTL runs east to west along the southern side of Burgess Road and intersects the Project area at Lots 142 and 143 on FL40301. Negotiations are currently underway with Energy Queensland to relocate this section of the OHTL to outside of the Development Footprint prior to construction of the Project. As such, an exclusion zone buffer has not been considered necessary. This is further discussed at **Section 5.5**.

4.2.2 Topography and Watercourses

The Project area is adjoined to the west by Bulburin National Park. The majority of the site is situated on relatively flat rural landscape with general ranges between elevations of 80 m Australian Height Datum (AHD) to 60 m AHD in the central and northeast areas. The southwest Project area has higher elevations associated with the Bulburin National Park, sloping from 130 m AHD to 80 m AHD at the junction of Mossman and Burgess Road. The Project area generally slopes to the east and northeast.

Slopes in the Project area range from 1-6 percent but are generally 1-3 percent. As such, no areas of significant slope (greater than 15 percent) are included in the Development Footprint.

The Project area is mapped as including water features identified by the Department of Agriculture and Fisheries (DAF) under the Queensland waterways for waterway barrier works spatial data layer. These water features flow in a northeasterly direction, the most significant of which is an unnamed tributary to Skeleton Creek (stream order 2 to 3) with numerous associated unnamed tributaries (stream order 1). Field verification of these waterways was undertaken by Attexo in 2023; this is further discussed in **Section 5.4**.

Several man-made farm dams occur throughout the Project area.

4.2.3 Vegetation

An Ecological Assessment Report (EAR) has been completed for the proposed development and is provided at **Appendix G**.

The Project area has been historically cleared of remnant vegetation and/or significantly thinned. Current site conditions reflect the clearing history with more than 90 percent of the site consisting of open grassland utilised for pastoral activities. Regrowth vegetation is evident in small patches dominated by *Corymbia* and *Acacia* shrubland. Several scattered patches of historical plantation trees (Tasmanian Blue Gum - *Eucalyptus globulus*) remain present within the Project area.

The Project area predominantly supports non-remnant vegetation, with some areas of regulated vegetation of Category B, C and R. **Table 4.2** list the regional ecosystems (REs) mapped by the State of Queensland as occurring within the Project area, as well as their descriptions. Four distinct patches of the EPBC Act-listed threatened ecological community (TEC) *Subtropical eucalypt floodplain forest and woodland of the New South Wales Coast and South East Queensland bioregions* were identified in the Project area. The Project design has ensured these TEC patches are avoided and buffered by 50 m.

Table 4.2: Regional ecosystems mapped within the Project area

RE Code	Short description	VM Act Status	Biodiversity Status	Potential TEC
12.3.3	*Eucalyptus tereticornis* woodland on Quaternary alluvium	Endangered	Endangered	Yes
12.12.12	*Eucalyptus tereticornis, Corymbia intermedia, E. crebra +/- Lophostemon suaveolens* woodland on Mesozoic to Proterozoic igneous rocks	Of Concern	Of Concern	No
12.12.28	*Eucalyptus moluccana* woodland on Mesozoic to Proterozoic igneous rocks	Of Concern	Of Concern	No

Ground-truthing of vegetation identified four prevalent and widespread weed species listed under the *Biosecurity Act 2014,* which were in the densest infestations across the Project area. Some of these weeds also listed a Weeds of National Significance (WoNS) or important weeds of the GRC Local Government Area (LGA). The prevalent weed species across the Project area are listed in **Table 4.3**.

Table 4.3: Prevalent weed species observes within the Project area

Weed Species	Biosecurity Act Category	WoNS	LGA Listed Weed	GRC Priority
Lantana (*Lantana camara)*	Restricted Invasive Plant – Cat 3	Yes	No	Local Control
Giant Rats Tail Grass (*Sporobolus pyramidalis*)	Restricted Invasive Plant – Cat 3	No	Yes	Containment
Balloon Cotton Bush (*Gomphocarpus physocarpus*)	-	No	No	-
Devil's Fig (*Solanum torvum*)	-	No	No	-

Additional weed species recorded during field surveys are listed in Table 5-3 of **Appendix G.**

4.2.4 Road Frontages

Access to the site from the Bruce Highway is via Blackman Gap Road and Burgess Road. An alternative access to the north-east section of the site from the Bruce Highway is via Blackman Gap Road and Cawthrays Road.

4.2.5 Heritage Values

No significant sites of Aboriginal cultural heritage are registered on local, State or Commonwealth registers for the Project area. Despite the lack of recorded cultural heritage sites of significance, there remains the potential that Aboriginal cultural values or sites are present. The proposed development is to be undertaken in accordance with the Cultural Heritage Duty of Care Guidelines.

The Project area's southern and western boundary adjoins Native Title determinations, associated with, House Creek, and Bulburin National Park. Private Energy Partners will seek to enter into a Cultural Heritage Management Plan or Agreement (CHMP/A) for the Project, which will be negotiated with the Bailai, Gurang Gooreng, Gooreng, and Taribelang Bunda People through the Port Curtis Coral Coast Trust Aboriginal Corporation (PCCC).

Initial engagement with the PCCC began in August 2023, with communication well established and formal introduction of the Project undertaken in October 2023. A meeting between the proponent and the PCCC will be held to discuss initial priorities regarding a CHMP/A for the Project.

5. Proposed Development

5.1 Overview

The Project involves the construction of an up to 1 GW photovoltaic solar farm and substation, with associated infrastructure (internal collector lines, power conditioning units, etc.). The proposed layout of the development is shown in the Project Layout Plan in **Figure 5.1** and on the Site Layout Plans in **Appendix C**.

The detailed design, specific panel layout and electricity generation capacity have not been finalised at this stage, including the specific type and number of modules and inverters. These design decisions will not have a material impact on the Development Footprint in terms of the environmental and planning considerations.

The solar array is expected to have up to a 40-year life span, with the option to extend subject to commercial considerations. At the end of the Project life, all onsite, aboveground infrastructure will be decommissioned and removed, and the site rehabilitated to a condition which would allow for agricultural activities to recommence.

5.2 Built Form and Concept Design

The Project has been designed to ensure minimal environmental impacts, in keeping with the sustainable nature of the development for a Renewable Energy Facility. Accordingly, the existing environment; existing rural land use on-site and off-site; proximity to existing electricity infrastructure; stormwater management; and visual impact have all been considered in the design development.

The Project's infrastructure comprises of a number of interlinked and integral components for the operation of the equipment and generation of electricity from solar irradiance. These components include:

- approximately 1,000,000 solar PV modules (panels);
- single axis tracking system;
- solar PV inverter / transformer stations;
- electrical cabling (linking solar arrays);
- an internal collector substation containing transformers, protection equipment, switchgear, batteries and other related equipment;
- internal collector lines (275 kV underground);
- internal access tracks;
- telecommunication equipment;
- electrical control enclosures; and
- security fencing (nominally 2.4 m high) around the solar PV sites.

Each of these components are shown on the proposed plans, provided at **Appendix C** and explained in further detail below.

5.2.1 PV Array

The PV array will cover the majority of the Development Footprint. The number of rows of PV panels within the array depends on the specific module model chosen, and the detailed design and configuration of the subarrays or "blocks". The panels will be mounted on a tracking system and separated into rows with enough physical space to allow access between modules for maintenance purposes and to avoid shading issues. The blocks of PV panels are connected via underground cabling to inverters, with each block connected to an inverter. The modules convert incident photons into electric current and are the principal power generating part of the facility.

5.2.2 Tracking System

The tracking systems will rotate the rows of PV panels from east to west each day to ensure optimal exposure to the sun. The tracking system will be designed and constructed in accordance with the Australian Standards and from the ground to the tip of the PV panels at their maximum tilt angle the panels will have an approximate maximum height of 4 m.

The final tracker supplier and model will be selected during financial close.

5.2.3 Inverters and Transformers

The energy generated by the PV modules will be converted from direct current (DC) to alternating current (AC) energy by the inverters and increased to medium voltage via integrated transformers. The inverters are connected via a network of underground medium voltage cables (33 kV). The cables reticulate AC current to the collector substation. The final buried cable depth will be subject to detailed design; however, the likely buried depth is 600 mm. All DC cabling is anticipated to be between 4 mm and 10 mm thick. The maximum DC system voltage will be 1500 V.

The inverters and transformers will be housed either in standard 40-foot shipping containers, in small (approximately 12 m by 8 m) buildings, or in an outdoor "skid" configuration. The exact type and number of inverters that will be required for the Project will not be finalised until the detailed design phase, which will determine the electricity generating capacity of the facility. Regardless of what configuration and specific inverter model is chosen, any impact on the Development Footprint will be insignificant.

5.2.4 Internal Collector Substation

The Project will facilitate interconnection of the solar farm into the NEM via a new substation and switchyard to be built on site. The substation and switchyard design are currently being developed; however, the indicative footprint is approximately 4 ha.

Each of the site power stations will be interlinked via the underground MV cables back to the onsite substation and switchyard for connection to the existing 275 kVA Calliope River to Gin Gin transmission line. The incoming MV feeders will terminate within 33 kV switchgear at the substation.

A transformer will be utilised within the on-site substation to step this internal 33 kV Medium Voltage to the point of interconnection voltage of 275 kV. 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.

5.2.5 Parking and Access

Access to the facility will be via the existing local road network - Burgess Road and Blackman Gap Road. The proposed access point to the development from the local road network are illustrated in **Figure 5.1** and on the layout plans in **Appendix C**. Sufficient parking to meet the needs of the development will be provided at the substation site.

5.2.6 Fencing

The solar development area and substation area will be fenced for safety and security purposes.

The main temporary components of the Project comprise a construction compound including a laydown area (40 m x 20 m) which will be temporarily fenced during construction.

5.2.7 Ancillary Services

5.2.7.1 Water Supply and Sewer

The Project area is not connected to reticulated water or sewerage infrastructure. During the construction and operational phases, the development will not require any connection to sewer mains. Rainwater 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 four people will be used during the operational phase. Fresh water may need to be trucked in during drought periods and for use as dust suppression during construction.

5.2.7.2 Electricity and Telecommunications

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

5.2.7.3 Maintenance Storage Shed

The maintenance storage shed footprint will be approximately 9 m x 18 m and stand approximately 4.5 m high depending on final design and plant requirements. The maintenance storage shed will consist of a steel structure. This will be used to house spare panels, tracking infrastructure and other ancillary equipment primarily for the ongoing maintenance of the operational Project.

5.2.7.4 Control Building (Workshop / Site Office)

The control building will contain both the site office and workshop/warehouse facilities and will consist of a steel structure. The onsite workshop footprint will be approximately 9 m x 9 m and stand approximately 4.5 m high depending on final design and plant requirements.

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.

The site office located adjacent to the workshop shed 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
  - Anticipated somewhere in the range of 10,000 litres (L) stored in a tank (concrete or metal) and filled via rainwater and delivered water.
- Static water supply for firefighting/bushfire management (in addition to the above water supply)
  - Anticipated somewhere in the range of 30,000 L will be stored in tanks (concrete or metal) across the Project area for firefighting requirements.
- HSTP.
- Power provided either from a direct connection to the local distribution network (11 kV) or via the auxiliary supply of the HV transformer.
- Permanent parking facilities will be provided adjacent to the control building to accommodate the operational workforce. The parking ground cover will be formed of crushed granite or similar.

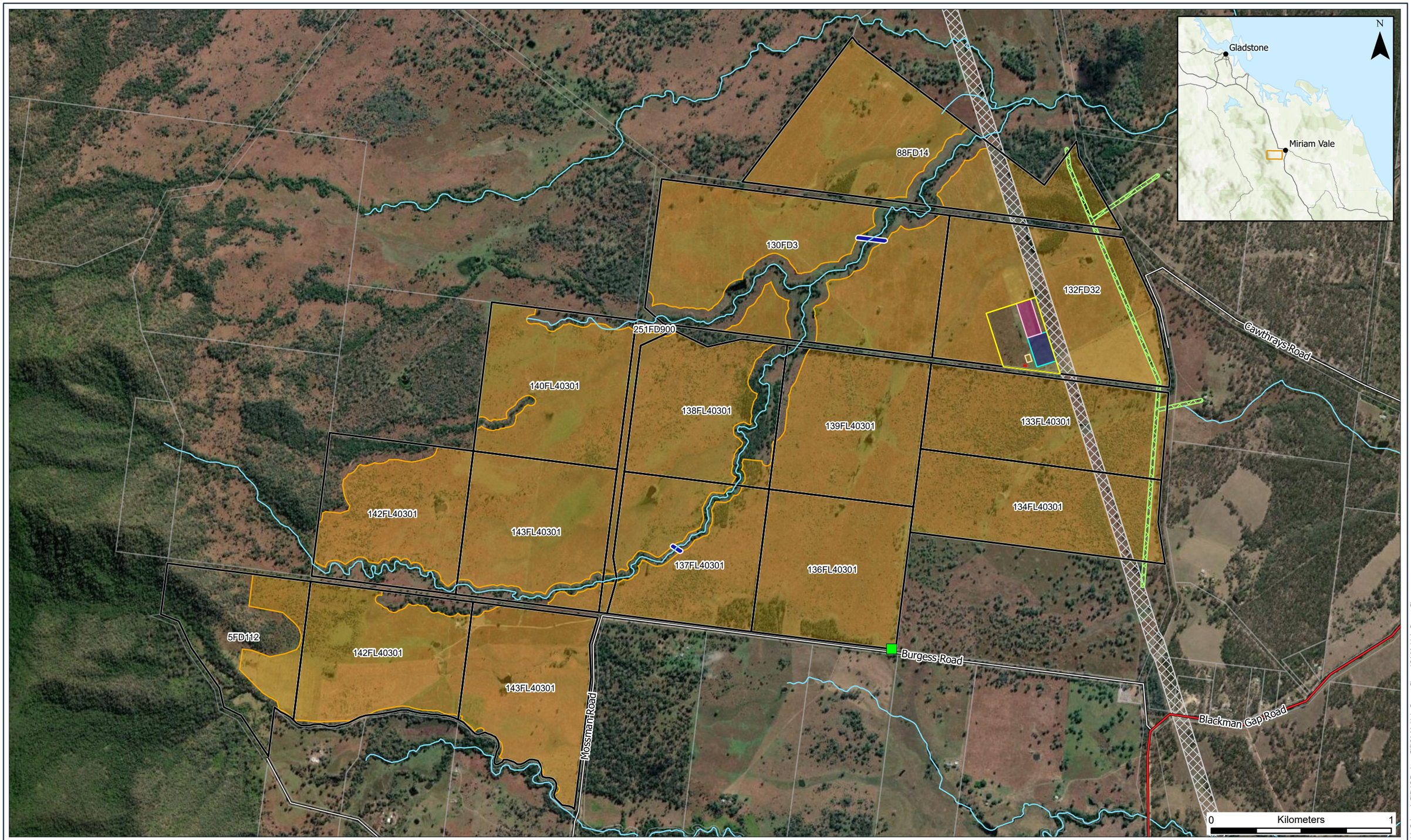
- Adequate rubbish waste/facilities will be established via on site skip bin, which will be emptied weekly or as required. No permanent or long-term storage of rubbish or waste will be on site.

5.2.7.5 Meteorological stations

The solar farm will have two spatially distinct meteorological 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.



Project Layout

MIRIAM VALE SOLAR FARM

- Burgess Road Access Point
- Highway
- Local Road
- Watercourses
- Miriam Vale Solar Farm Development Footprint
- Proposed Substation and Switchyard Area
- Proposed Substation and Swtichyard Area:
- Proposed Substation Development Area
- Proposed Switchyard Development Area
- Proposed Laydown Area
- Proposed Maintenance and Storage Shed Area
- Waterway Crossings
- Powerlink Corridor Easement
- OHTL Exclusion Zone
- Property Boundary
- Lot Type Parcel

Attexo

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FIGURE 5-1

GDA2020 MGA Zone 56

5.3 Vegetation Clearing

The proposed development does not involve the clearing of any regulated vegetation. All remnant vegetation has been avoided other than minor impacts associated with waterway crossings for access tracks. These waterway crossings have been limited to the minimum necessary to facilitate efficient access across the development. Vegetation clearing is otherwise limited to scattered patches of historical plantation (Tasmanian Blue Gum) and immature regrowth vegetation in areas that have been subject to historical clearing.

The proposed development has also been designed with consideration of vegetation clearing which would be "exempt clearing work" if a development approval is granted for the solar farm. This includes clearing for firebreaks, fire management lines and boundary clearing, which would become "exempt clearing work" and would increase vegetation clearing for the project. In all cases, development has been setback a minimum of 10 m from boundaries and temporary infrastructure. All vegetation within the solar development footprint will be established and maintained as an Asset Protection Zone (APZ); cleared of weeds and woody vegetation and have a grass surface maintained at a height of ≤30 cm during the fire danger season.

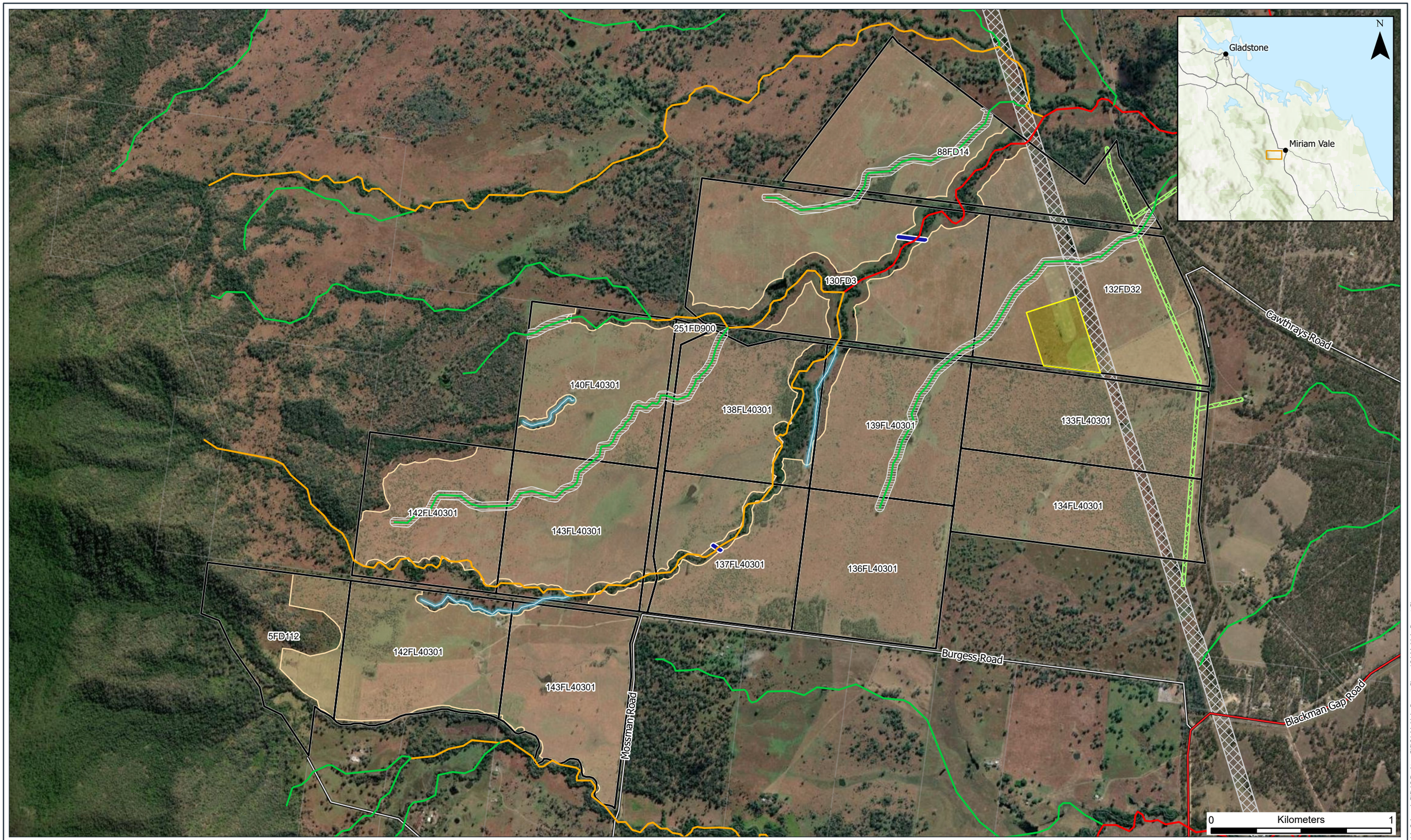
The Development Footprint has also considered a 50 m wide buffer between the several patches of the Subtropical eucalypt floodplain TEC and any development. The buffer has been nominated based on advice received by DCCEEW that any impact to areas within 50 m of a TEC may constitute an impact to the TEC. The buffer also ensures that the extent of the TEC is not reduced.

5.4 Waterways

Site verification of waterways undertaken by Attexo in October 2023, identified three (Green – Low Risk) waterways mapped by the State of Queensland to not possess the physical and hydrological attributes necessary for a waterway under the Fisheries Act. As there was no observable difference between the surrounding pasture and the mapped water feature, the waterway was deemed likely to be a shallow drainage line that provides no aquatic habitat value under present conditions. As such, these three waterway areas are within the Development Footprint.

Field-verified waterways within the Project area are illustrated on **Figure 5.2** and have been avoided and buffered by the development footprint.

Recent updates to the *Queensland waterways for waterway barrier works* spatial data layer indicate a number of additional Green – Low Risk waterways within the Project area; however, these were not observed as waterways during the field verification activities.



Field Verified Waterways

MIRIAM VALE SOLAR FARM

- Highway
- Local Road
- Newly Mapped Waterway
- Waterway Features Absent
- Miriam Vale Solar Farm Development Footprint
- Proposed Substation and Switchyard Area
- Waterway Crossings
- OHTL Exclusion Zone
- Powerlink Corridor Easement
- Property Boundary
- Lot Type Parcel

Waterways Barrier Works:

- Low
- Moderate
- High
- Major

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FIGURE 5-2

GDA2020 MGA Zone 56

5.5 Overhead Powerline Relocation

Where practicable, the Project design has sought to avoid the existing 22 kV OHTL operated by Energy Queensland within the eastern extent of the Project area. Whilst the 20 m exclusion zone has been adopted for the majority of the design, there is one section where a minor relocation of the OHTL is proposed as it is a practical solution to maximising the efficiency of the Project design (see Figure 5.3). Subject to detailed design and subsequent approval by Energy Queensland, this section of the existing powerline is proposed to be relocated underground where it intersects the Project area.

In the event the OHTL cannot be relocated underground, or an alternative solution determined, the Solar Farm footprint will be reduced to accommodate the OHTL exclusion zone.

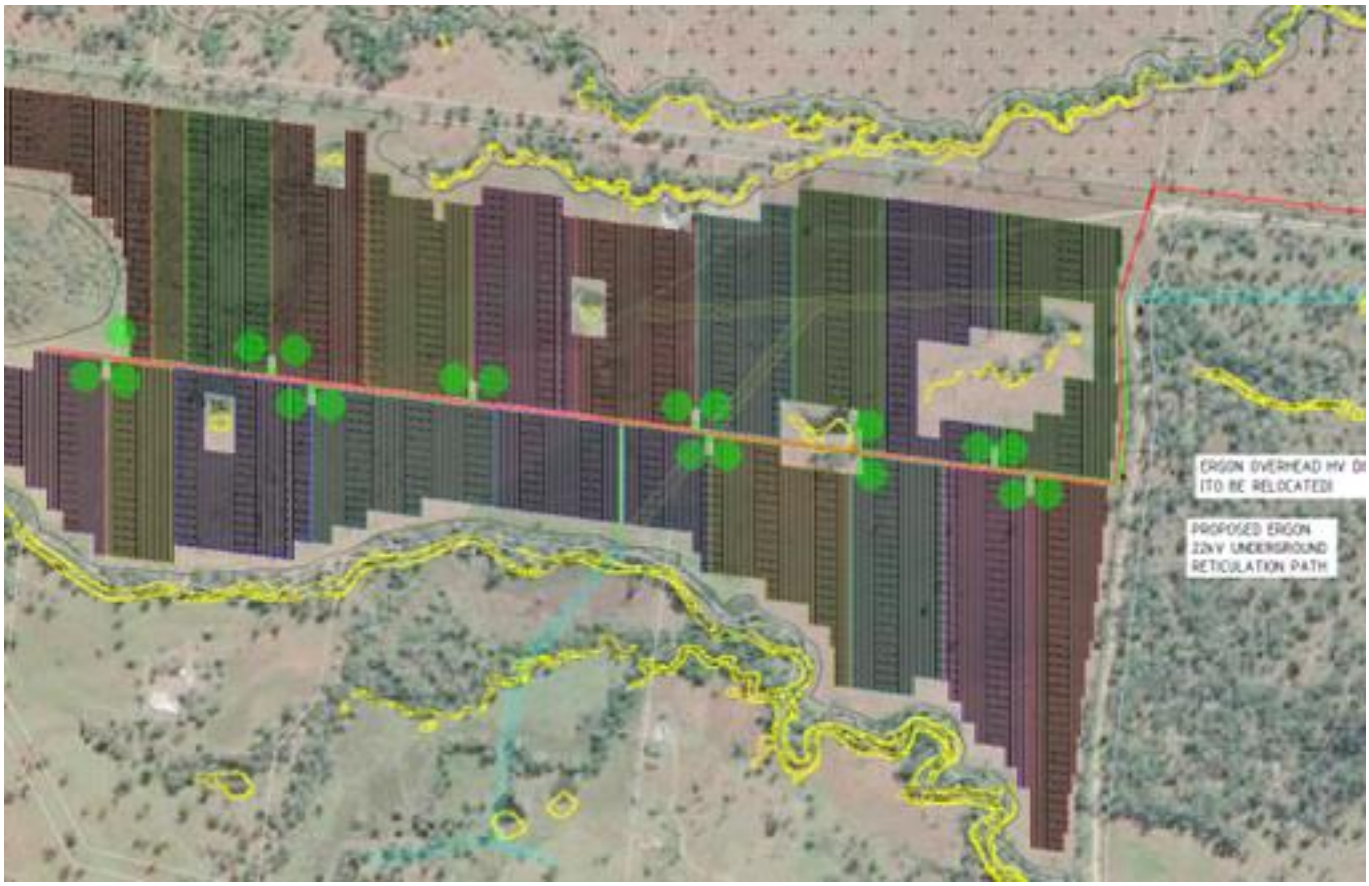

Figure 5.3: Proposed Powerline Relocation Path

5.6 Construction

The detailed design, specific layout and electricity generating capacity have not been confirmed at this stage of the Project, and therefore construction methods have not yet been finalised. Private Energy Partners (Quinbrook Infrastructure Partners) will employ and manage multiple contractors, each assigned to specific tasks within their expertise; streamlining construction for efficiency and quality.

Private Energy Partners will ensure the Project is designed and constructed in accordance with relevant standards, with the with the infrastructure to be signed off by a qualified Registered Professional Engineer of Queensland (RPEQ) prior to operation.

5.6.1 Stages

Construction of the Project is anticipated to begin in Q4 2025 and is expected to take 18-24 months. An indicative timeline is given in **Table 5.1** (on the lower end of what is likely to transpire), 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:

1. Detailed design of the solar farm, procurement of all necessary equipment and materials, and the awarding of sub-contracts for the different packages of work. Procurement of longer lead items will continue throughout the Project.
2. 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.
3. 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.
4. Installation of electrical and communications cables in underground trenches that run from the combiner boxes to power conversion stations and the onsite substation.
5. Tracker assembly which involves the installation of tracker 'torque tubes' on top of the vertical steel posts, along with tracking motors and gearing systems. Solar modules are then mounted on the torque tubes using brackets and wired to 'combiner boxes' located at the end of the tracker arrays.
6. Installation of power conversion stations on piles or concrete pads.
7. Construction of the collector substations including transformers, switchgear, control building, backup diesel generator, fencing and lighting protection. The operations and maintenance buildings may be installed adjacent to the substations or another part of the site.
8. Commissioning of the solar farm which includes testing of all equipment and commissioning tests required under the electrical connection agreement.

Table 5.1: Indicative construction timeline

Stage	Month																	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Design and Procurement																		
Early works																		
Piling																		
Tracker Assembly																		
Trenching																		
Power Conversion Stations																		
Substation Construction																		
Commissioning																		
Handover and Operations																		

Delivery of equipment and materials will be made throughout the construction period with the peak of deliveries commencing just prior to piling and finishing at the start of commissioning. More details on deliveries can be found within the Traffic Impact Assessment found at **Appendix E** and further discussed in **Section 7.2**.

Ground disturbance and earthworks during construction would be kept to a minimum through the use of pile foundations and avoiding infrastructure in steep areas of land. Groundcover will be maintained where practicable and disturbed areas will be rehabilitated after construction.

5.6.2 Hours of Construction

Most construction work, including piling, trenching and deliveries, will be undertaken during standard construction hours: Monday to Saturday 6:30am to 6:30pm.

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

- Tracker assembly and 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.

The above activities are proposed in consideration of the closest neighbour being approximately 200 m from the proposed construction site and no noise impacts are expected.

Any other construction activities outside of standard construction hours, including deliveries, piling and use of heavy-duty mechanical equipment, would only be undertaken in consultation with GRC and in consideration of audible noise impact on nearby residents.

5.6.3 Construction Environmental Management Plan

A Construction Environmental Management Plan (CEMP) will be developed and implemented to manage potential environmental impacts from the construction. The CEMP will address key activities likely to have an environmental impact and implement strategies to protect and manage water quality, waste, flora and fauna, soils (including erosion and sedimentation), air quality, noise and cultural heritage. The CEMP will be finalised during detailed design, will respond to relevant approval conditions and can be provided to GRC upon completion.

All contractors involved in the Project will be required to comply with the CEMP.

5.6.4 Construction Traffic

A Traffic Impact Assessment (TIA) has been prepared by PSA Consulting for the Project and is included as **Appendix E**.

Details of the construction workforce are yet to be confirmed. It is assumed that the Project's workforce will primarily be sourced from the local region, with workers accommodated locally in the townships of Gladstone, Calliope and surrounds. The region has a noted skilled workforce that will be well-suited to the roles associated with construction and operation of the solar farm and substation. Furthermore, the current commencement of construction of the Aldoga Solar Farm in the GRC region will provide opportunities for workers to move from that construction project to the Miriam Vale Project in a complementary manner where timelines allow. At the very least, it is expected that there will be a large proportion of appropriately-skilled and experienced local workers to support the Project. It should be noted that rental stock in Gladstone has previously supported large-scale construction projects such as those associated with the CSG industry approximately 10 years ago. It is expected that this same rental stock will be largely available to support the Project, and other renewable energy projects planned for the region in the coming years.

During construction, the development is estimated to generate approximately 120 vehicle trips per day. Of these trips, the construction workforce is estimated to generate 100 daily trips (50 AM[1] peak period and 50 PM[2] peak period) and heavy vehicles (i.e. bulk material haulage) are estimated to generate 20 daily trips (10 AM peak period and 10 PM peak period). The construction workforce is expected to commute using private vehicles as no existing active or public transport networks are accessible within the Project's vicinity. Alternatively, buses/coaches may be utilised to transport the construction workforce; however, further investigation is required.

Given the remote location and size of the proposed development, it is anticipated that there is a sufficient area to provide non-formalised car-parking spaces in accordance with GRC's 'Minimum On-site Parking Rates' (refer to Table SC6.10.2.1 of the GRC Planning Scheme). The number of car parking spaces to be provided to accommodate the construction workforce is 50 spaces.

5.7 Operation

5.7.1 Hours of Operation

Target commercial operations are anticipated to commence in Q3 2027. The solar farm will be in operation during daylight hours, every day of the year. Operation and maintenance (O&M) activities may occasionally extend beyond daylight hours for corrective and preventative maintenance activities.

The solar farm is anticipated to be manned from 7am until 5pm, every day of the year. The site will also be remotely monitored 24 hours a day, every day of the year.

5.7.2 Operational Workforce

The Project will support up to 30 direct and indirect jobs throughout the operational life of the Project.

The direct operational workforce will consist of approximately 10 full time equivalent (FTE) positions, and up to 10-15 FTE 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.

Private Energy Partners is committed to exploring opportunities to utilise the local workforce during construction and operation phases, with a strong focus on training and engaging First Nation People for their support throughout these stages.

5.7.3 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.); and
- 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.); and
- Any other corrective actions within O&M scope.

[1] Between 7:00am and 8:00am

[2] Between 4:00pm and 5:00pm

5.7.4 Waste

Waste from operations will be generated from the operations and maintenance building. Waste will be general rubbish including putrescible waste, and recyclable material which will be placed into bins and collected for disposal.

5.7.5 Decommissioning

The Project life is up to 40 years. Following the 40-year period a determination will be made whether to:

- Extend the life of the existing infrastructure with increased maintenance, refurbishment and/or replacement of certain components;
- Repower the site with new infrastructure; or
- Decommission the infrastructure and rehabilitate the site.

Decommissioning will be addressed as part of the CEMP but would typically consist of removal of all above-ground infrastructure for recycling or disposal and revegetation of all disturbed land. The land will be returned to its pre-existing condition, or an improved state, to allow for its continued agricultural use.

6. Statutory Framework

This section assesses the Development Application against the relevant assessment benchmarks.

6.1 Planning Act 2016

The Planning Act provides for an efficient, effective, transparent, integrated, coordinated and accountable system of land use planning, development assessment and related matters that facilitates the achievement of ecological sustainability includes:

- State planning policies setting out planning and development assessment policies about matters of State interest for particular regions of the state;
- Regional plans setting out integrated planning and development assessment policies for all of a local government area;
- Planning schemes setting out integrated planning and development assessment policies to protect all or part of a local government area from adverse impacts in urgent or emergent circumstances;
- Planning scheme policies; and
- A development assessment system, including State Assessment and Referral Agency (SARA), for implementing planning instruments and other policies and requirements about development.

The Planning Act regulates and manages development in Queensland, providing a framework for the preparation and implementation of planning instruments. It requires the coordination and integration of State, regional and local planning outcomes. A development permit is required under the Planning Act prior to commencing assessable development.

The relevant planning instruments for the proposal are:

- Central Queensland Regional Plan 2013 (CQ Regional Plan);
- State Planning Policy 2017 (SPP); and
- GRC Planning Scheme 2017.

6.1.1 Assessment Manager

Schedule 8, Table 2, Item 1 (b)(i) of the Planning Regulation states that where development is made assessable by a local categorising instrument the local government is the assessment manager. As such, the assessment manager for this application is GRC.

6.1.2 Use Definition and Level of Assessment

The GRC Planning Scheme defines the proposed solar farm as a 'Renewable Energy Facility' which means:

Premises used for the generation of electricity or energy from renewable (naturally reoccurring) sources.

In accordance with the GRC Planning Scheme a 'Substation' means:

Premises forming part of a transmission grid or supply network under the Electricity Act 1994*, and used for:*

- *converting or transforming electrical energy from one voltage to another*
- *regulating voltage in an electrical circuit*
- *controlling electrical circuits*
- *switching electrical current between circuits*
- *a switchyard, or*

- *communication facilities for 'operating works' as defined under the Electricity Act 1994 or for workforce operational and safety communications.*

The development also includes a range of ancillary infrastructure which do not constitute separately defined uses, including internal collector lines, access tracks, meteorological station, etc.

The proposed solar farm, substation and ancillary infrastructure are located within the Rural Zone. In accordance with Table 5.5.16 – Rural zone, of Part 5 of the GRC Planning Scheme, the proposed use is subject to a Code Assessment process.

6.2 Referral Agencies

The Planning Regulation sets out the requisite referral agencies for development applications. In accordance with Schedule 10 of the Planning Regulation, the following referrals apply:

Table 6.1: Referral Agency

Schedule 10	Referral topic and reason	Referral Agency
Part 9, Division 2, Table 2	Material change of use of premises near a substation site or subject to an easement	Powerlink Australia and Energy Queensland (advice only)

The solar farm and substation layout has been designed to avoid field-verified waterways under the *Fisheries Act 1994*. This aside, limited works will occur within mapped waterways for the establishment of linear infrastructure (internal access tracks). Where a new waterway crossing is required for an access track, it will generally be designed to comply with the ADR for waterway barrier works. Any waterway barrier work that does not meet the requirements of the ADR is assessable development and will require a separate development permit; this will be determined through detailed design.

6.3 Assessment Benchmarks

The Planning Act sets out the matters (assessment benchmarks) against which an assessment manager must assess assessable development. **Table 6.2** lists the assessment benchmarks considered as part of the development.

Table 6.2: Assessment Benchmarks

Document	Assessment Benchmarks	Report Reference
GRC Planning Scheme	• Strategic Framework • Rural Zone Code • Overlay codes: – Biodiversity – Bushfire Hazard – Scenic amenity – Steep Land • Development Design Code • Landscaping Code	Assessment against the relevant assessment benchmarks is set out in **Section 6.3**, with the relevant code tables provided in **Appendix K**.
SPP 2017	As per Part 2.1 of the GRC Planning Scheme 2017, the Minister has identified that the SPP is reflected in the Planning Scheme.	Assessment against the SPP is not required.

Document	Assessment Benchmarks	Report Reference
CQ Regional Plan 2013	As noted in section 2.2 of the GRC Planning Scheme 2017, the Minister has identified that the planning scheme, specifically the strategic framework, appropriately advances the CQ Regional Plan 2013, as it applies to the Planning Scheme.	No further assessment of the regional plan is required.
SDAP	The SDAP Version 3.0 is prescribed under the Planning Act, and provides assessable benchmarks, being State Codes, for assessment of a development by either the assessment manager (i.e., Gladstone Regional Council) or a referral agency where applicable under the Planning Regulation. No State Codes are applicable to the Project.	No further assessment of the SDAP is required.

6.4 Gladstone Regional Council Planning Scheme

The following development provisions apply to the subject site as outlined in the GRC Planning Scheme.

6.4.1 Strategic Framework

The strategic framework sets the policy direction for the GRC Planning Scheme and forms the basis for ensuring appropriate development occurs within the planning scheme area for the life of the planning scheme. The strategic framework is structured with the overarching strategic intent, and with six themes that represent the policy intent of the scheme. **Table 6.3** provides a response to the relevant strategic outcomes in the strategic framework.

Table 6.3: Strategic Outcomes Assessment

Strategic Outcome	Response
Gateway to the World	
12. Agricultural and rural land uses are a valuable economic and social resource and are conserved and sustained. Fragmentation of this resource is not supported.	The proposed solar farm supports the strategic outcome as it will provide a significant economic contribution to the region through its energy generation and construction phase. At the end of the Project life (likely 40 years) the agricultural land (Class B) occupied by the solar farm can be returned to grazing or plantation forestry, which are the most likely agricultural uses of the land. A Preliminary Agricultural Land Assessment is provided at **Appendix J**.
Our Environment and Heritage	
1. Sustainable development allows our communities to meet their present needs while not compromising the ability of future generations to meet their needs.	The Project is a solar farm which promotes clean, renewable energy generation, reducing environmental impact, stimulating economic growth, and enhancing energy stability. These benefits enable communities to meet their present energy needs while safeguarding the ability of future generations to do the same, creating a more sustainable and resilient energy future.
2. Natural places including areas with national, and state environmental significance are protected through appropriate planning and development practices.	The Project area includes areas of MSES and MNES (TECs). The Development Footprint has been designed to avoid the MSES and MNES values. It avoids clearing

Strategic Outcome	Response
Gateway to the World	
	of regulated vegetation and to provide appropriate buffer distances to ensure impacts on areas of high ecological value are minimised. For example, a 50 m wide buffer either side of any TEC area has been applied.
3. Natural places and valuable features of our natural environment are linked through regional and local environmental corridors. The major urban area of Gladstone is separated from those of Boyne Island / Tannum Sands and Calliope by a greenbelt free of any urban development that delineates these urban areas and preserves significant environmental and landscape amenity values.	The Project has been designed to retain and enhance the landscape function of the major riparian corridor through the site. The EAR in **Appendix G** describes his in further detail. The Project will have negligible impact on the landscape and visual amenity of the surrounding area, as detailed within the Landscape and Visual Impact Assessment (LVIA) in **Appendix F**.
5. The environmental values and quality of the region's waters and waterways are protected	The Project has been designed to avoid development within waterways on site, excluding internal access/tracks crossings. The Development Footprint has been designed with appropriate buffer distances from the defining banks of a waterway to ensure impacts are avoided.
9. Development avoids areas affected by natural hazards where these risks can't be mitigated to an acceptable or tolerable level through development design and location measures. Sensitive uses are located in areas free from natural hazards or where the risks from natural hazards are acceptable.	The subject site is affected by bushfire hazards; however, the Project is not considered a sensitive use. A Bushfire Management Plan (BMP) is provided at **Appendix H** and stipulates mitigation measures that will be implemented during the construction and operational phases of the Project.
Our Rural and Coastal Townships and Places	
4. Fragmentation of rural lands in the Rural zone does not occur.	The Project is situated on 603.77 ha of Class B Agricultural Land, with the closest area of Class A Agricultural Land over 70 km from the Project area. Once construction is completed, the land within and surrounding the solar panels will become available for grazing (sheep) capabilities. As noted previously, at the end of the Project life and subsequent decommissioning of aboveground infrastructure, the site can be returned to grazing or other agricultural uses. For further discussion on potential impacts on rural agricultural land, refer to the Preliminary Agricultural Land Assessment provided at **Appendix J**.

6.4.2 Rural Zone

The proposed solar farm and substation are located within the Rural Zone (no precinct) of the GRC Planning Scheme, with the purpose of the zone to:

1. ensure appropriately sized lots, being predominantly very large lots, display rural and landscape character and provide for a wide range of rural uses including cropping, intensive horticulture, intensive animal industries, animal husbandry, grazing, animal keeping and other primary production activities.

2. provide opportunities for non–rural uses that are compatible with agricultural and rural activities, and the landscape character of the rural area where they do not compromise the long–term use of the land for rural purposes.
3. protect or manage significant natural features, resources, and processes, including the capacity for primary production and extractive industry in designated areas.
4. ensure rural uses are not adversely impacted by inappropriate land uses and development.
5. ensure areas of Agricultural Land Classification Class A and B agricultural land are protected for agricultural uses and from fragmentation, alienation or diminished agricultural productivity.
6. the potential for conflict between agricultural and other uses on Agricultural Land Classification Class A and B are minimised.

The proposed solar farm, substation and associated infrastructure is consistent with the purpose of the Rural Zone as it represents a non–rural use that is generally compatible with existing agricultural and rural activities, and the landscape character of the locality. The proposed solar farm will not permanently alienate the land from future agricultural use and at the end of the Project life, following decommissioning, the land occupied by the solar farm can be returned to the most suitable agricultural use.

An assessment of the relevant overall outcomes sought by the Rural Zone and the Project are addressed in **Table 6.4**.

Table 6.4: Overall Outcomes Assessment

Overall Outcome	Response
2.1 *Areas for primary production are conserved and fragmentation is avoided through maintaining appropriate lot sizes, being predominately large lots to support sustainable rural agricultural activities.*	The Project does not require reconfiguration or amalgamation of lots. Grazing activities (sheep) may be possible during the operation of the solar farm. At the end of the Project life (up to 40 years), the solar panels and associated infrastructure will be removed, and the land will be rehabilitated.
2.2 *The viability of both existing and future rural uses and activities are protected from the intrusion of incompatible uses.*	The Project is compatible with the surrounding agricultural land uses. Class B Agricultural Land is present within the Project area and Development Footprint. Once construction is completed, the land within and surrounding the solar panels may become available for grazing (sheep) capabilities. The substation and switching stations will be contained within a fenced hardstand area and will not be accessible for grazing; however, these areas are located outside of classified agricultural land. The Project will value-add and diversify economic opportunities in the region that will support growth in the region.
2.5 *Development does not result in the fragmentation of Agricultural Land Classification Class A and B agricultural land. This applies to reconfiguring a lot except where it has been assessed that there is an overriding need in the public interest for a related material change of use and the reconfiguring of a lot is consistent with the material change of use.*	The Development Footprint contains 603.77 ha of Class B Agricultural Land. Due to the nature of the Project, some agricultural uses may continue to occur on the Project site within and surrounding the solar panels (i.e., sheep grazing). The closest area of Class A Agricultural Land is approximately 70 km to the west of the site and would not be impacted by the Project.

Overall Outcome	Response
	A more detailed assessment of the Project's impact on Class B Agricultural Land is provided in **Section 7.4** and at **Appendix J**. The agricultural assessment suggests that due to the lack of water supply availability and the range of limitation subclasses impacting land use choice across the Project area, irrigated cropping uses are not suitable for the site nor were any single dryland cropping uses suitable whole the whole area mapped as Class B land.
2.6 *Development located adjacent to Agricultural Land Classification Class A and B agricultural land incorporates an adequate separation area to prevent any impact from the agricultural use on the amenity or use on the occupants of the development.*	The solar farm represents a non-rural use that is generally compatible with existing agricultural land and will not impact on surrounding agricultural uses outside of the Project area. The Development Footprint has been designed across 603.77 ha of Class B Agricultural Land. Due to the nature of the Project, some agricultural uses may continue to occur on the Project site within and surrounding the solar panels (i.e., sheep grazing). The closest area of Class A Agricultural Land is approximately 70 km to the west of the site and would not be impacted by the Project. A more detailed assessment of the project's impact on Class B Agricultural Land is provided in **Section 7.4** and at **Appendix J**.
2.9 *Natural features such as creeks, gullies, waterways, wetlands and bushland are retained, managed and separated from adjacent development where possible*	The Project does not involve the clearing of any regulated vegetation. The Development Footprint has been designed to avoid all mapped regulated vegetation other than minor impacts (e.g., access tracks, cable runs) and to include relevant setbacks/buffers to vegetation, such as watercourses and TECs. This will strengthen the landscape ecological function of these riparian corridors through the site. The built form will complement the natural setting of the Project area and ensure agricultural production on adjacent lots is not hindered. A more detailed assessment of the Project's impact on biodiversity matters is provided in **Section 7.5** and at **Appendix G**.
2.10 *Rural land uses incorporate sustainable practices to prevent soil erosion, protect the quality of land resources and water catchments, and maintain habitat values of waterways and native timber and forest areas.*	The Project will not result in significance adverse flooding impacts to neighbouring properties and any increase in flood levels will be wholly contained within the Project site. As noted above, the Development Footprint has been located outside of areas prone to flooding and includes relevant buffers to watercourses. A more detailed assessment of the Project's flooding impacts is provided at **Section 7.1** and at **Appendix D.**

A detailed assessment against the Performance Outcomes and Acceptable Outcomes of the Rural Zone Code is provided in **Appendix K**.

6.4.3 Overlays

A summary of the applicable overlay codes is provided below in **Table 6.5**. A full assessment against the relevant overlay code benchmarks of the following is provided in **Appendix K**.

Table 6.5: Overlays

Overlay	Sub-category	Response
Agricultural Land Classification	Agricultural Land Classification B	A Preliminary Agricultural Land Assessment of the Project's impact on Class B Agricultural Land is provided in **Appendix J**.
Biodiversity	Matters of State Environmental Significance (MSES) – regulated vegetation: • Defined watercourse • Category B – 'endangered' or 'of concern' • Category C – 'endangered' or 'of concern' • Category R – GBR riverine	MSES values across the Project area relate to areas of Category B, C and R vegetation and defined watercourses. The clearing of regulated vegetation has been avoided through the design of the Project. Suitable buffers have been applied to watercourses as discussed in **Section 5.4** to ensure that associated high ecological values are protected. An Ecological Assessment Report is provided in **Appendix G**.
Bushfire Hazard	Very high, high and medium hazard area Potential Impact Buffer	The westernmost part of the subject site contains a minor portion of high to very high bushfire hazard areas which are generally associated with the steeper and more heavily vegetated parts of the site adjoining Bulburin National Park. Medium hazard areas and associated potential impact buffers are generally associated with the riparian vegetation along watercourses and scattered patches of historical plantation (Tasmanian Blue Gum) within the site. The Development Footprint has been strategically designed to avoid the areas of higher bushfire risk. A Bushfire Management Plan is provided in **Appendix H** including the identification of internal boundary fire trails and APZ.
Scenic Amenity	Regional Significance 8	The northeastern corner of Lot 5 on FD112 is mapped as scenically significant to the region; however, the Development Footprint for the Project has been selected to entirely avoid this area. The LVIA in **Appendix F** provides an assessment of the development's potential impact on scenic amenity and concludes that these are likely to be negligible.
Steep Land	-	The Project has been designed to entirely avoid areas of land with a slope greater than 15 percent as development

Overlay	Sub-category	Response
		of solar modules in such areas would be uneconomic. Slopes in the Development Footprint range from 1-6 percent but are generally 1-3 percent.

6.4.4 Assessment Benchmarks

Table 6.6: GRC Planning Scheme Code Responses

Planning Scheme Code	Location of Response
Zone Code	
Rural Zone Code	Appendix K – Gladstone Regional Council Planning Scheme Code Responses
Development Code	
Development Design Code	Appendix K – Gladstone Regional Council Planning Scheme Code Responses
Landscaping Code	Appendix K – Gladstone Regional Council Planning Scheme Code Responses
Overlay Code	
Biodiversity Overlay Code	Appendix K – Gladstone Regional Council Planning Scheme Code Responses
Bushfire Hazard Overlay Code	Appendix K – Gladstone Regional Council Planning Scheme Code Responses
Scenic Amenity Overlay Code	Appendix K – Gladstone Regional Council Planning Scheme Code Responses
Steep Land Overlay Code	Appendix K – Gladstone Regional Council Planning Scheme Code Responses

7. Assessment of Proposed Development

7.1 Surface Water

Refer to the 'Flood Impact Assessment and Stormwater Management Plan' prepared by WaterTechnology (**Appendix D**).

7.1.1 Flood

A detailed hydraulic model was developed to assess flood behaviour within the Project area. Due to the broad study area and the requirement to map all flowpaths within the study area, a rain on grid model was developed. The model results show that overland flooding is typified by slow-moving shallow sheet flow with sections of deeper, faster moving water confined to designated watercourses and defined flow paths. The model results have found that the proposed substation site would be within a minor flow path and may require elevation above the recommended flood immunity event level.

The flood mapping produced for this investigation demonstrates that the proposed solar farm itself has negligible impacts to flood conditions. The impact on flood levels is localised to the substation, with some increases apparent. There may be some pooling of water during flood events at the southern boundary of the substation, within the paper road reserve. The need for potential mitigation measures should be discussed with GRC as the Project moves through more detailed design phases.

7.1.2 Stormwater Management

The Stormwater Management Plan (SMP) includes the proposed substation site – no SMP is required for the balance of the solar farm as this area will be a pervious surface. For operational stormwater management, modelling for the SMP estimates that the hardstand area for the substation and other facilities will require a combination of swales and bioretention basins. Detailed design would be required to further understand stormwater management requirements. This will, at a conceptual level, ensure that the Project appropriately manages water quality through the operational phase.

The SMP also identifies principles and measures for the management of water quality during the construction phase.

7.2 Traffic and Access

Refer to the 'Traffic Impact Assessment' prepared by PSA Consulting (**Appendix E**).

A detailed intersection analysis is considered unnecessary for the Project as the maximum traffic volumes generated are estimated to be substantially less than those outlined in the Department of Transport and Main Road's *QLD Road Planning Design Manual, Chapter 13 – Intersections* (or found at Table 6 of the TIA). In addition, any traffic impacts are considered to be minor and restricted to within the relatively short construction period as traffic generated during the operation of the Project will be insignificant, with only up to 4 daily trips for electrical and civil operations.

The new egress and ingress access point proposed on Burgess Road will require a Basic Left Turn (BAL) and Basic Right Turn (BAR) treatment in accordance with the *Austroads' Guide to Road Design Part 4: Intersections and Crossing*. The proposed site access complies with the required Safe Intersection Sight Distance (SISD) for a design speed of 110 km/hr, with a SISD of 193 m eastbound and westbound. Based on the swept path analysis of the largest vehicle anticipated to travel to and from the Project site, being a 19 m semi-trailer, no disruptions are anticipated to the current operation of the road network, particularly Burgess Road.

As the development will generate low traffic volumes during typical road network AM and PM peak hour periods[3], the TIA has confirmed that there will no discernible impact to the existing operation of the local and state road network and therefore road upgrades are not deemed necessary.

The safety assessment undertaken for the TIA demonstrated that there is not expected to be any worsening of the safety of the Blackman Gap and Burgess Road intersection.

7.3 Landscape and Visual Amenity

Refer to the Landscape and Visual Impact Assessment (LVIA) prepared by SMEC (**Appendix F**).

The LVIA confirmed that the Project area has low visual prominence in the surrounding region. The LVIA study area included numerous viewpoints from where there may be a visual impact associated with the Project. The Project is situated within and nearby to landscape character types including Farmland, Bushland, Hilly Forest and Township (Miriam Vale) – these have a medium to high sensitivity to landscape and visual change.

The LVIA assessed seven separate viewpoints for potential visual impact associated with the Project and concluded that the visual impacts associated with the solar farm and substation will be negligible or minor for all viewpoints; this is also demonstrated through two photomontages within **Appendix F**.

The LVIA also includes a Landscape Mitigation Plan and a Glare Assessment.

The Project will not have a notable impact on the landscape and visual amenity associated with the rural surroundings. As per the requirements of the GRC Planning Scheme, the Project will visually integrate with natural topographic features to avoid adverse impacts to key scenic view lines from prominent locations.

7.4 Agricultural Land Assessment

Approximately 603.77 ha of the development footprint is mapped as Class B Agricultural Land within the GRC Planning Scheme. The potential impacts of the Project on the agricultural land values of the Project area are identified as part of a 'Preliminary Agricultural Land Assessment' (P-ALA) prepared by Attexo (**Appendix J**).

The P-ALA considers that only seven dryland cropping land uses from the Queensland regional suitability framework are relevant to the Project area (including pineapple, soybean, spotted gum and improved pasture). However, due to the range of limitations impacting land use choice, no single dryland cropping use is considered likely to be suitable across the whole Project area mapped as Class B Agricultural Land within the Project area. To make full use of Class B land, several different crops would need to be planted due to the varying limitations across the site, which is not practicable or economically realistic.

Owing to the unlikely availability of an irrigation water supply, the Project area is not considered appropriate for any of the irrigation cropping land uses listed in Table 4-2 of the P-ALA (**Appendix J**).

The P-ALA determines that the development will not have a permanent or significant impact on the productivity, viability or use of agricultural land at the site or adjoining properties. During the operation of the solar farm, grazing of sheep may occur throughout the Project area. Sheep grazing is commonly known to co-exist with solar farms (also referred to as solar grazing) however further site suitability consideration is required. Once the Project is decommissioned, the solar development area can continue to be grazed or used for other agricultural purposes (e.g. dryland cropping).

[3] 7:00am to 8:00am, and 4:00pm and 5:00pm

7.5 Biodiversity

The Project's potential impacts on ecological vales of the site are discussed within the EAR prepared by Attexo (**Appendix G**).

There will be no clearing of regulated vegetation for the Project. Most of the Project area (about 95%) consists of open grassland that has historically been cleared for pastoral and plantation activities (refer to Figure 5.1 of **Appendix G**). These grasslands are mapped as non-remnant and contain smaller patches of immature regrowth *Corymbia* and *Acacia* shrubland. The remaining 5% consists of:

- Several patches of woodland dominated by *Eucalyptus* and *Corymbia* species (identified as RE 12.12.1) associated with the paper road reserve between properties (outside of the Project development footprint). These patches are infested with restricted weed species such as Lantana.
- Mature riparian vegetation associated with tributaries of Skeleton Creek and House Creek with canopy species including *E. tereticornis*, *E. crebra*, *Melaleuca viminalis* and *M. quinquenervia* (identified as communities of RE 12.3.3 and RE 12.3). Several other key species were observed in the sub-canopy/shrub layer including *Casuarina cunninghamiana* and *Angophora subvelutina*. The riparian vegetation communities were observed to contain numerous weed species including Lantana, Prickly Pear, Rubber Vine and Mother of Millions.
- Several patches of historical plantation trees (Tasmanian Blue Gum – *E. globulus*) are still present within the Project area. These plantation forests are isolated from other large tracts of remnant vegetation and were also established in previously cleared, cultivated or pasture improved areas and do not support the structural or species diversity which would be expected in remnant vegetation types. Several weed species were also found to be abundant within these plantation areas including, Lantana and Prickly Pear.

A comprehensive Biosecurity Management Plan will be developed and implemented as part of the Environmental Management Framework for the construction and ongoing operation of the Project. The management plan will include species-specific weed prevention, management and monitoring measures to control invasive weed species.

Compliance with the Biodiversity Overlay Code

The Project is to be assessed in against the GRC Planning Scheme's biodiversity overlay code due to the presence of MSES – Regulated Vegetation (intersecting a defined watercourse) within the broader Project area.

The Project does not comply with the minimum width MSES buffers stipulated in Acceptable Outcome 2 (AO) outlined in **Table 7.1**.

Table 7.1: Table 8.2.3.3 Assessment Benchmarks for the Biodiversity overlay code

Performance Outcomes	Acceptable Outcomes
Environmental protection and buffering	
PO2 Development is setback from and provides an adequate vegetated buffer to significant vegetation, habitats and areas containing MSES in order to: 1. protect these areas and their values from threatening processes 2. avoid edge effects such as undesirable microclimate effects and threats from non–native or pest fauna or flora, and 3. maintain and enhance ecological connectivity. *Note—Any setbacks or other areas required for bushfire management, safety, recreation, maintenance or any other purpose are provided in addition to a vegetated buffer provided for ecological and environmental protection purposes.*	AO2 A buffer extending from the outside edge of an area of MSES is provided and has a minimum width of: 1. 200m where located outside an urban area, or 2. 50m where located within an urban area.

Performance Outcomes	Acceptable Outcomes
Environmental protection and buffering	
Note—An alternative buffer width may be proposed where buffers for significant species and ecological communities, including areas of habitat for listed threatened and migratory species, are based on best practice and current scientific knowledge of individual species requirements and supported by an ecological assessment. Other legislation, including the Nature Conservation Act and EPBC Act may establish other requirements with which applicants must comply.	

No formal buffers currently exist to protect the riparian vegetation (MSES) within the Project area from threatening processes and edge effects associated with the ongoing agricultural uses on the site. This is evidenced through the generally degraded nature of these corridors and the high levels of weed infestation therein.

The Project is located outside an urban area and AO2 suggests a minimum buffer of 200 m extending from the outside edge of the MSES area. The Project proposes to meet the PO through the application of reduced buffers, but through the protection and enhancement of the ecological corridors within the Project area.

Waterway assessments undertaken by Attexo concluded that at three mapped waterways (Stream order 1), which overlay with mapped areas of MSES, there were no observable difference between the surrounding pasture and the mapped water feature, and thus it is considered that these areas are only shallow drainage lines that provides no aquatic habitat for any significant flora or fauna species under present conditions. Based on the information obtained and given the lack of defining physical and hydrological waterway attributes, no waterways are present in these locations.

A significant portion of the MSES within the Project area overlap with Stream Order 2 and 3 watercourses which also represents areas of the Subtropical eucalypt floodplain forest and woodland of the New South Wales North Coast and South East Queensland bioregions TEC. The development footprint has considered a 50m wide buffer either side of the TEC patches and an additional minimum 10 m Stream order 2 and 3 buffer (minimum 120 m total buffer of the MSES centreline). The TEC buffer has been nominated based on advice received by the DCCEEW and is considered sufficient to minimise impacts to the TEC and therefore is also considered sufficient for minimising impacts to MSES.

In those areas where MSES overlap with Stream Order 2 and 3 watercourses but are not within TEC patches, a minimum buffer of 50 m (25 m either side of the MSES centreline) has been applied. It is considered that a minimum buffer of 50 m is sufficient to maintain and enhance connectivity between large tracts of riparian vegetation, and in between areas of TEC patches.

The riparian corridors within the Project area are substantially degraded through weed infestations at present. Furthermore, the corridors are presently suffering from edge effects associated with the historical agricultural pursuits within the broader Project area.

In addition to buffers, to further protect areas of MSES and areas of high ecological value from threatening processes, a biosecurity management plan, fauna management plan and a broader Environmental Management Framework will be developed and implemented prior to construction works. These management plans will require actions such as weed and pest eradication and fencing. The implementation of these plans will ensure the maintenance and enhancement of ecological connectivity.

Through the avoidance of higher order watercourses with presented evidence of suitable habitat for aquatic flora and fauna species and TEC areas, ecological connectivity will be maintained and enhanced. The watercourses and riparian areas which traverse the Project area will be retained as functional connectivity corridors for flora and fauna for the life of the Project.

The EAR for the Project is included as **Appendix G**. A comprehensive response to the biodiversity overlay code provided in **Appendix K**.

7.6 Bushfire

Bushfire poses a risk to the Project area due to its proximity to surrounding farmland and the Bulburin National Park which contains large continuous tracts of woodland and grassland vegetation. Fires could start because of sparks from the operation of equipment and machinery associated with agricultural activities and planned fuel hazard reduction or biodiversity conservation outcomes. The construction and operation of the Project also poses a fire risk due to electrical faults, use of tracked earthmoving machinery on rocky ground, vehicle parking/driving in long grass areas and workers smoking.

A Bushfire Management Plan has been prepared by Land and Environment Consultants (**Appendix H**) to include management control measures that have been considered during the design of the Project and to be implemented during the construction and operation phases of the Project to manage and mitigate impacts. These control measures will reduce the risk of bushfire hazards to an acceptable level and include:

- the establishment and maintenance of perimeter fire breaks, which include:
  - 10 to 15 m width fire break around the Project area boundary to provide access and space for fire fighters to operate;
  - 10 m width fire break around temporary Project infrastructure such as construction facilities and laydown areas.
- the establishment and maintenance of the solar development area as an APZ, which requires:
  - grassland to be kept at ≤30 cm in height during the fire danger season;
  - weeds and woody regrowth to be removed;
  - a minimum separation distance of 6 m between solar panel banks.
- internal access roads will be constructed and maintained in accordance with relevant design specifications for Category 1 fire-fighter vehicles by the New South Wales Rural Fire Service (NSW RFS 2016)
- appropriate disposal of vegetation waste from clearing works (i.e. mulching)
- provision of 40,000 L of water storage (metal or concrete tanks) and supply for firefighting purposes
- installation of reflective wayfinding signage to identify Project infrastructure, water storage tanks and no-through roads;
- all buildings and structures will comply with the relevant Queensland and national building codes and standards including fire detection and first attack fire-fighting equipment and safe access and egress.

An Emergency Management Plan (EMP) will be developed prior to construction in consultation with relevant emergency service providers and stakeholders, including Queensland Fire and Emergency Services, to include measures to respond to risk of bushfire as outlined in the BMP (**Appendix H**). A fire-fighter operations plan will also be developed and provided to the Rural Fire Brigade detailing key information require for firefighting purposes within the Project area (i.e. water supply tanks, location of infrastructure, operational guidelines for fire control, key contact information, etc.).

7.7 Noise

Refer to the 'Noise Impact Assessment' prepared by Wood PLC (**Appendix M**).

The operation of the Solar Farm and Substation is not predicted to generate noise levels during the daytime (7:00am to 6:00pm) which would exceed the noise criteria outlined in the *Environmental Protection (Noise) Policy* (2019) (EPP (Noise)). The highest predicted level of 29 A-weighted decibel (dB(A)) is well below the EPP (Noise) noise criteria of 35 dB(A) (indoors) and 42 dB(A) (outdoors) for the daytime.

The Project is expected to operate substantially during the daytime, as the PV cells in the solar panels require access to sunlight to produce electricity. However, during certain times of the year (i.e., summer) when the sun rises before

7:00am and sets after 6:00pm, the solar farm would be in operation outside of daytime hours. The assessment concludes that predicted noise levels will also be compliant with evening (6:00pm to 10:00pm) and nighttime (10:00pm to 7:00am) noise criteria at all noise sensitive receiver locations.

7.8 Erosion and Sedimentation

Refer to the 'Preliminary Erosion and Sedimentation Control Plan' (P-ESCP) prepared by Attexo (**Appendix I**).

Erosion (dust) and sediment transport have the potential to impact on environmental values identified for the Project, as described in Table 3-8 of the P-ESCP. These impacts include, but are not limited to:

- Increased opportunity for transport of pollutants via soil particles resulting in reduced water quality;
- Injury or mortality to aquatic organisms (flora and fauna) associated with reduced overall water quality, light penetration and smothering by sediment resulting in suffocation;
- Loss of habitat due to dust generation and subsequent smothering of plants; and
- Loss of productive topsoils resulting reduction of agricultural productivity.

The P-ESCP has identified key principles to effectively minimise erosion and sedimentation risk as part of the planning and design process for the Project. These principles will be considered during the detailed design work which will be completed by an EPC contractor, and include:

- Design, situate and co-locate infrastructure to make best use of existing topography to aid drainage and minimise disturbance and erosion.
- Ensure sufficient data is available (e.g. soil characteristics, rainfall and contour data etc.) to inform suitable ESC measures.
- Consider local constraints (soils, topography and hydrology, etc.) when determining the location of ESC measures and stockpiles.
- Develop staged ESCPs to be effective during all construction phases.
- Consider soil characteristics in the development of ESCPs, in particular the avoidance and / or treatment of dispersive soils and soils prone to dust generation.
- Avoid the use of structures that pond water and can cause tunnel erosion.
- Use back-push diversion banks in lieu of channels where practicable for temporary flow diversion.
- Ameliorate dispersive soils, particularly in cable trenches and on fill embankments, where there is a high risk of tunnel erosion.
- Position infrastructure to minimise watercourse crossings and instream works.

Additional specific on-ground erosion (including dust), drainage and sediment controls and strategies will be determined and implemented as part of site-specific construction ESCPs and CEMPs. ESCPs will be developed for all stages of the construction phase in accordance with all relevant guidelines established by the P-ESCP. An ESC monitoring and maintenance program(s) will also be developed by the EPC contractor prior to the commencement of construction works to ensure all ESC monitoring and maintenance controls are in place and appropriate reporting requirements have been established. This is to ensure any ESC related incidents are logged, responded to, and addressed in a timely manner to reduce the potential for significant impact.

8. Conclusion

Attexo Group has been engaged by Private Energy Partners to seek a development permit for the establishment of a solar farm, substation and ancillary uses (e.g. internal collector lines) at 292 Cawthrays Road, Colosseum, within the GRC local government area. The Project is situated across 14 land parcels and has a total development footprint of approximately 926 ha.

The Project has the potential to provide up to 1 GW of solar power into the NEM.

This Development Application seeks:

- Development permit for Material Change of Use for a Renewable Energy Facility (Solar Farm); and
- Development permit for Material Change of Use for a Substation.

This Planning Report and supporting documentation provides an assessment of the Project against the *Our Place Our Plan Gladstone Regional Council Planning Scheme* (Version 2, July 2017), which demonstrate the Project represents a suitable land use outcome for the site which will benefit the local community and region. It is therefore requested that the Project receives a development permit subject to reasonable and relevant conditions.

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Appendix A

Development Application Form

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Appendix B

Owner's Consent

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Appendix C

Development Plans

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Appendix D

Flooding Impact Assessment and Stormwater Management

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Appendix E

Traffic Impact Assessment

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Appendix F

Landscape and Visual Impact Assessment

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Appendix G

Ecological Assessment Report

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Appendix H

Bushfire Hazard Report

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Appendix I

Preliminary Erosion and Sediment Control Plan

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Appendix J

Preliminary Agricultural Land Assessment

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Appendix K

Gladstone Regional Council Planning Scheme Code Assessment

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Appendix L

Gladstone Regional Council Pre-Lodgement Advice

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Appendix M

Noise Impact Assessment