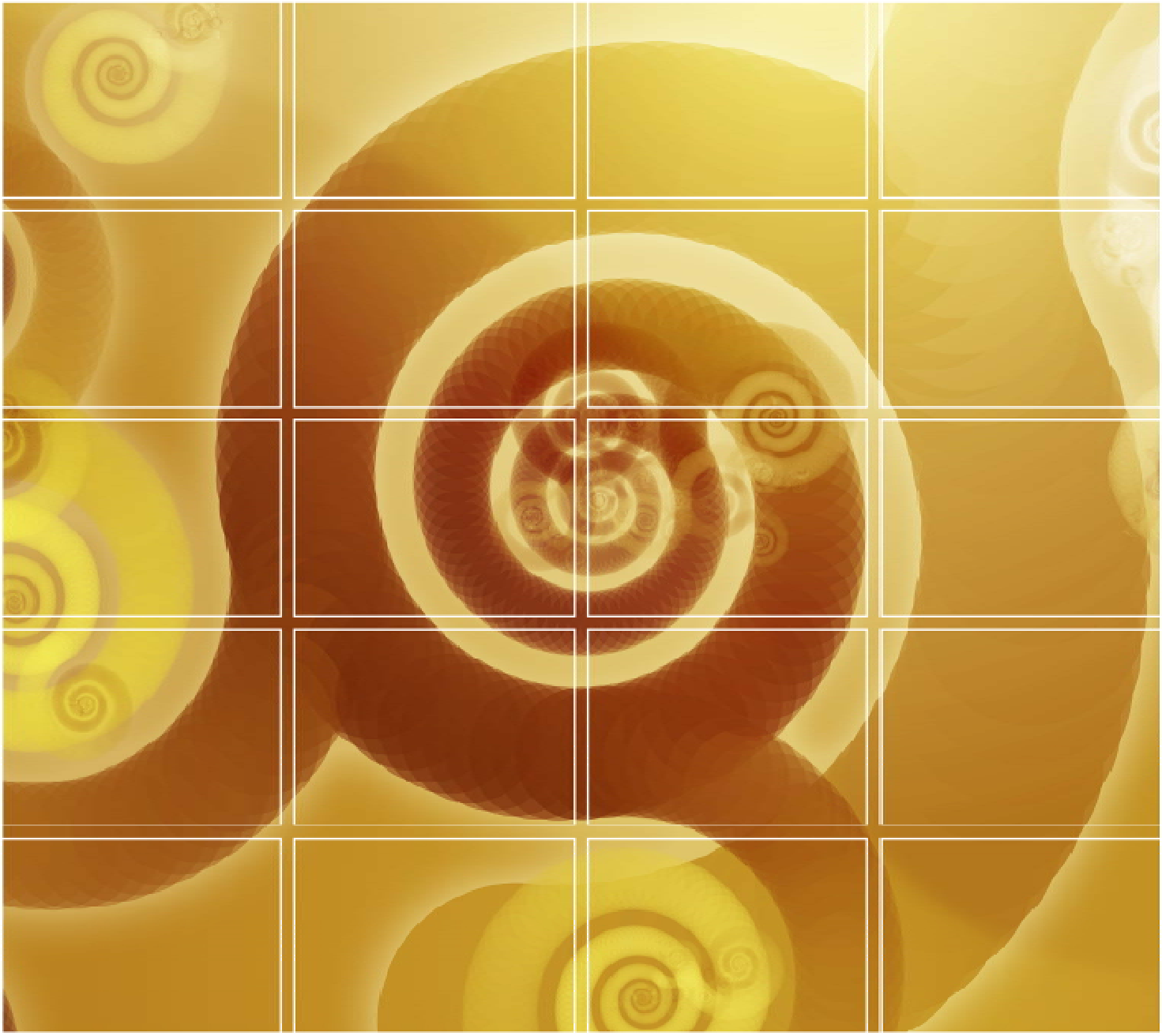

Bluff Solar Farm

Development Application for Material Change of Use—Renewable Energy Facility and Reconfiguring a Lot (2 lots into 4 lots), Subdivision by Lease Agreement (2 lots) and Access Easement

Planning Report (Final)

Bluff Solar Farm Pty Limited

April 2017

0387539

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ERM

Approved by:	Michael Rookwood
Position:	*Project Manager*
Signed:	
Date:	13 April, 2017

Approved by:	Alan Simonic
Position:	*Partner Director*
Signed:	
Date:	13 April, 2017

Environmental Resources Management Australia Pty Ltd Quality System

Bluff Solar Farm

Planning Report (Final)

Bluff Solar Farm Pty Limited

April 2017

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1 INTRODUCTION

1.1 SITE DETAILS

Address	Capricorn Highway, Bluff, Queensland, 4702
Real property description	Part of Lot 79 on SP238443 and Part of Lot 723 on SP129824 (access only)
Site area	455.4ha (Lot 79) & 18.9 (Lot 723)
Owner	Colin William Goodwin (Lot 79) and Department of Transport and Main Roads (Lot 723)
Local government	Central Highlands Regional Council
Planning scheme	Central Highlands Regional Council Planning Scheme 2016
Planning Scheme zone	Rural – Lot 79 Community Facility – Lot 723 (access purposes only)
Regional plan	Central Queensland Regional Plan

1.2 DEVELOPMENT APPLICATION SUMMARY

Application type	Development Permit for: • Material Change of Use - Renewable Energy Facility (Solar Farm) • Reconfiguring a Lot (2 lots into 4 lots), Subdivision by Lease Agreement (2 lots) and Access Easement	
Applicant	Bluff Solar Farm Pty Limited c/- Environmental Resources Management Australia Pty Ltd	
Proposed development (Project)	The Project involves construction of a large scale solar over two (2) stages. Each stage has a separate lease area, with Stage 1 being 180ha and Stage 2 being 152ha. A substation is also proposed to facilitate the connection to the grid for each stage, with a new freehold lot required by Ergon Energy over these substations. Access to the Project is proposed via the existing access location off the Capricorn Highway across the rail corridor identified as Lot 723 on SP129824.	
Level of assessment	Material Change of Use – Impact Assessable Reconfiguring a Lot – Impact Assessable	
Referral	State Assessment & Referral/Advice Agencies: • Department of Transport and Main Roads *SPR 2009, Schedule 7, Table 3, Item 15A - Railways* • Department of Transport and Main Roads *SPR 2009, Schedule 7, Table 3 , Item 1 - State Controlled Roads* • Ergon Energy & Powerlink (Advice Agency) *SPR 2009, Schedule 7, Table 2, Item 21 and Table 3, Item 7 – Electricity Infrastructure*	
Planning scheme overlays	• Biodiversity • Bushfire Hazard	• Regional Infrastructure • Flood Hazard
Public notification	15 business days	

1.3 OVERVIEW/PURPOSE

This Planning Report has been prepared by Environmental Resources Management Australia Pty Ltd (ERM) on behalf of Bluff Solar Farm Pty Limited (part of Infigen Energy) in support of a Development Application for Material Change of Use for Renewable Energy Facility (Solar Farm), and Reconfiguring a Lot (2 lots into 4 lots), Subdivision by Lease Agreement (2 lots) and Access Easement, over land described as part of Lot 79 on SP238443 and part of Lot 723 on SP129824 (for access purposes only), Capricorn Highway, Bluff, for the proposed Bluff Solar Farm (the Project).

Lot 79 has a total area of 455.4ha, with the proposed lease area of approximately 322ha, which will accommodate a development footprint for the facility of approximately 270ha. The Project is located 2km west of the township of Bluff, 15km east of the township of Blackwater, and 90km east of Emerald, within the Central Highlands Regional Council (Council) Local Government Area (LGA). Note Lot 723 is included in the development application due to site access across this lot (rail corridor).

The Project involves the subdivision of the lot by lease agreement to facilitate the development of the Bluff Solar Farm, with the associated substations proposed on two (2) freehold lots and associated access easement over the access track to provide lawful access to the new lots. The Project is likely to be constructed in two (2) stages, with a maximum capacity of approximately 250MW.

The Project includes construction of solar facility including photovoltaic panels and tracking system, switchyards, energy storage batteries and the provision of on-site facilities associated with the Project's operation. Access across the existing rail crossing is included due to the rail corridor in this locality being part of a separate freehold lot. Refer to *Annex A* – Proposal Plans.

Under the Central Highlands Regional Council Planning Scheme (the planning scheme), Lot 79 is zoned Rural, and Lot 723 Community Facility, with the level of assessment attributed to the proposed use identified in Part 5 of the Planning Scheme as **'Impact Assessable'** for the Material Change of Use, and **'Impact Assessable'** for the Reconfiguring a Lot component, as a result of the creation of two (2) new lots and lease agreements of more than 10 years under the minimum prescribed lot size for the Rural Zone. It should be noted that a Renewable Energy Facility is Code Assessable in Rural Zones, however due to access across Lot 723, triggers Impact Assessment.

The Development Application also requires referral to the State Assessment and Referral Agency (SARA) and Advice Agencies in accordance with the following triggers under the *Sustainable Planning Regulation 2009* (SPR 2009):

- Department of Transport and Main Roads (*Schedule 7, Table 3, Item 1 State-controlled Roads and Item 15A - Railway*); and
- Ergon Energy or Powerlink as Advice Agencies (*Schedule 7, Table 2, Item 21 and Table 3, Item 7 – Electricity Infrastructure*).

In order to support the Project and to assist CHRC in its assessment of the Development Application, the following expert reports have been prepared and are attached as annexures:

- Ecological Assessment Report prepared by ERM, Project Reference 0387539_03, February 2017 (*Annex E*); and
- Glare Assessment prepared by ERM, Project Ref. 0387539_02, February 2017 (*Annex F*).

This Planning Report sets out the details of the Project, the background to the application and addresses relevant town planning issues associated with the development. The Report includes an assessment of the relevant provisions of: the Planning Scheme, *State Planning Regulatory Provisions* (SPRP), *State Development Assessment Provisions* (SDAP) and the *Sustainable Planning Act 2009* (SPA).

It is considered that the Project is consistent with the land use intent of the Planning Scheme and relevant planning regulations that apply to the subject site, and will positively contribute to the local community. Council's approval is therefore sought, subject to the imposition of reasonable and relevant conditions.

1.4 PRE-LODGEMENT MEETING DISCUSSIONS

1.4.1 *Central Highlands Regional Council*

A Prelodgment meeting was held at the Central Highlands Regional Council office in Emerald on Thursday 2 February 2017. In attendance was Jang Kim – Infigen Energy, Alan Simonic – ERM and Council planners, Thalia Allsop, Sarah Ronnfeldt and Bevan Koelmeyer – CHRC. It was agreed that:

- The application would be Impact Assessable as the Reconfiguration of a Lot for lease was less than 2,000ha;
- The MCU would be code assessable (note as the access across the Rail line Lot this is now deemed Impact Assessable – was not aware of the Rail allotment at the time of the pre-lodgement);
- Due to the nature of the development and site characteristics it was agreed that no Stormwater Assessment is required as part of the Development Application and that this would be a condition in relation to an Environmental Management Plan prior to construction;
- The application would include a Planning Report, Ecological Report and Glare Report.

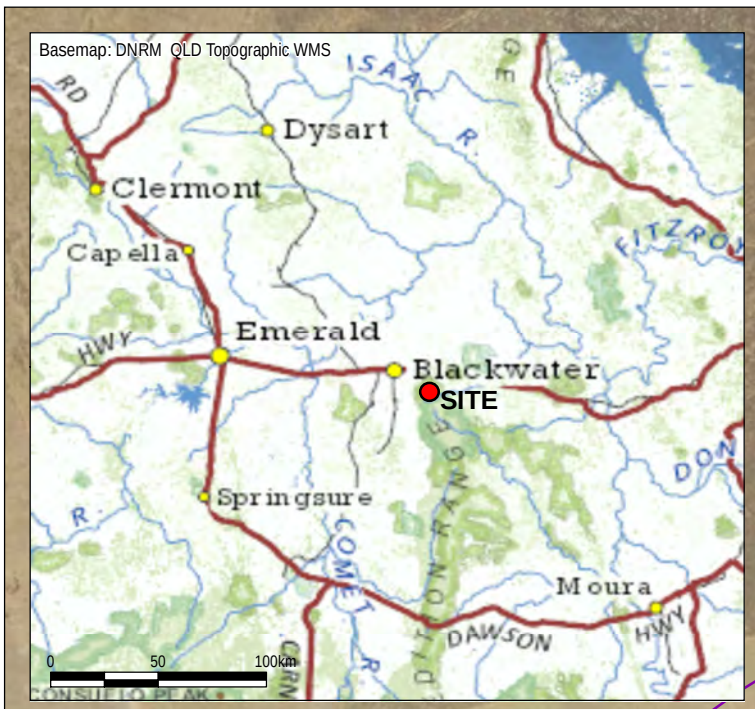
Council indicated that the proposed site was well suited for the proposed use and that a Renewable Energy Facilities are generally supported by Council. It was also noted that there are no infrastructure charges application for the proposed development.

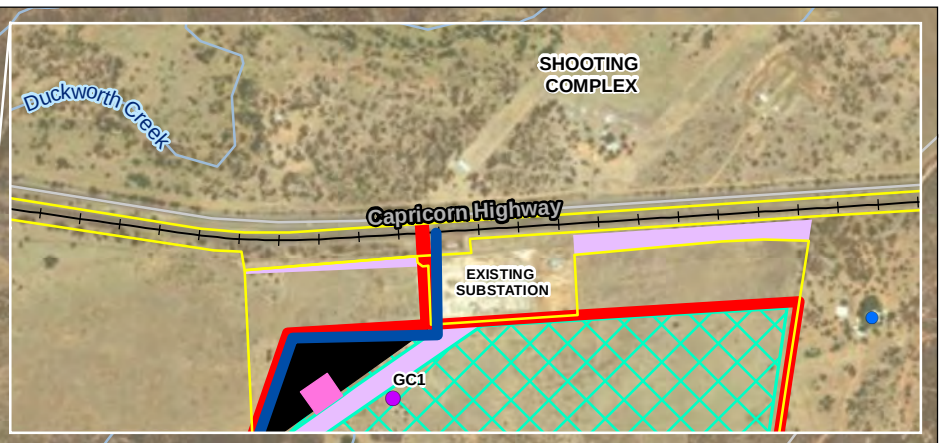
1.4.2 State Referral Assessment Agency

Environmental Resources Management Australia Pty Ltd, acting on behalf of Bluff Solar Farm Pty Limited (the Applicant), lodged a request for pre-lodgement advice to the State Referral Assessment Agency (SARA) on 23 January 2017.

The department responded on 7 February 2017 with advice relating to the need to include Lot 723 on SP129824 for access purposes, along with advice relating to the need for the Development Application to be referred to the Department of Transport and Main Roads (via SARA) as a concurrence agency.

Additional advice was also given in relation to the need for concurrence agency approval for any waterway barrier works, which will be included in a subsequent Operational Works application. A copy of the pre-lodgement advice is provided as *Annex B*.





3km

Bluff Jellinbah Road

Bluff

Main Street

RAILWAY LINE

MINING CAMP

Duckworth Creek

SHOOTING COMPLEX

Capricorn Highway

GC1

Bullock Creek

GC2

Bluff Creek

Arthur's Bluff State Forest

Legend

- Project Area
- Subject Cadastral Lots
- Proposed Development Footprint
- Remnant Vegetation
- Substation
- Parking & Site Office
- Easements
- State Forest
- Brigalow TEC Vegetation
- Residential Building
- Grid Connection
- Access Road
- Watercourse
- Rail Line
- Major Road

Data Source:
Arthur's Bluff State Forest - DAF Forestry Mangment Units
Railway - DNRM Rail Network
Road - DNRM Baseline roads and tracks
Cadastre - DNRM Digital Cadastre DataBase
Contours - DNRM 5m Central QLD Dataset
Residential Building - DNRM Building Points
Imagery - ESRI World Imagery
(DigitalGlobe)
captured 15/1/2011
Watercourse - DNRM Watercourse Lines
(North East Coast Drainage Division)

Site Context Map

1

Drawing No:	0387539b_PlanRpt_G001_R1.mxd		Infigen Bluff Solar Facility Planning Report
Date:	12/04/2017	Drawing Size: A4	
Drawn By:	DR / TC	Reviewed By: MR	Client: Infigen

Coordinate System: GDA 1994 MGA Zone 55

0 0.5 1km

N

ERM

2 SITE ANALYSIS AND URBAN CONTEXT

2.1 SITE AND SURROUNDING LAND USES

The proposed solar farm development area, being part of Lot 79 on SP238443, is located on freehold rural land to the south of the Capricorn Highway, approximately 2km west of the township of Bluff, 15km east of the township of Blackwater, and 90km east of Emerald, within the Central Highlands Regional Council (Council) LGA. Lot 723, being part of the railway corridor, has been included in the Development Application for the purposes of providing access to the solar facility.

The Project is located in a rural locality with a variety of farming and resource related activities within the area. The Central Line railway separates the Capricorn Highway and the proposed solar facility, with the Bluff electrical substation located between the rail line and the proposed lease area. Two (2) high voltage transmission lines run through the property, connecting the Bluff substation to the surrounding area.

The area is characterised by large rural properties. The Blackwater Bluff Shooting Complex is located immediately north of the Capricorn Highway with a mining camp to the north-east of Project. The Arthurs Bluff State Forest is located to the south of the Project.

A Site Context Map is provided as *Figure 1* which includes details of the Project Area in the context of the surrounding locality.

2.2 SITE SPECIFICS

2.2.1 *Current Use of Site*

The proposed lease area is currently used for cattle grazing. The majority of the proposed lease area is clear of vegetation, apart from some riparian vegetation (to be retained) associated with the low order water course running south-west to north-east across the lease area. A high voltage transmission line, located with a 140 metre wide easement cuts through the centre of the Project area, with another transmission line connecting to the substation to the north of the Project Area, fronting the Capricorn Highway.

2.2.2 *Size and Topography*

Lot 79 on SP238443 has a total size of 455.4ha, with the proposed lease areas comprising approx. 322ha, including approx. 270ha development footprint for the actual solar facility.

The potential lease area has a gradual rise to the south of approximately 2%; with some local variations in the topography due to the category 1 waterway and informal drainage lines across the site.

2.2.3 *Easements and Incumbents*

There are a number of easements over Lot 79 as referenced in *Table 2.2* below and shown on the Survey Plan and Current Title Search provided as *Annex B*.

Table 2.2 List of Easements Burdening Property

Easement	Size	Purpose
B on HT384	69.441ha	Queensland Electricity Transmission Corporation Limited
E on SP242119	2.285ha	Queensland Electricity Transmission Corporation Limited
A on HT259	63.257ha	Queensland Electricity Transmission Corporation Limited
C on SP230832	0	Burdening the land to Lot 78 on SP230832 for the purposes of access
F on SP249561	2.353ha	Benefiting the land over Lot 7 on SP190917 for the purposes of access

The Project is located adjacent to the Bluff electrical substation, located on a separate lot between the lease area and the rail line. Easements are also located at the frontage of the site for the purposes of providing lawful access to the adjoining lots from the existing access point off the Capricorn Highway.

2.2.4 *Contaminated Land*

The Environmental Management Register (EMR) and the Contaminated Land Register (CLR) are public registers which contain information about contaminated land in Queensland. The EMR also contains information of land which is, or could potentially be, contaminated because it is being used for an activity which may cause contamination.

A search of the Environmental Management Register (EMR) and Contaminated Land Register (CLR) was undertaken on 8 February 2017 for Lot 79 on SP238443 and 11 April 2017 for Lot 723 on SP129824. The search response indicated that neither lots are listed on the CLR or EMR. A copy of the search results are provided in *Annex C* of this Report.

2.2.5 *Vegetation and Fauna*

A review of desktop databases, mapping and available report/ studies has been completed to determine the existing ecological constraints and verified by a site survey on 24-25 January 2017 to identify any potential impacts of the Project. The ecological assessment acknowledges the environmental values of the surrounding area, however focuses on the ecological values of the area covered by the Project.

The ecological values identified within the Project are detailed in the Ecology Assessment provided as *Annex E*, with the legislative summary provided below:

Vegetation Management Act 1999

The Project is within the Brigalow Belt bioregion in the Fitzroy Basin. The lease area is devoid of Regulated Vegetation.

Category B regional ecosystem is identified in the southern parts of Lot 79, outside the lease area and not included in the Project. This remnant vegetation is mapped as 11.4.9 endangered regional ecosystems, described as *Acacia harpophylla shrubby woodland with Terminalia oblongata on Cainozoic clay plains*, and 11.10.1 and 11.10.5 least concern regional ecosystems nominated as *Acacia harpophylla shrubby woodland with Terminalia oblongata on Cainozoic clay plains*, under the *Vegetation Management Act 1999* (VMA).

As no clearing of any mapped regulated vegetation is proposed as part of the development, referral under the VMA is not triggered.

Nature Conservation Act 1992

The Project is not within the Protected Plants EVNT Flora Survey Trigger mapping which identifies areas where particular provisions of the *Nature Conservation Act 1992* (NC Act) apply to clearing of protected plants. Furthermore, no threatened flora species protected under the NC Act were recorded or are consider likely to occur at the Project area.

Environmental Protection and Biodiversity Act 1999

The Protected Matters Search Tool (PMST), based on a 10 kilometre from the Project Area, identified four (4) EPBC Act-listed Threatened Ecological Communities (TECs) with potential to occur in the Project Area:

- Brigalow (*Acacia harpophylla* dominant and codominant) – Endangered
- Natural Grasslands of the Queensland Central Highlands and the northern Fitzroy Basin - Endangered
- Weeping Myall Woodlands – Endangered
- Coolibah – Black Box Woodlands of the Darling Riverine and the Brigalow Belt South Bioregion - Endangered

No remnant Regional Ecosystems (REs) or vegetation consistent with the 'Natural Grasslands TEC' are mapped within the Project area. This was verified during a site survey.

Similarly, vegetation that characterises the 'Weeping Myall TEC' (*Acacia pendula*) was absent. The northern extent of the 'Coolibah-Black Box TEC' coincides with the boundary of the Brigalow Belt South Bioregion (as per the Interim Biogeographic Regionalisation of Australia). The Project occurs near this boundary, with the vast majority of the Project occurring in the Brigalow Belt North Bioregion. Given its distribution, and the lack of requisite REs, this TEC is not applicable to the Project area.

Brigalow regrowth was observed along part of the northern draining line and is considered to correspond with the RE's. Of this regrowth vegetation, a small strip (5.9 ha) was observed to meet the condition thresholds for the 'Brigalow

TEC'. It is noted that this area will be retained and no clearing proposed. Refer to the Ecological Assessment provide as *Annex E* for further details.

2.2.6 *Heritage*

Cultural Heritage

A search of the Queensland Heritage Register ('QHR') on 20 January 2017, confirmed that the subject site is not affected by the provision of the *Queensland Heritage Act 1992*. In addition to the QHR, the site was reviewed against the CHRC Planning Scheme Heritage Overlay, with the property not identified as being a place of heritage or character significance.

Indigenous Heritage

A search of the Department of Aboriginal and Torres Strait Islander Partnerships (DATSIP) database identifies the Gaangalu Nation as the cultural heritage party located within the Project Area. Refer to *Annex D* – Cultural Heritage search.

ERM is assisting Bluff Solar Farm Pty Limited in meeting its Duty of Care under the *Aboriginal Cultural Heritage Act 2003 (QLD)* and has commenced the process of meeting the obligations under the Act. A Cultural Heritage Management Plan to be negotiated between Infigen Energy and the Gaangalu Nation prior to commencement of the Project.

2.2.7 *Site Drainage*

Some watercourses and drainage lines are identified in the VMA mapping as Category 1 waterways. One drainage line in the northern portion traverses the site from roughly east to west with other localised drainage line draining the southern portion of the site and surrounding ranges in a generally northern (down-slope) direction.

2.2.8 *Road Frontage and Access*

The lease area is set back from the Capricorn Highway by approximately 175m with the rail line (Lot 723), the Bluff electrical substation and remainder part of Lot 79 (not part of the lease) located between lease area (with the exception of the access) and the Highway. Access is provided to the lot via the existing rail crossing servicing Lot 79 (across Lot 723), the substation and adjoining lots. An internal network of access tracks will service the solar facility.

2.2.9 *Existing water and sewerage*

Lot 79 is not connected to a reticulated water or sewer network, with localised on-site services provided on the property where required for domestic and rural farming purposes.

3 PLANNING PROPOSAL

3.1 OVERVIEW OF PROPOSED DEVELOPMENT

3.1.1 Renewable Energy Facility

The Project involves the construction of a large-scale solar farm over part of Lot 79 on SP238443 with access across Lot 723 (rail corridor). The solar farm is likely to be constructed in two (2) stages, with shared access and on-site infrastructure, including battery storage and switching yards connecting to the grid network.

The detailed design, specific layout and electricity generating capacity have not been confirmed at this stage. However, it is envisaged the Project will involve a typical solar farm of up to 250MW with arrays, switch yards, substation, battery storage, control building, and car park area to facilitate the operation of the solar farm, as shown on the proposal plans provided as *Annex A* and as set out below.

Ultimately, the final design work will be undertaken by an engineering, procurement and construction (EPC) contractor who will be engaged by Bluff Solar Farm Pty Limited following the receipt of the Development Permit for Material Change of Use and Reconfiguring a Lot which is the subject of this Development Application. However, for the purposes of this assessment, the PV modules area proposed to be setback approximately 150-200m from the road corridor to the north, and will not encroach on electricity transmission easements. An approximate 10m setback is proposed to the eastern and western side boundaries to allow access, with a 20-30m buffer to the waterway also proposed to preserve the ecological values of the waterway.

Project Staging

Should the Project be completed in stages, it is envisaged the stages will consist of the following:

Stage 1 is likely to involve the construction of approximately 80 – 130 MW in the northern/central portion of the Project area, and is subject to detailed design. This would include part of the lease area to the south of the high voltage line traversing the site. The PV modules will be split into two (2) stages, with the existing waterway/ buffer area and transmission line providing separation between the sections.

The site office including control building, switchyard and other associated operational infrastructure will be positioned in proximity to the existing electricity substation, obscuring the view from the road/rail corridor, with inverter buildings and battery storage containers spread throughout the lease area.

Stage 2 of the Project will likely involve an expansion of the Project to the southern portion of the lease area and may accommodate approximately 100 –

130MW. A separate switchyard and grid connection is proposed for this stage. Refer to *Section 3.3*.

The two (2) stages will be connected to the existing overhead transmission lines via a substation and switchyard for each stage.

3.1.2 *Subdivision*

The proposed development involves the subdivision of Lot 79 to facilitate the staging of the Project, with two (2) lease areas proposed of 170ha each. In order to facilitate the connection of the Project to the grid network, two (2) substations are proposed to be located adjacent to the existing transmission lines which provide the connection points for each stage of the Project. A Preliminary Plan of Subdivision is provide as *Annex A*.

Ultimately, these substations will be owned and maintained by Powerlink and therefore as part of their requirements, the substations must be constructed on separate freehold lots, with lawful access provided to each new lot by way of an access easement.

Table 3.1 provides a breakdown of the current and proposed configuration including description and sizes for each component.

Table 3.1 Proposed lot breakdown

Description	Current	Proposed
Lot 723 on SP129824 (Access only)	18.9ha	18.9ha
Lot 79 on SP238443	455.4ha	454.8ha
Lease Area A (Stage 1)	-	180ha
Lease Area B (Stage 2)	-	152ha
Proposed Lot 1 (Substation A)	-	0.3ha (3,000m²)
Proposed Lot 2 (Substation B)	-	0.3ha (3,000m²)
Access Easement over Lot 79 and Lease Area A and B	-	1.8ha (18,000m²) 1,800m x 10m

Given the nature of the Project, subdivision of the land is considered to be the most appropriate option, despite requiring the creation new lots and lease areas under the minimum prescribed size within the Rural Zone. The subdivision involves a portion of the lot which is already fragmented by electricity infrastructure and environmental features with a total lot area already below the 2,000ha (approximately 455ha). Accordingly, it is considered the proposed subdivision can demonstrate compliance with the provisions of the planning scheme, including Purpose and Overall intent of the Rural Zone Code and Reconfiguring a Lot Code - Refer to *Section 4.4.4*.

3.2 BUILT FORM/ DESIGN COMPONENTS

The Project's design will be similar to other approved solar projects within the region and will be sited to ensure minimal environmental impacts, in keeping with the sustainable nature of the Project. The process to select this proposed location for the PV facility has been ongoing with landowners, developers and engineers, and has been carefully undertaken to ensure the highest design standards and location for the Project, as well as minimal impact to be imposed on the surrounding community.

Accordingly, the Project has been designed so as to minimise the impact on the landscape and surrounding environs as much as possible, with respect to a range of factors such as: the existing environment; agricultural land designation and activities occurring on-site and off-site; proximity to existing electricity infrastructure; stormwater; and visual impact considerations.

The Project 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: solar modules, tracking system, electrical transformers and inverters, battery storage containers, electrical wiring, telecommunication equipment, substation, and electrical control enclosures as shown on the proposed plans, provided as *Annex A*.

The Project will consist of the following infrastructure:

PV Modules and Arrays

Each PV module is made up of a number of PV cells sealed in an environmentally friendly protective laminate which converts sunlight into electricity and are seen as the building blocks of PV systems. A number of modules (one or more - pending on the design) make up a panel which are pre-wired field installed units. A number of these panels are joined together to form an array, which is a complete power generating unit.

The arrays are connected to a single axis tracking system. Typical these arrays are arranged in rows normally in a north/south direction with access tracks between the rows for maintenance purposes and to avoid shading issues.

Tracking System

A single axis tracking systems is proposed (will be confirmed during detailed design) which rotates the arrays 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 will have a maximum height of approx. 3.5 metres.

Inverters

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 and transformers will be housed either in standard shipping containers, in small buildings, or in an outdoor "skid" configuration. The exact type and number of inverters that will be required for the Project will not be known until the detailed design phase, which will determine the electricity generating capacity of the facility. Approximately 50 inverters (full development potential) will be required across the development. Due to the size of the lot and their location throughout the project between the PV modules ensure any visual impacts are likely to be low.

Substation/Switchyards

Two (2) substations/ switchyards may be constructed within the Project area within the nominated new lots which are located adjacent to the existing transmission line connection locations.

Battery Storage

The Project will make provision for battery storage throughout the site. While the specific design and type of storage will be finalised prior to construction (due to the rapid changes in technology), these are typically skid mounted or in small containers. Up to 50 battery storage skids may be developed. This allows for the storage of power during peak generating times (optimal sunlight conditions) for use later when generating capacity is low or at night. This improves the efficiency and reliability of the facility.

Control Building

The Project includes a control building located adjacent to the existing Bluff electrical substation, in the north-western portion of the site. The control building generally contains a site office, control room, storage and staff facilities. A small carpark will be located adjacent to this facility. During operation, 2-6 staff may be present on site, with additional staff as required during maintenance periods.

Utilities

The Project Area is not connected to reticulated water or sewerage infrastructure. Rainwater may be collected and stored via water tanks and used on-site for maintenance purposes. A supply of water for firefighting purposes will also be maintained on site in accordance with bushfire management guidelines. Sewerage will be managed by a septic system and be removed off-site by a certified contractor.

Parking and Access

Access to the facility will be provided via Capricorn Highway, with a lay-down area provided adjacent to the control building provided to service the on-site facilities. Access tracks will also be constructed throughout the Project Area to provide access to the PV modules and switchyards for maintenance purposes.

Fencing

The facility will be fenced for security purposes, with high voltage area fencing provided around the switching yard and sensitive infrastructure.

3.3 PRELIMINARY GRID CONNECTION ROUTE

Negotiations between Bluff Solar Farm Pty Limited, Powerlink and Aurizon are ongoing to determine the most appropriate connection locations.

From preliminary discussions between the associated parties, two (2) grid connections options have been identified (with three to be adopted depending on the location of the connection). The following preliminary options are identified on the proposal plans attached as *Annex A*:

Option A – Overhead connection from the nominated switch yard to the existing 132kV transmission line which runs through the north-western corner of the site, connecting into the substation; and

Option B - Overhead connection to the existing 132kV high voltage transmission line which runs through the middle of the Project area from north-west to south-east.

It is envisaged that two (2) switch yards will be constructed on for the Project associated with each stage of the development. Grid connection will be provided from the substation/switchyards associated each stage. The connections will be provided via either underground or overhead line depending on the distance between the switch yard and connection point, and environmental constraints particularly relating to the identified waterways and vegetation.

3.4 PROPOSED DEVELOPMENT PHASES

3.4.1 *Design and Construction Methods*

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.

The final design, engineering and construction will be undertaken by the EPC contractor who 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.

As part of the EPC contractor's scope of works, a Construction and Environmental Management Plan (CEMP) will be prepared which will detail how the construction will be managed to minimise any environmental impacts of

the Project's construction. The CEMP will ensure hazards are identified and appropriate mitigation measures are adopted during the construction phase.

3.4.2 *Project Delivery Timeframes*

The Project delivery timeframe will depend on a number of contributing factors including funding, approval timeframes and environmental considerations. However, based on current expectations, it is envisaged that construction of Bluff Solar Farm will commence in early 2018. The construction period is anticipated to be 12-18 months. Approximately 300 jobs will be created during the construction stage.

3.4.3 *Operations Phase*

Upon commissioning of the equipment the Project will begin the Operations Phase. The solar modules at the site will operate during daylight hours, seven (7) days per week, 365 days per year.

While the Project utilises passive equipment, permanent employees are only required for monitor the equipment and for maintenance, inspection, and emergency situations. Approximately 2-6 staff will be on-site on a day to day basis.

Operational activities of the Project are generally limited to:

- solar module washing;
- vegetation, weed, and pest management;
- equipment maintenance and inspection;
- responding to automated electronic alerts based on monitored data, including actual versus expected tolerances for system output and other key performance metrics;
- security detail; and
- communicating with customers, transmission system operators, and other entities involved in facility operations.

3.4.4 *Decommissioning*

The solar modules and associated infrastructure have a life of approximately 25 - 30 years. After this time, the facility will either be refurbished or decommissioned. Decommissioning will be addressed as part of the CEMP but would typically consist of removal of all above ground infrastructure for recycling or disposal, revegetation of all disturbed land, and returning the land to agricultural use.

3.5 ENVIRONMENTAL CONSIDERATIONS

3.5.1 *Ecology/ Biodiversity*

The potential impacts on ecological values of the site as a result of the development have been identified as part of an Ecological Assessment, prepared by ERM and located in *Annex E*.

It is concluded that no listed threatened flora species protected under Commonwealth or Queensland legislation were confirmed present, or are considered likely to occur at the Project Area.

One vulnerable Threatened Ecological Community (TEC) protected under the EPBC Act—the 'Brigalow TEC'—was confirmed to occur at the Project during the two (2) day site visit. This TEC was associated with a narrow strip of regrowth riparian brigalow woodland (5.9 ha) within the defined watercourse in the northern area of the site. The Project design avoids this area of vegetation, and so no impact is likely to occur. Where linear infrastructure such as access tracks and/or power connections needs to be established, it is recommended that this also avoids intersecting the identified linear strip of 'Brigalow TEC'.

Notwithstanding the limited ecological values of the Project Area, the Ecological Assessment recommends a range of measures that should be implemented to avoid or minimise impacts to vegetation communities, watercourses, fauna habitat and fauna present at the Project area. As noted, endangered remnant vegetation at the south of Lot 79 on SP238443 has been excluded from the Project lease area. Regrowth woodland fringing a drainage line at the north of the Project Area is also proposed to be avoided. Vehicle hygiene procedures should be implemented to minimise the risk of the introduction/spread of weed species. Erosion control measures should be implemented to minimise the runoff of sediment into watercourses during the construction phase of the Project. Fauna mortality should be managed by initiating vehicle speed limits in close proximity to vegetated areas. Refer to *Annex E* – Ecological Assessment.

3.6 VISUAL AND GLARE CONSIDERATIONS

While there is no statutory requirement to undertake a glare analysis under the planning scheme, Bluff Solar Farm Pty Ltd has elected to assess the potential impacts in this preliminary design stage, to inform further detailed design which may mitigate any potential glare impacts. A copy of the Glare Assessment is attached as *Annex F*.

Eight (8) observation points were selected where human receptors are likely to view the Project, including from a number of surrounding residential dwellings, rail corridor, and the township of Bluff. These observation locations were limited to areas to the north of the Project as an analysis of the area demonstrated that visibly of the Project is limited to the northern slopes and foothill of this area.

The Arthurs Bluff State Forest limits visibility to the south of the escarpment and to areas within the State Forest. It is noted that there are no tracks, walking trails or lookouts identified within the area that can potentially see the Project from the northern foothills and slopes below the Bluff escarpments.

The assessment determined that the potential for glare effects is limited in areas to the east and north-east of the sit, with most viewing locations towards the Project from these areas are screened by existing vegetation. For those locations where glare was recorded, none were predicted to have the potential for an after image greater than Low.

The assessment also shows that there is potential for temporary low level impacts from roads or the railway line to the east to north-east of the Project, however these areas are further filtered by vegetation.

The assessment concluded that given there are no locations identified within the locality that may have a glare potential for after image impact greater than low, landscape mitigation is unlikely to be required. Refer to *Annex F*.

3.7 STORMWATER AND FLOODING CONSIDERATIONS

The Project area is not identified as being a flood risk. Due to the limited earthworks, the natural ground level and soils left largely intact over the majority of the site, the natural flow is not significantly altered. Runoff is therefore not significantly increased and can be easily managed at a local level. Runoff from internal access tracks will be managed through the implementation of a Stormwater Management Plan, with runoff from the Control building collected for on-site use.

Any runoff to the existing defined watercourse and informal drainage lines will be appropriately managed in the Stormwater Management Plan, once the final design and layout has been confirmed.

3.8 SITE ACCESS AND TRAFFIC CONSIDERATIONS

The Project will utilise the existing access arrangements off the Capricorn Highway and across the existing railway line (Lot 723) adjacent to the western boundary of the adjoining Bluff substation.

It is understood the existing access location is used as the primary access for the subject lot, and Bluff substation and adjoining Lot 78 on SP230832 to the west and Lot 7 on SP190917 to the east, via access easement arrangements. The original gravel access was upgraded to bitumen seal to facilitate the construction of the substation on the Lot 50 on SP238443 to the north of the subject site, adjacent to the Capricorn Highway and Central Line railway.

An internal access road will provide access to the control building in the northern part of the lease area. Further access tracks will be constructed on-site to provide construction and maintenance access for the entire Project area.

3.8.1 Construction Traffic

Construction is likely to take approximately 10-16 months depending on the methods adopted and staging. While approximately 200 jobs will be created over the construction period, due to the nature of work and staging approximately 100-150 field staff will be on-site during peak construction period.

Temporary on-site parking will be provided close to the site entrance for approximately 60 vehicles. It is anticipated that car-pooling and buses will be uses to transport workers to site during the peak construction period, due to the restrictions on number of vehicles accessing the site across the railway line. The number of buses will depend on the demand; however it is likely that 3-5 buses will be used. The total number of light vehicle trips is not likely to exceed 40 vehicles (80 vehicle trips per day) during peak construction periods. Most of these trips (approximately 80%) will be during normal construction times with a 6 - 9 am morning peak and a 3 - 6 pm afternoon peak. It is likely that most of the workers will be from Blackwater and Bluff, split 60/40 from the west/east respectively.

Light/medium vehicles will be required (food, water, refuse, waste, etc.). It is not anticipated that more than 4 vehicles per day (8 trips) will occur during peak construction time.

Heavy construction vehicles (excavators, bulldozers, drilling rig for footings etc.) will be required to travel to site and will remain onsite until completion and will therefore have no significant impact on the road system.

Approximately 40-50 concrete trucks will be required for footings, base pads for inverters, battery storage and site office/control buildings. These will occur at various stages of the development and are not likely to result in more than 4-6 vehicles per day.

Delivery of PV modules, tracking systems, transformers, battery storage and related equipment is anticipate to utilise various large vehicles, ranging from standard container (20ft) trucks or 19m Articulated vehicles (largely for the delivery of the PV modules and tracking). Approximately 50 transformer/inverter containers will be delivered over a 3-6 month period (if the full 250MW facility is completed). This will result in approximately six (6) vehicles (12 trips) per day.

For the delivery of the PV modules required (depending on the overall output), approximately 180 – 250 Articulated trucks (19m) will be required over approximately a 3-6 month period. It is not anticipated that more than four (4) deliveries will occur on any given day.

The delivery of the transformer and transmission line poles will require some larger oversize vehicles – it is anticipated that 4-8 vehicles will be required over the duration of the project and will not have a significant impact.

Table 3.6 Anticipated Maximum Daily Traffic Volumes During Peak Construction

Vehicles Type	Vehicles per day	Trips per day
Light	40	80
Medium	4	8
Concrete	6	12
Large/ 19m Articulated Vehicles	10	20

The traffic volumes along the Capricorn Highway (measured at Boonal, approximately 7km to the west of the site access) are approximately 3000 vpd of which approximately 700 vpd (23.4%) are heavy vehicles.

A Site Traffic Management Plan will be prepared as part of the Construction Management Plan to ensure safe access across the railway line access to the Capricorn Highway.

The peak demand is likely to be approximately 60 vpd per day (approximately 4% increase in vpd), with lower volumes during ramp up and ramp down of construction. Peak hour demand is likely between 6-7 am and 3-4 pm with approximately 30 vehicle trips during each peak hour. The existing access point currently provides access to the Bluff Substation and has good visibility in both directions along the Capricorn highway, with over 1.5 km to the east and 480 m to the west.

Due to the overall volumes travelling along the Capricorn Highway, the temporary nature of the use, the implementation of a Traffic Management Plan and low operational volumes, the proposed development is not anticipated to have a significant impact on the Capricorn Highway or the rail line operation.

3.8.2 Operational Traffic

During operation, between 4 and 6 staff may be required on site for operational management and maintenance. Most of these trips will be by light vehicles with larger vehicles only required to replace any equipment or for refuse/waste removal (one vehicle per week).

4 PLANNING ASSESSMENT

4.1 PLANNING FRAMEWORK

The *Sustainable Planning Act 2009* (SPA) provides the overall statutory planning framework for managing growth and change within Queensland, replacing the *Integrated Planning Act 1997* (IPA) on 18 December 2009. The planning scheme relevant to the subject site – the *Central Highlands Regional Council Planning Scheme 2016*, should be read in conjunction with the SPA.

To facilitate the provision of solar farm facilities over the subject site, an application is made for a Material Change of Use Development Permit for Renewable Energy Facility (Solar Farm) and subsequent Reconfiguring a Lot Development Permit to subdivide Lot 79 on SP SP238443 by lease agreement exceeding 10 years.

4.2 CENTRAL QUEENSLAND REGIONAL PLAN 2013

The Central Queensland region straddles the Tropic of Capricorn and extends from the coast to the gemfields west of Emerald. The region has a total area of approximately 117,800km² and represents 6.8 per cent of the total area of Queensland.

The region comprises six local government areas that vary significantly in land area and population, including:

- Banana Shire Council;
- Central Highlands Regional Council;
- Gladstone Regional Council;
- Livingstone Shire Council;
- Rockhampton Regional Council; and
- Woorabinda Aboriginal Shire Council.

The region encompasses a variety of regional landscapes, including urban and rural holdings, agricultural production, resource and mine sites, and protected areas. The purpose of the plan is to identify the state's interests in land use planning for the region. Specifically, the plan identifies:

- regional outcomes for the region;
- regional policies for achieving the regional outcomes; and
- the state's intent for the future spatial structure of the region, including Priority Agricultural Areas (PAA), Priority Living Areas (PLA) and priority outcomes for infrastructure.

The CQRP 2013 regional policies address the emerging regional issues of land use competition between the agricultural and resources sectors, and the need to protect areas required for the growth of towns.

4.2.1 *State Interest - Priority Agricultural Areas*

Regional Objective 1: Protecting Priority Agricultural Land Uses while supporting co-existence opportunities for the resources sector

Regional Outcome

Agriculture and resources industries within the Central Queensland region continue to grow with certainty and investor confidence.

Regional Policy 1

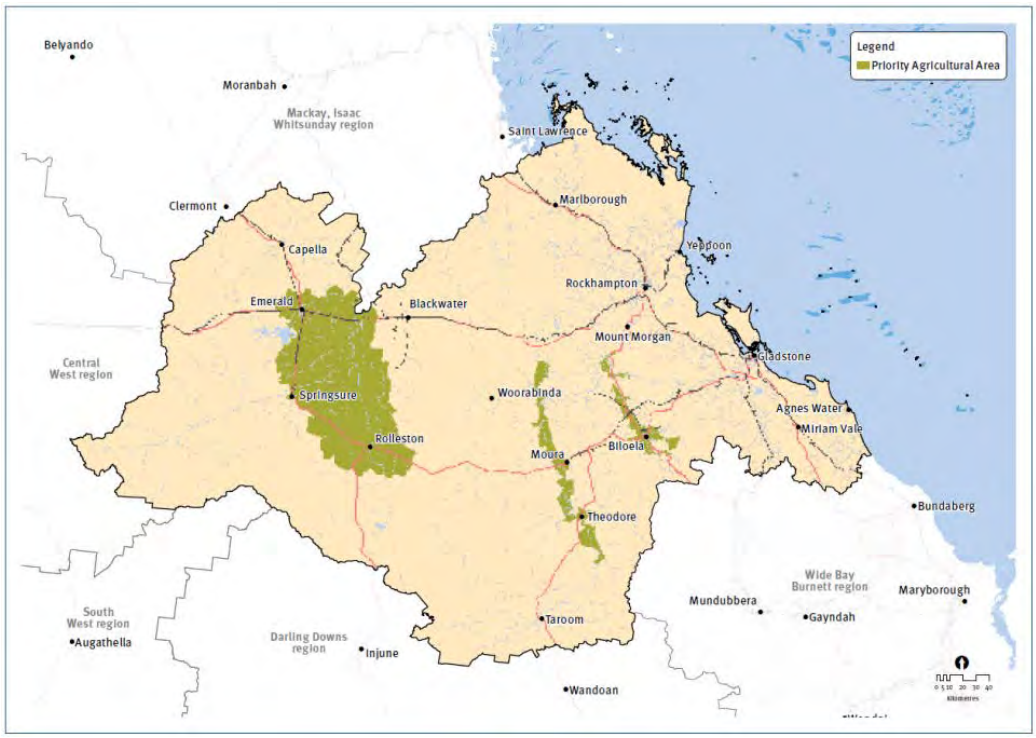
Protect Priority Agricultural Land Uses within Priority Agricultural Areas.

Regional Policy 2

Maximise opportunities for co-existence of resource and agricultural land uses within Priority Agricultural Areas.

Proposed Development Outcome:
The Project is not located in an area identified as a Priority Agricultural Area ('PAA'). The nature of the Project is such that only a small portion of the land parcel is required for the Project Area, with the soil likely to benefit from 30 years of rest, resulting in a positive long-term impact on the land.

Figure 4.2.1 Priority Agricultural Areas



4.2.2 *State Interest – Priority Living Areas*

Regional Objective 2: Providing certainty for the future of towns

Regional Outcome

Agriculture and resources industries within the Central Queensland region continue to grow with certainty and investor confidence.

Regional Policy 3

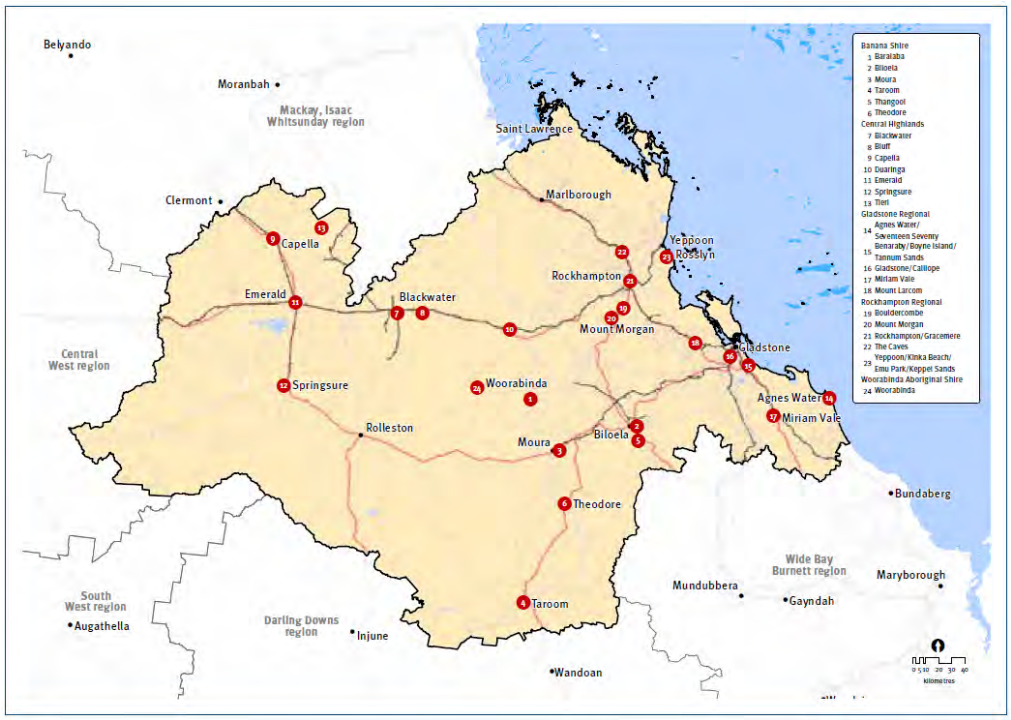
Safeguard the areas required for the growth of towns through the establishment of Priority Living Areas

Regional Policy 4

Provide for resource activities to locate within a Priority Living Area where it meets the communities' expectations as determined by the relevant local government.

Proposed Development Outcome:
The Project is not located in an area identified as a Priority Living Areas ('PLA'). The subject site is located approximately 2 km west of the township of Bluff PLA, with the development likely to provide benefit to local communities within the area, particularly during the construction phase, through accommodation and use of other local services and facilities.

Figure 4.2.2 Priority Living Areas



4.2.3 *Infrastructure and Other State Interests*

The Regional Plan also discusses other state interests relevant to land use planning in the region, including infrastructure, housing and liveable communities, economic growth, environment and heritage, and hazards and safety. A review of the CQRP 2013 indicates that the Project is consistent with the other regional outcomes referenced within the Regional Plan.

- **Infrastructure (Electricity)** - The priority outcome sought for electricity infrastructure is for the region to grow its energy generation capabilities

through public and private sector investment. Investment should focus on reinforcing electricity generation and transmission/distribution systems where and when they are needed in response to forecast growth with consideration of energy efficiency efforts.

- **Economic growth** – Although not directly referenced in the Regional Plan, the Project provides economic growth for the region without impact on other key regional state interests including, agriculture, mining and tourism.

- **Environment and Heritage** – The Project will not impact any biodiversity matters of state or national environmental significance as outlined in the Ecology Assessment provided as *Annex E*. As outlined in *Section 2.2.6* of this report, the project is also being completed in accordance with the *Aboriginal Cultural Heritage Act 2003 (QLD)*.

- **Hazards and Safety** – The Project is not located in a defined flood area and will not result in an increased risk to people or property as a result of the Project. In addition, the stormwater management practices will be implemented to reduce any risk of localised flooding.

4.3 STATE PLANNING MATTERS

4.3.1 *Applicable State Mapping*

The Development Assessment Mapping System (DAMS) provides a central representation of all available mapping that may assist in identifying relevant assessment or referral triggers under the *Sustainable Planning Regulation 2009* (SPR) and relates to provisions contained within the State Development Assessment Provisions (SDAP). A copy of the DAMS mapping is provided as *Figure 4.3*, with the following matters of state interest identified:

Table 4.3.1 Matters of State Interest

Matters of State Interest	Mapping Trigger
Fish Habitat Areas	• *Qld waterways for waterway barrier*
Native Vegetation Clearing	• *Regulated vegetation management map (Category A and B extract)*
Water Resources	• *Water resource planning area* • *Great artesian water resource plan area*
Rail	• *Railway* • *Area within 25m of existing railway*
State-controlled Road	• *State-controlled Roads* • *Area within 25m of existing Stat-controlled road*

Fish Habitat Areas

As depicted in *Figure 4.3*, The Project Area (and wider Bluff area) is subject to 'Queensland Waterways for Waterway Barrier Works'. There are a number of

low order watercourses within the Project area which will require further approval should any water barrier works including access crossings be proposed pending final detailed design of the Project.

Native Vegetation Clearing

As depicted in *Figure 4.3*, the southern part of Lot 79 is mapped as having regulated vegetation Category A and B extract. The mapped area is outside the Project area and therefore will not require any clearing of mapped regulated vegetation.

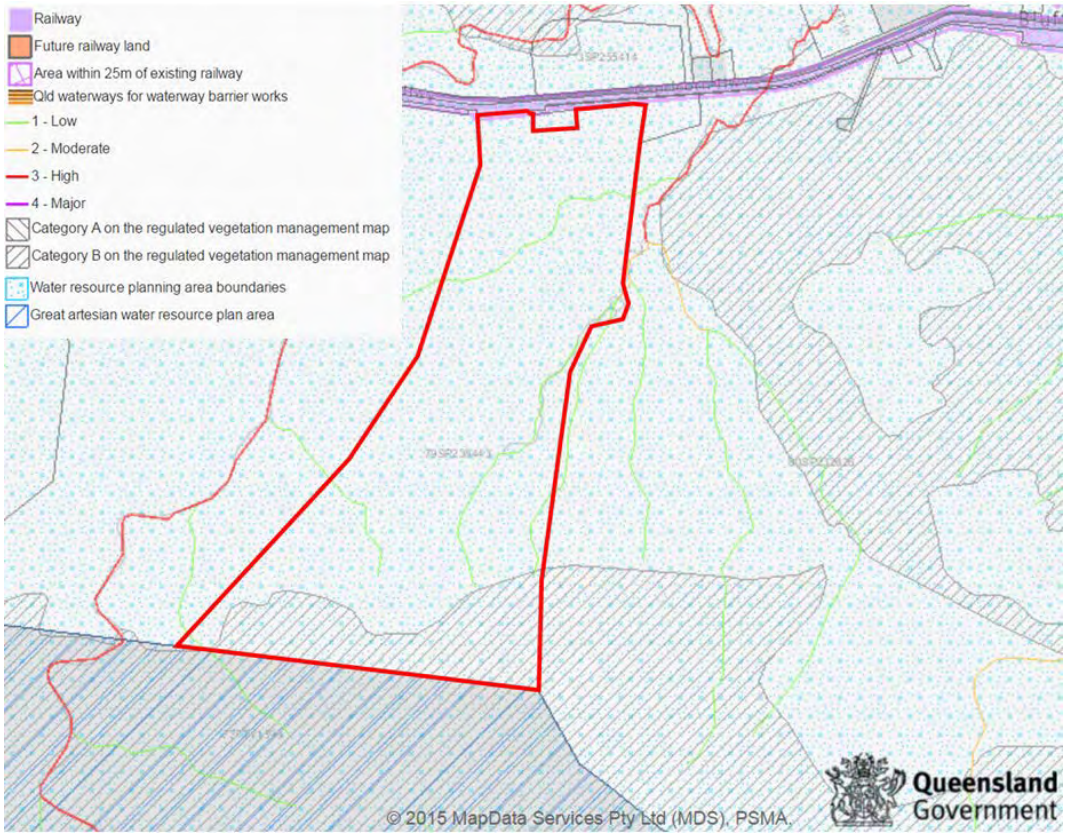
Water Resources

As depicted in *Figure 4.3*, the whole site (and wider Bluff area) is located within the boundaries of 'Water Resource Planning Area'. Areas to the south of Lot 79 are identified to be within the great artesian water resource plan area; however the Project area is not affected by this area.

Rail

Figure 4.3 shows that northern boundary of Lot 79 abuts the Central Line railway (Lot 723). Access to the Project is proposed via the existing access crossing adjacent to the Bluff electrical substation which crosses the railway.

Figure 4.3 *DAMS Mapping*



State Controlled Road

While not indicated in *Figure 4.3*, access to the site is via the Capricorn Highway access across Lot 723 (Rail) and is therefore triggered.

4.3.2 *State Agency Referrals*

Schedule 7 of the SPR 2009 outlines the following referral triggers that are applicable to the Project Area:

- *Table 3, Item 1 State-controlled Roads (Concurrence)* – A material change of use of premises, other than an excluded material change of use, if any part of the land is within 25m of a State-controlled road;
- *Table 2, Item 21 Electricity Infrastructure (Advice)* – Reconfiguring a lot if any part of the lot is subject to an easement in favour of a distribution entity or transmission entity under the *Electricity Act 1994* and the easement is for a transmission grid or supply network under the Act;
- *Table 3, Item 7 Electricity Infrastructure (Advice)* – A Material Change of Use not associated with Reconfiguring a Lot if any part of the lot is subject to an easement in favour of a distribution entity or transmission entity under the Electricity Act 1994 and the easement is for a transmission grid or supply network under the Act; and
- *Table 3, Item 15A Railways (Concurrence)* - A material change of use of premises, other than an excluded material change of use, if any part of the land is within 25m of a railway or future railway land.

4.3.3 *State Development Assessment Provisions*

As a result of the referral triggers as noted above, the following State Development Assessment Provisions (SDAP) are applicable to the development:

Table 4.3.2 Applicable SDAP Modules

Module	Code
Module 1: Community Amenity	• Module 1.1 – Managing noise and vibration impacts from transport corridors state code • Module 1.2 – Managing air and lighting impacts from transport corridors state code
Module 18: State Transport Infrastructure Protection	• Module 18.1 – Filling, excavation and structures state code • Module 18.2 – Stormwater and drainage impact on state transport infrastructure state code
Module 19: State Transport Network Functionality	• Module 19.1 – Access to state-controlled roads state code • Module 19.2 – Transport infrastructure and network design state code

The Project complies with the acceptable outcomes of the codes, where applicable. A detailed assessment of the applicable codes is provided as *Annex G*.

4.4 CENTRAL HIGHLANDS REGION PLANNING SCHEME

The Central Highlands Region Planning Scheme (planning scheme) was adopted by the Central Highlands Regional Council on 4 March 2016. The planning scheme was prepared in accordance with SPA 2009, and sets out the Central Highlands Regional Council's intention for the future development of the region to 2031. The planning scheme supersedes the four (4) planning schemes and associated policies of the former Emerald, Duaringa, Bauhinia and Peak Downs Shires.

4.4.1 *Strategic Framework*

The strategic framework sets the policy direction for the planning scheme and forms the basis for ensuring appropriate development occurs within the planning scheme area for the life of the planning scheme. The planning scheme identifies seven (7) key themes which collectively represent the policy intent of the planning scheme and long term vision for the region:

- Settlement Pattern;
- Natural Environment;
- Natural Resources and Landscape;
- Access and Mobility;
- Infrastructure and Services;
- Economic Development; and
- Community Identity and Diversity.

From review of the above strategic framework and key policy themes, it is considered the Project achieves the desired strategic intent for the local area in the following ways:

1. The Project does not compromise the integrity, sense of identity, or the relationship of the surrounding rural and regional landscape of Bluff;
2. The Project will not impact on productive agricultural lands, resource areas, areas that contain Matters of State or Local Environmental Significance, and scenic values;
3. The Project contributes to a sustainable lifestyle for the Central Highlands community by providing the community with a renewable energy generation resource;
4. The Project will not adversely impact the area for rural production uses including cropping and grazing;

5. The Project does not result in the fragmentation of Agricultural Land Classification – Class A or B;
6. The Project will protect and maintain the natural processes and landforms, including the storage capacity and conveyance of flood waters, and will not contribute to a worsening of the severity or impact of flood events;
7. The Project will not adversely affect the quality of the natural environment, its assets, ecological processes and biodiversity values;
8. The Project will not increase air, noise or odour emissions during operation of the facility, thereby maintaining the health, wellbeing, amenity and safety of communities and individuals. Mitigation measures will be implemented through the development of a Construction and Environment Management Plan for any potential short-term impacts associated with the construction of the facility; and
9. The Project will provide a direct economic benefit and financial security to the landowners and indirect benefits to the community through the construction and operation of the facility.

4.4.2 *Development Definitions*

The Project involves the construction of an approximate 270ha solar farm, generating electricity using photovoltaic panels which will rotate on an axis to capture energy from the sun, transporting the generated energy via transmission lines to the local electricity network. Under the planning scheme, the proposed use is defined as:

"Renewable Energy Facility" *- Premises used for the generation of electricity or energy from renewable (naturally reoccurring) sources.*

4.4.3 *Locality, Zoning and Level of Assessment*

The planning scheme identifies that the development of a "Renewable Energy Facility" in the Rural Zone triggers Code Assessable development, however as Lot 723 (Rail) is required for access and it is zoned Community Facility, the application will be **Impact Assessable**. The associated subdivision by lease agreement of the Project Area to facilitate to construction of the Project will result in the creation of a lease area of more than 10 years, under the minimum prescribed lot size of 2,000ha, as set by Acceptable Outcome in the Reconfiguring a Lot Code, and therefore triggers **Impact Assessable** development.

4.4.4 *Applicable Planning Scheme Codes*

It should be noted that the proposed **Material Change of Use (Impact Assessable) – Renewable Energy Facility (Solar Farm)** and the **Reconfiguring a Lot (Impact Assessable) – Subdivision by Lease Agreement** will require assessment against the entire planning scheme, with specific focus on the following codes. Consideration is also given to the CQRP 2013 and state planning policies, as discussed above.

- Rural Zone Code;

- Reconfiguring a Lot Code;
- Landscaping Code;
- Transport, Parking and Access Code;
- Works, Services and Infrastructure (Development Design) Code;
- Biodiversity Overlay Code;
- Bushfire Hazard Overlay Code;
- Food Hazard Overlay Code; and
- Regional Infrastructure Overlay Code.

The purpose of the Rural zone code is to:-

(a) provide for rural uses including cropping, intensive horticulture, intensive animal industries, animal husbandry, animal keeping and other primary production activities;

(b) provide opportunities for non-rural uses that are compatible with agriculture, the environmental features, and landscape character of the rural area where the uses do not compromise the long-term use of the land for rural purposes; and

(c) protect or manage significant natural resources and processes to maintain the capacity for primary production.

Following review of the purpose and overall outcomes sought for development within the Rural Zone, it is considered the Project demonstrates consistencies with the intended outcomes of the code by achieving the following:

1. The Project includes non-rural uses which are located, designed and operated to minimise conflicts with existing and future rural uses and activities on the surrounding rural lands and do not interfere with or negatively impact on rural production;
2. The Project does not alienate or fragment agricultural land;
3. Where possible, the built form of Project integrates with and complements the predominant rural character and scale of the zone, and sensitively responds to the environmental and topographical features of the landscape;
4. The Project does not increase the numbers of people or property (including buildings and structures) at risk due to natural hazards including flood, bushfire or landslide; and
5. The Project mitigates adverse impacts on Matters of State Environmental Significance, including creeks, gullies, waterways, wetlands, habitats and vegetation through location, design, operation and management.

Reconfiguring a Lot Code

The purpose of the Reconfiguring a lot code is to ensure that new lots are configured in a manner which:-

(1) The purpose of the Reconfiguring a lot code is to ensure that new lots are configured in a manner which:-

(a) is appropriate for their intended use;

(b) is responsive to site constraints;

(c) provides appropriate access; and

(d) supports high quality urban design outcomes.

(2) The overall outcomes sought for the Reconfiguring a lot code are the following:-

(a) development provides for lots that are of a size and have dimensions that:-

(i) are appropriate for their intended use;

(ii) promote a range of housing types in the case of residential development;

(iii) are compatible with the prevailing character and density of development; and

(iv) sensitively respond to site constraints;

(b) development provides for lots that have a suitable and safe means of access to a public road;

(c) the rearrangement of lot boundaries maintains or improves the usability of the land and access to all lots;

(d) development provides for subdivisions that result in the creation of safe and healthy communities by:-

(i) incorporating a well-designed and efficient lot layout that promotes walking and cycling;

(ii) incorporating a road and transport network with a grid or modified grid street pattern that is responsive to and integrated with the natural topography of the site, is integrated with existing or planned adjoining development, and facilitates the provision of public transport;

(iii) avoiding adverse impacts on native vegetation, waterways, wetlands and other ecologically important areas present on, or adjoining the site;

(iv) avoiding, or if avoidance is not practicable, mitigating the risk to people and property of natural hazards, including hazards posed by bushfire, flooding, landslide and steep slopes;

(v) incorporating a lot layout that is responsive to natural climatic influences and allows for new dwellings to reflect the principles of sustainable design; and

(vi) providing the appropriate infrastructure necessary to support the development including reticulated water and sewerage (where available), sealed roads, pedestrian and bicycle paths, and open space and community facilities in urban areas.

Despite resulting in the creation of a new lots and lease areas under the prescribed minimum lot size of 2000 ha, it is considered the Project will comply with the Purpose and Overall Outcomes sought by the code. It is also noted that the current lot is only approximately 455 ha.

The Project area has been chosen after a rigorous site selection process to ensure the site meets the requirements for the location of a solar facility and will require minimal site works, reducing any potential environmental impacts from the Project.

The Project area is not identified as a Priority Agricultural Area for the region (refer to *Section 4.2.1*) and will not result in the further fragmentation of rural production land. The Project area has frontage to the Capricorn Highway (via the Central Line railway), with the existing shared access to be utilise for the Project to provide safe and efficient access to on-site infrastructure. Given the rural locality of the area, reticulated water supply or sewerage infrastructure is not available; instead these utilities will be managed on-site via rainwater tanks and an on-site effluent disposal system. Refer to *Annex H* for specific responses to the code requirements.

Landscaping Code

Given the nature of the Project, no works are proposed in relation to landscaping within the Project area. The Project will involve the limited clearing of existing non-remnant vegetation. The Project will have limited visibility from the Capricorn Highway due to the Bluff electricity substation and existing vegetation screening within the rail corridor and site frontage. Refer to *Annex E* Ecology Assessment for further details relating to the biodiversity values of the site, and *Annex H* for specific responses to the code requirements.

Transport, Parking and Access Code

The Project includes the utilising the existing access arrangements off the Capricorn Highway which will provide safe and efficient access to the on-site infrastructure. Car parking will also be provided to accommodate the operational needs of the solar farm, located adjacent to the site office. Further access tracks will be constructed throughout the Project to provide suitable access for maintenance purposes. Refer to *Annex H* for specific responses to the code requirements.

Works, Services and Infrastructure (Development Design) Code

The Project will comply with the code requirements, largely through the adoption of a project specific CEMP, which, to the greatest extent possible, will mitigate any adverse impacts on the environment during construction. The CEMP will address, among other things, methods of reducing air, noise or lighting emissions resulting from construction activities; site access to ensure construction activities do not interfere with the function, safety, capacity or operation of the Capricorn Highway, Central Line railway and associated infrastructure; managing the adverse impacts of stormwater run-off through a sediment and erosion control plan; as well as outlining how the health and stability of retained vegetation is maintained. Refer to *Annex H* for specific responses to the code requirements.

Overlay Codes

The Project area is impacted by a number of planning scheme overlays which are applicable to the proposed development. An assessment of the applicable

overlays has been completed and is provided as *Annex H*, with a summary of the findings of each overlay provided below.

- **Biodiversity Overlay –** The overlay mapping indicates some areas of MSES Regulated Vegetation (intersecting a watercourse) within the Project area, with some areas outside of the Project area to the south identified as MSES Regulated Vegetation and Waterbodies. An assessment of the biodiversity values of the site has been completed, with the Project Area located to ensure minimal impact on existing values. Refer to the Ecological Assessment provided as *Annex E*.

- **Bushfire Hazard Overlay –** The overlay mapping indicates there is a Moderate Bushfire Risk within parts of the Project Area, with a High to Very High Bushfire Risk at the southern end of the lot, outside the Project Area. Given the nature of the Project, all vegetation within the Project Area will be removed, with the exception of identified waterways and buffer areas, thereby significantly reducing the bushfire risk associated with the Project. Where appropriate, a 20-30 metre buffer is provided.

- **Flood Hazard Overlay –** The overlay mapping indicates a small portion of the north-eastern corner of the Project Area is within the Flood Hazard Area. However, the Flood Hazard Area is derived from various state-wide data and is not based on a flood modelling of a particular event. It is considered this area presents a minimal flood risk and is unlikely to impact the Project.

- **Regional Infrastructure Overlay –** The Regional Infrastructure Overlay is triggered as a result of the 132kV electricity transmission lines being located within the Project Area. The overlay also identifies the railway corridor and major road corridor, being the Capricorn Highway. The Project area has been chosen as a result of these attributes and compliments the existing infrastructure within the area.

5 CONCLUSION

This Planning Report has been prepared on behalf of Bluff Solar Farm Pty Limited in support of a Development Application for **Material Change of Use for Renewable Energy Facility (Solar Farm)**, and **Reconfiguring a Lot (2 lots into 4 lots), Subdivision by Lease Agreement (2 lots) and Access Easement**, over land described as Lot 79 on SP238443 and part of Lot 723 on SP129824, Capricorn Highway, Bluff.

The Project is located 2km west of the township of Bluff, 15km east of the township of Blackwater, and 90km east of Emerald, within the Central Highlands Regional Council (Council) Local Government Area (LGA).

The Project involves the subdivision of the lot by lease agreement of an approximate 332ha portion of Lot 79 to facilitate the development of the Bluff Solar Farm, likely to be constructed in two (2) stages, with a maximum capacity of 250MW. The Project includes construction of solar facility including photovoltaic panels and tracking system, switchyards, battery storage and the provision of on-site facilities associated with the Project's operation.

The Development Application is supported by further Ecology and Glare assessments which provide further technical input and demonstrate the Project will not adversely impact the environment or surrounding land uses.

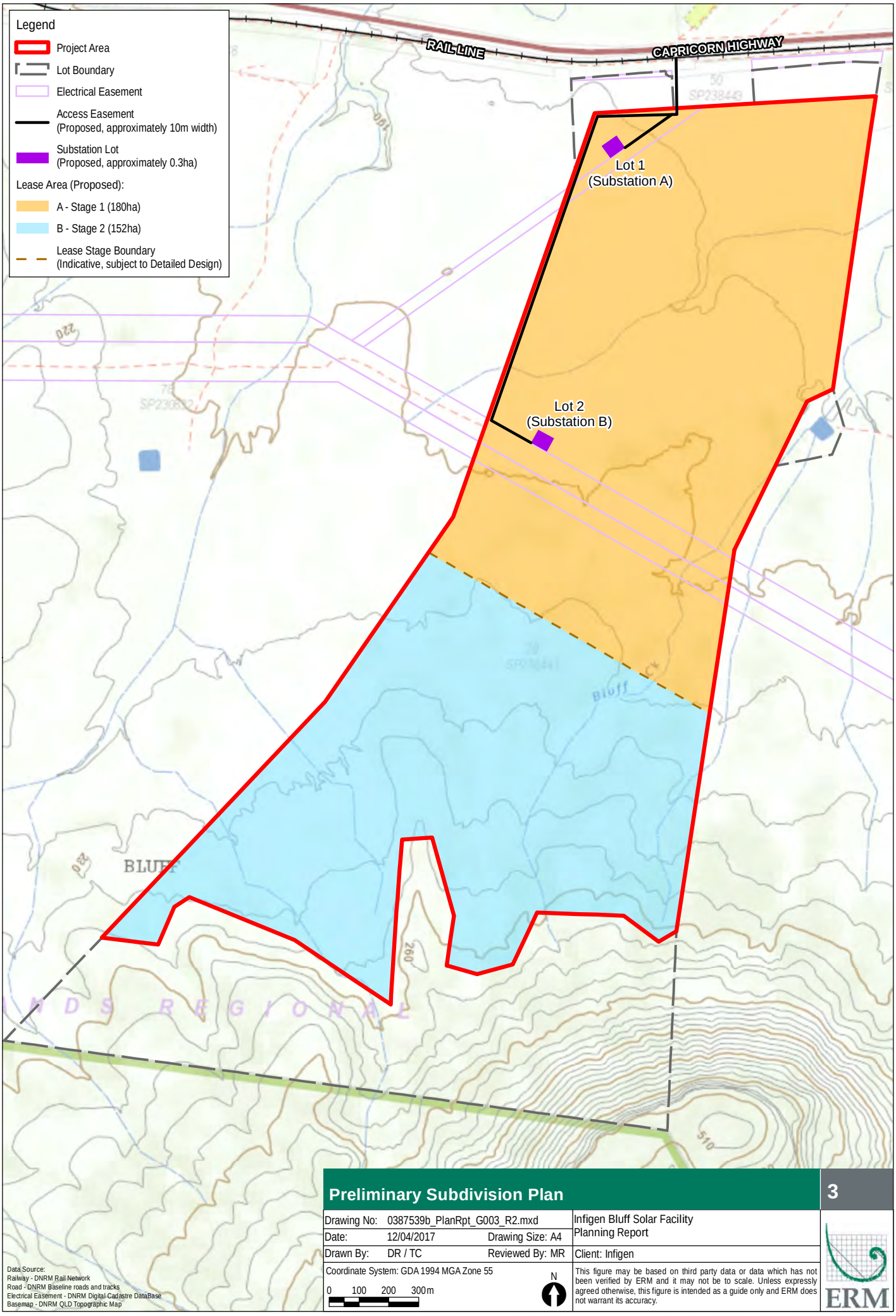
With the support of the technical reports, this Planning Report provides an assessment of the Project against the *Central Highlands Region Planning Scheme 2016*, *Central Queensland Regional Plan 2013*, and relevant State Development Assessment Provisions, which demonstrates the Project represents a suitable land use outcome for the site which will benefit the local community and region.

Given the above, CHRC is requested to approve the Development Application, subject to the imposition of reasonable and relevant conditions.

Planning Report

Annex A

PROPOSAL PLANS



Preliminary Subdivision Plan

3

Drawing No:	0387539b_PlanRpt_G003_R2.mxd		Infigen Bluff Solar Facility Planning Report
Date:	12/04/2017	Drawing Size: A4	
Drawn By:	DR / TC	Reviewed By: MR	Client: Infigen

Coordinate System: GDA 1994 MGA Zone 55

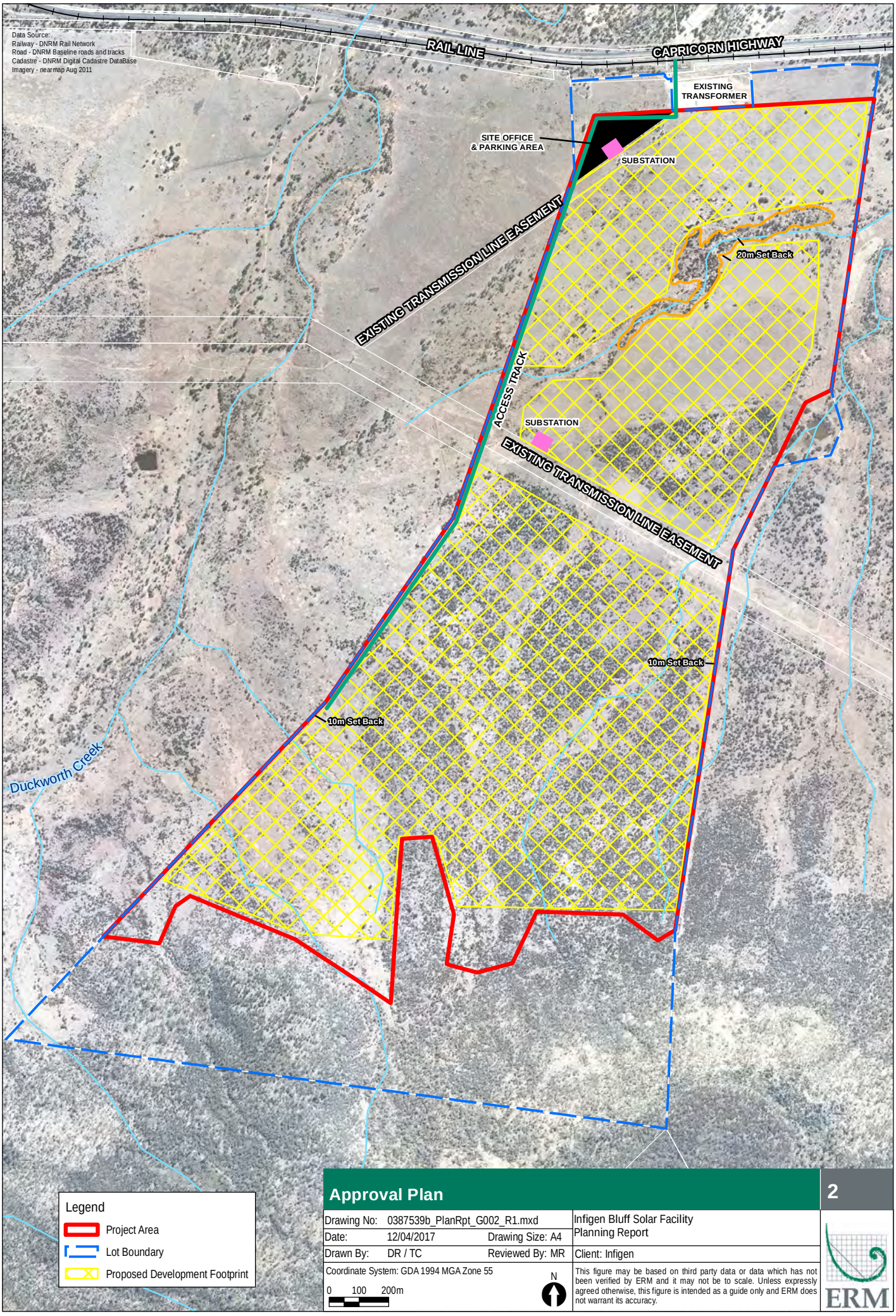
0 100 200 300m

N

This figure may be based on third party data or data which has not been verified by ERM and it may not be to scale. Unless expressly agreed otherwise, this figure is intended as a guide only and ERM does not warrant its accuracy.

Data Source:
Railway - DNRM Rail Network
Road - DNRM Baseline roads and tracks
Electrical Easement - DNRM Digital Cadastre DataBase
Basemap - DNRM QLD Topographic Map

ERM



Approval Plan

2

Drawing No:	0387539b_PlanRpt_G002_R1.mxd		Infigen Bluff Solar Facility Planning Report
Date:	12/04/2017	Drawing Size: A4	
Drawn By:	DR / TC	Reviewed By: MR	Client: Infigen

Coordinate System: GDA 1994 MGA Zone 55

0 100 200m

N

ERM

Planning Report

Annex B

PRE-LODGEMENT ADVICE

Queensland Government

Department of Infrastructure, Local Government and Planning

Our reference: SPL-0117-036549
Your reference: 0387539

7 February 2017

Michael Rookwood
ERM Australia Pty Ltd
PO Box 1400
Spring Hill QLD 4004

Dear Mr Rookwood,

Pre-lodgement advice
Capricorn Highway - Bluff, QLD4702 (Lot 79 on SP238443)

Thank you for your correspondence received on 23 January 2017 in which you sought pre-lodgement advice from the Department of Infrastructure, Local Government and Planning (the department) regarding the proposed development described above.

The department has undertaken a preliminary assessment of the proposal and its impact. Based on your written correspondence, the following advice is provided:

Reference information

Departmental role:	Concurrence agency
Jurisdiction:	Schedule 7, Table 2, Item 29—Constructing or raising waterway barrier works
	Schedule 7, Table 3, Item 1—State-Controlled Roads
	Schedule 7, Table 3, Item 15A—Railways
	Schedule 7, Table 3, Item 15B—Railways

Site details

Street address:	Capricorn Highway - Bluff QLD 4702
Real property description:	79 SP238443
Local government area:	Central Highlands Regional

Fitzroy/Central Regional Office
Level 2, 209 Bolsover Street
PO Box 113
Rockhampton QLD 4700

Proposed development details

Development type: Material change of use and Operational Works

Development description: Solar farm

Supporting information

Plan / Report title	Author	Reference no.	Version and date
Pre-lodgement supporting information in MyDAS	Michael Rookwood	SPL-0117-036549	23/01/2017
SARA DA mapping showing *Queensland waterways for waterway barrier works*	DILGP	N/A	01/02/2017
Aerial locality plan	-	-	23/01/2017

The following advice outlines the matters of interest to the department and matters that should be addressed if you proceed with your proposal to application stage.

Pre-lodgement advice

Item	Advice
Constructing or raising waterway barrier works	
1.	The proposed development may occur within a low risk (green) waterway mapped on the *Queensland waterways for waterway barrier works* spatial data layer. If the development is considered waterway barrier works the applicant will need to comply with Department of Agriculture and Fisheries (DAF) relevant code/s for self-assessable development or under a development application for operational works that is the constructing or raising of waterway barrier works. In addition to any proposed PV array works, additional waterway crossings for vehicle access or services may also be required which may be considered waterway barrier works.
2.	If the development is self-assessable the applicant is responsible for complying with the requirements of the code for self-assessable development. Self-assessable codes relating to waterway barrier works can be found on DAF's website: https://www.daf.qld.gov.au/fisheries/habitats/fisheries-development/self-assessable-codes
3.	If the proposed development cannot comply with the requirements of the self-assessable codes for waterway barrier work a development application must be submitted for assessment including: • Completed Integrated Development Assessment System (IDAS) forms 1 and 27 including all of the mandatory supporting information as stated in those forms; • A complete response to Module 5.2 of the State Development Assessment Provisions (SDAP), version 1.10; • Detailed drawings/plans of the proposed location of the waterway barrier works including GPS co-ordinates in decimal degrees; and • Documentation of any impacts to fish passage (if it cannot be demonstrated that impacts can be reasonably avoided or minimised, an environmental offset pursuant to the *Environmental Offsets Act 2014* may need to be provided for any significant residual impact. See DILGP's Environmental offsets and the planning framework factsheets and guidelines for further details).
4.	The applicant should refer to the DAF factsheets below for information of the determination of *what is a waterway barrier works* and *what is not a waterway barrier work*. - What is a waterway? - What is a waterway barrier work?

Item	Advice
	- What is not a waterway barrier work?
State-Controlled Roads (SCR)	
5.	**SCR trigger** Access to the site/SCR involves traversing Lot 723 SP129824 (railway corridor). As such this lot is required to form part of the application to achieve access from the SCR. This means that SCR will be triggered as per Schedule 7, Table 3, Item 1 of the Sustainable Planning Regulation 2009.
6.	**State Development Assessment Provisions (SDAP) version 1.10** Module 18 and Module 19 are to be addressed in any application referred under the State Assessment and Referral Agency (SARA). The following advice for aspects of the modules is provided.
7.	**Module 19 State transport network functionality** *19.1 Access to state-controlled roads state code* Traffic impact assessment (TIA) with emphasis on a Road impact assessment (RIA). RIA is to be in accordance with "Guidelines for Assessment of Road Impacts of Development" (GARID) and consider (but not be limited to): • Details of construction and operational phases of the development. • Assessment of the impact of development-related traffic on the access. • Any modifications or upgrades to the existing access necessary to mitigate or manage impacts. • Road safety matters and turn warrants (*Department of Transport and Main Roads Road Planning and Design Manual*) at the access for both the construction and operational phases. • Identify solutions to management of construction traffic. • Assessment of pavement impacts. *19.2 Transport infrastructure and network design state code* Under the RIA provide further details about the operation of solar panels. The department is interested in where the solar panels follow the path of the sun and if this will result in a safety hazard (glare) for road users on the Capricorn Highway. Details are required about the operation of the solar panels and how any adverse impacts are removed or mitigated for road users.
Railways	
8.	**General** The *Sustainable Planning Regulation 2009* (www.legislation.qld.gov.au) sets out the referral triggers for the state's concurrence agency assessment of development applications. This prelodgement advice is based on the potential referral triggers of Schedule 7, Table 3, Item 15 and is subject to confirmation when lodging a development application. Based on the referral triggers, a formal development application should demonstrate compliance with the performance outcomes of the relevant modules of the *State Development Assessment Provisions* available at: available at: http://dilgp.qld.gov.au/planning/development-assessment/state-development-assessment-provisions.html Further guidance on what information needs to be supplied with a formal development application can be obtained from the Department of Transport and Main Roads' *State Development Assessment Provisions (SDAP) Supporting Information* available at http://www.tmr.qld.gov.au/Community-and-environment/Planning-and-development/Planning-and-development-assessment-under-SPA/Assessable-development.aspx
9.	**Proposal Plans** When lodging a development application, the development proponent is required to provide further information to demonstrate how the proposed development will achieve compliance

Item	Advice
	with: • PO1, PO2, PO7 and PO9 of Module 18.1 – Filling, Excavation and Structures State Code; • PO1-PO3 of Module 18.2 – Stormwater and Drainage Impacts on State Transport Infrastructure State Code; • PO1 and PO2 of Module 19.2 – Transport Infrastructure and Network Design State Code of the State Development Assessment Provisions (available at: http://www.tmr.qld.gov.au/ Business-industry/Technical -standards-publications.aspx). In particular, the applicant should provide scaled and sufficiently detailed plans and supporting documentation which clearly shows all aspects of the proposed development (buildings, structures and works and their setbacks) in relation to the railway. These drawings should also clearly show the extent of the development area in relation to the site's boundaries with state transport infrastructure such as railways, as well as access tracks, proposed fencing and clarification of the intended timeframes for the development and any associated staging.
10.	**Module 18 State transport infrastructure protection** *18.1 Filling, excavation and structures state code* **Earthworks** When lodging a development application, the development proponent is requested to provide further information clarifying the extent and nature of the proposed earthworks and retaining structures in proximity to the railway. This should demonstrate how the proposed development will comply with PO7 and PO9 of Module 18.1 – Filling, Excavation and Structures State Code of the State Development Assessment Provisions (available at: available at: http://dilgp.qld.gov.au/planning/development-assessment/state-development-assessment-provisions.html) and Section 2.7 – Filling, Excavation and Ground Disturbance of the *Guide to development in a transport environment: Rail* (available at http://www.tmr.qld.gov.au/business-industry/Technical-standards-publications/Guide-to-development-in-a-transport-environment-rail.aspx). In particular, the applicant is requested to provide an earthworks plan, including cross sections/elevations, and any required supporting technical details clearing showing: • the location and extent of proposed excavation and filling (earthworks), including likely volumes of cut and fill within and adjacent to the railway; • the maximum depth of any excavation and maximum height of any proposed filling within and adjacent to the railway; • the maximum height and intended form/design of any proposed levee structures within and adjacent to the railway, including the gradient and height of any proposed batters or other retaining structures; • where proposed excavations, filling/backfilling or retaining works will be greater than 1m in depth or height within or abutting the railway, RPEQ certified drawings should be provided demonstrating that the works will not de-stabilise rail transport infrastructure or the land supporting this infrastructure; and • advice is provided that any proposed earthworks and retaining structures should be located outside the railway. Where located inside the railway, the development proponent should provide in-principle approval from the relevant railway manager demonstrating that such works may be achievable. Scaled cross sections and elevations should clearly show the interface with the railway as a result of the proposed earthworks. The difference between existing site levels and finished/design levels should be clearly shown. This documentation should encompass any earthworks proposals associated with access tracks.
11.	**Module 18 State transport infrastructure protection** *18.2 Stormwater and drainage impacts on state transport infrastructure state code* **Stormwater and flooding impacts on the railway**

Item	Advice
	When lodging a formal development application, the applicant is requested to provide stormwater information which assesses the potential stormwater impacts on the railway as a result of the proposed development and recommends appropriate mitigation measures. The stormwater information should demonstrate how the proposal is able to achieve compliance with PO1-PO3 of Module 18.2 – Stormwater and Drainage Impacts on State Transport Infrastructure State Code of the State Development Assessment Provisions (available at: http://dilgp.qld.gov.au/planning/development-assessment/state-development-assessment-provisions.html) and with consideration given to the Queensland Urban Drainage Manual (available at https://www.dews.qld.gov.au/water-supply-regulations/urban-drainage). In particular, the applicant should demonstrate that the management of stormwater post development can achieve a no worsening impact (on the pre-development condition) for all flood and stormwater events that exist prior to development and up to a 1% Annual Exeedance Probability (AEP) (equivalent to 1/100 year Average Recurrence Interval (ARI)). Stormwater management for the proposed development must ensure no worsening or actionable nuisance to the railway, including rail transport infrastructure, caused by peak discharges, flood levels, frequency/duration of flooding, flow velocities, water quality, sedimentation and scour effects. The proposed development should not impede or interfere with any potential drainage, stormwater or floodwater flows from the railway through the site. Stormwater and floodwater flows from the proposed development must not damage or interfere with the railway. The proposed development should not cause a concentration of stormwater (including floodwater) flows discharging on the railway during construction or thereafter. Existing stormwater drainage infrastructure on the railway should not be interfered with or damaged by the proposed development such as through concentrated flows, surcharging, scour or deposition. The stormwater information should include details of the mitigation measures proposed to address any potential stormwater impacts (including flooding impacts) of the proposed development. Further guidance on what information needs to be supplied can be obtained via the Department of Transport and Main Roads' State Development Assessment Provisions (SDAP) Supporting Information – Stormwater and Drainage at http://www.tmr.qld.gov.au/Community-and-environment/Planning-and-development/Planning-and-development-assessment-under-SPA/Assessable-development.aspx.
12.	**In-principle approval from railway manager for works on the railway** The proposed development will rely on achieving vehicular access to the Capricorn Highway via an existing occupational crossing of the Central Line over rail corridor land described as Lot 723 on SP129824. Further information is therefore required to demonstrate how the proposed development will achieve compliance with PO1 and PO3 of Module 19.2 – Transport Infrastructure and Network Design State Code of the State Development Assessment Provisions (available at: http://dilgp.qld.gov.au/planning/development-assessment/state-development-assessment-provisions.html). In particular, the applicant is requested to provide written evidence that a proposed occupational crossing licence/s will be able to be achieved over the rail corridor land. This evidence should comprise written in-principle agreement from the railway manager (Aurizon) that the proposed occupational crossing is supported. Please contact Nicole Rabbito, Senior Integration Officer, Queensland Rail on 3019 7969 or email nicole.rabbito@aurizon.com.au and corridorenquiries@aurizon.com.au in relation to this matter.

Item	Advice
13.	**Module 19 State transport network functionality** *19.2 Transport infrastructure and network design state code* **Railway Level Crossing Safety** Railway level crossings could be adversely impacted on by development generated traffic. The applicant is requested to provide RPEQ certified traffic engineering information demonstrating how the proposal will comply with PO1 and PO3 of Module 19.2 – Transport Infrastructure and Network Design State Code of the State Development Assessment Provisions (available at: http://dilgp.qld.gov.au/planning/development-assessment/state-development-assessment-provisions.html). In particular, traffic information will be required to address the following: (a) <u>Australian Level Crossing Assessment Model</u> • the expected traffic distribution on the road network as a result of the proposed development. This should identify the roads intended to be used by development generated traffic including the likely origin and destination of vehicles accessing the development during construction; • identification of any railway level crossing/s likely to be impacted on by development generated traffic during construction. The proportion of development generated traffic that is likely to use the identified railway level crossing/s should be identified; • the expected timeframe for the delivery of the proposed development including the commencement and completion of construction (including any stages); • existing traffic flows (expressed as vehicles per day) over the impacted railway level crossing/s, including daily (peak hour) fluctuations, and number and percentage of heavy vehicles; • the expected background traffic growth (expressed as vehicles per day) over the impacted railway level crossing/s, including the number and percentage of heavy vehicles. This should include background traffic growth from the anticipated commencement of construction and the completion of construction (including any stages); • the expected development generated traffic (expressed as vehicles per day), including daily fluctuations (peak hour) and percentage of heavy vehicles, that will pass over the impacted railway level crossing/s during construction (including any stages); • the maximum size and type of vehicle (including length, width, height and weight) anticipated over the impacted railway level crossings as a result of the development during construction (including any stages); • confirmation of sight distances on each side of the impacted railway level crossing. Please contact The Rail and Public Transport Technical Advice Team of the Department of Transport and Main Roads on telephone number 3066 1456 or at RAPTTA@tmr.qld.gov.au who will assist you with addressing the items. (b) <u>Short stacking</u> • clarify the maximum design vehicle for the development (length, height and width); • demonstrate how the development generated traffic will not worsen vehicular queuing (short stacking) issues over the impacted railway level crossing/s. In particular, demonstrate that there is sufficient clearance from the railway level crossing to allow the maximum size of vehicle used in the operation to queue at the Capricorn Highway intersection. The minimum clearance should be 5m from the edge running rail (of the closest railway track) as per Section 5.4 – Short Stacking and Figure 3.2 – Yellow Box Marking of AS1742.7:2016 *Manual of Uniform Traffic Control Devices, Part 7: Railway* plus the length of the maximum design vehicle. A plan prepared by a registered surveyor should be submitted accurately showing the available clearance from the railway level crossing to the Capricorn Highway intersection and demonstrating how the

Item	Advice
	maximum vehicle length can be accommodated with the 5m setback from the closest track on the Central Line. • provide a RPEQ certified swept path analysis based on the maximum design vehicle for turns into and out of the Capricorn Highway.
14.	**Overdimensional Road Loads (Aurizon)** Under the *Transport Infrastructure (Rail) Regulation 2006* permission from the Railway Manager (Aurizon) is required to take overdimensional road loads across Aurizon Infrastructure (e.g. rail level crossings). Further information can be obtained from Aurizon's website at: http://www.aurizon.com.au/network/overdimensional-loads.
15.	**Works on Railway** Pursuant to section 255 of the *Transport Infrastructure Act 1994*, the railway manager's written approval is required to carry out works in or on a railway corridor or otherwise interfere with the railway or its operations. Aurizon has provided advice that the applicant will need to gain relevant approvals and agreements, prior to any access to the railway or construction. In particular, the following will need to be assessed and approved by the railway manager: • any amendments to the approved use of the existing crossing giving access to the site; • any works in the railway such as service connections to the power grid or substations. Aurizon will also need to oversee access to the corridor during construction and review any completed work. Please contact Nicole Rabbito, Senior Integration Officer, Queensland Rail on 3019 7969 or email nicole.rabbito@aurizon.com.au and corridorenquiries@aurizon.com.au in relation to this matter.
Access to the site, Consent of land owner and road reserve	
16.	Access to the site relies on traversing lot 723 SP129824 (railway corridor). As such, this lot is required to form part of the application to achieve access from the State-controlled road. Confirm if the segment of land adjoining the site between lots 79 SP238443 and 723 SP129824 is road reserve.
Future approvals *Transport Infrastructure Act 1994*	
17.	Section 62 and section 33 applications will be required to formalise the location and ongoing use of the access to the site. All interested parties (including all current users) will be required to be included in these future applications under the *Transport Infrastructure Act 1994*. Pursuant to section 255 of the *Transport Infrastructure Act 1994*, the railway manager's written approval is required to carry out works in or on a railway corridor or otherwise interfere with the railway or its operations.

This pre-lodgement advice does not constitute an approval or an endorsement that the department supports the development proposal. Additional information may be required to allow the department to properly assess the development proposal when a formal application has been lodged.

If you require any further information, please contact Carl Porter, A/Principal Planning

Officer, on 07 4924 2918 or via email at RockhamptonSARA@dilgp.qld.gov.au who will be pleased to assist.

Yours sincerely

Anthony Walsh
A/Manager Planning
Fitzroy and Central

Planning Report

Annex C

SURVEY PLAN AND TITLE SEARCH

CURRENT TITLE SEARCH

DEPT OF NATURAL RESOURCES AND MINES, QUEENSLAND

Request No: 25294080
Search Date: 08/02/2017 11:04 **Title Reference: 50878367**
Date Created: 02/05/2012

Previous Title: 50876128

REGISTERED OWNER

Dealing No: 714437017 27/04/2012

COLIN WILLIAM GOODWIN

ESTATE AND LAND

Estate in Fee Simple

LOT 79 SURVEY PLAN 238443
Local Government: CENTRAL HIGHLANDS

EASEMENTS, ENCUMBRANCES AND INTERESTS

1. Rights and interests reserved to the Crown by
   Deed of Grant No. 40056120 (Lot 3 on SP 136854)

2. EASEMENT No 602800209 (A508) 15/03/1971
   burdening the land to
   THE CAPRICORNIA REGIONAL ELECTRICITY BOARD
   OVER EASEMENT A ON HT259

3. TRANSFER No 713776296 25/03/2011 at 08:34
   EASEMENT: 602800209 (A508)
   QUEENSLAND ELECTRICITY TRANSMISSION CORPORATION LIMITED
   A.C.N. 078 849 233

4. EASEMENT No 602800210 (A969) 21/03/1977
   burdening the land to
   THE CAPRICORNIA REGIONAL ELECTRICITY BOARD
   OVER EASEMENT B ON HT384

5. TRANSFER No 713776297 25/03/2011 at 08:35
   EASEMENT: 602800210 (A969)
   QUEENSLAND ELECTRICITY TRANSMISSION CORPORATION LIMITED
   A.C.N. 078 849 233

6. EASEMENT No 713109817 11/03/2010 at 11:24
   burdening the land to
   LOT 78 ON SP230832
   OVER EASEMENT C ON SP230832

7. MORTGAGE No 713281266 09/06/2010 at 09:27
   RABOBANK AUSTRALIA LIMITED A.C.N. 001 621 129

EASEMENTS, ENCUMBRANCES AND INTERESTS

8. EASEMENT IN GROSS No 713991448 02/08/2011 at 14:03
   burdening the land
   QUEENSLAND ELECTRICITY TRANSMISSION CORPORATION LIMITED
   A.C.N. 078 849 233
   over
   EASEMENT E ON SP242119

9. EASEMENT No 716373826 17/03/2015 at 15:37
   benefiting the land over
   EASEMENT F ON SP249561

ADMINISTRATIVE ADVICES

Dealing	**Type**	**Lodgement Date**	**Status**
712781273	VEG NOTICE VEGETATION MANAGEMENT ACT 1999	08/10/2009 15:22	CURRENT

UNREGISTERED DEALINGS - NIL

CERTIFICATE OF TITLE ISSUED - No

Caution - Charges do not necessarily appear in order of priority

** End of Current Title Search **

Requested By: D-ENQ CITEC CONFIRM

CURRENT STATE TENURE SEARCH

DEPT OF NATURAL RESOURCES AND MINES, QUEENSLAND

Request No: 25294082
Search Date: 08/02/2017 11:04 **Title Reference: 48004520**
Date Created: 27/02/2010

Previous Title: 40008706

LAND DESCRIPTION

Estate in PERPETUITY

LOT 723 SURVEY PLAN 129824
Local Government: CENTRAL HIGHLANDS

REGISTERED LESSEE

Dealing No: 712575658 07/07/2009

THE STATE OF QUEENSLAND
(REPRESENTED BY DEPARTMENT OF TRANSPORT AND MAIN ROADS)

PERPETUAL TENURE INFORMATION

For Conditions, Primary Tenure information including Purpose and Term of Tenure, refer to title reference 40008706

ENCUMBRANCES, EASEMENTS AND INTERESTS

1. SUB LEASE No 701720343 18/12/1996 at 15:28
   to
   QUEENSLAND RAIL

2. AMENDMENT OF LEASE No 711947329 26/09/2008 at 09:55
   SUB LEASE: 701720343
   TERM: 01/07/1995 TO 30/06/2095 OPTION 100 YEARS

3. TRANSFER No 711997473 21/10/2008 at 11:10
   SUB LEASE: 701720343
   QR NETWORK PTY LTD A.C.N. 132 181 116

4. AMENDMENT OF LEASE No 713429413 26/08/2010 at 11:15
   SUB LEASE: 701720343
   TERM: 01/07/1995 TO 30/06/2109 OPTION AS THEREIN STATED

5. AMENDMENT OF LEASE No 713836456 05/05/2011 at 11:05
   SUB LEASE: 701720343
   TERM: 01/07/1995 TO 30/06/2109 OPTION AS THEREIN STATED

6. CHANGE OF NAME No 714964808 04/03/2013 at 16:05
   SUB LEASE: 701720343
   AURIZON NETWORK PTY LTD A.C.N. 132 181 116

ADMINISTRATIVE ADVICES - NIL
UNREGISTERED DEALINGS - NIL

CURRENT STATE TENURE SEARCH

DEPT OF NATURAL RESOURCES AND MINES, QUEENSLAND

Request No: 25294082
Search Date: 08/02/2017 11:04 **Title Reference: 48004520**
Date Created: 27/02/2010

CERTIFICATE OF TITLE ISSUED - No

Corrections have occurred - Refer to Historical Search

Caution - Charges do not necessarily appear in order of priority

** End of Current State Tenure Search **

Information provided under section 34 Land Title Act(1994) or
section 281 Land Act(1994)

Requested By: D-ENQ CITEC CONFIRM

Land Title Act 1994; Land Act 1994
Form 21 Version 2

SURVEY PLAN

Sheet 1 of 1

Parish of Lucie

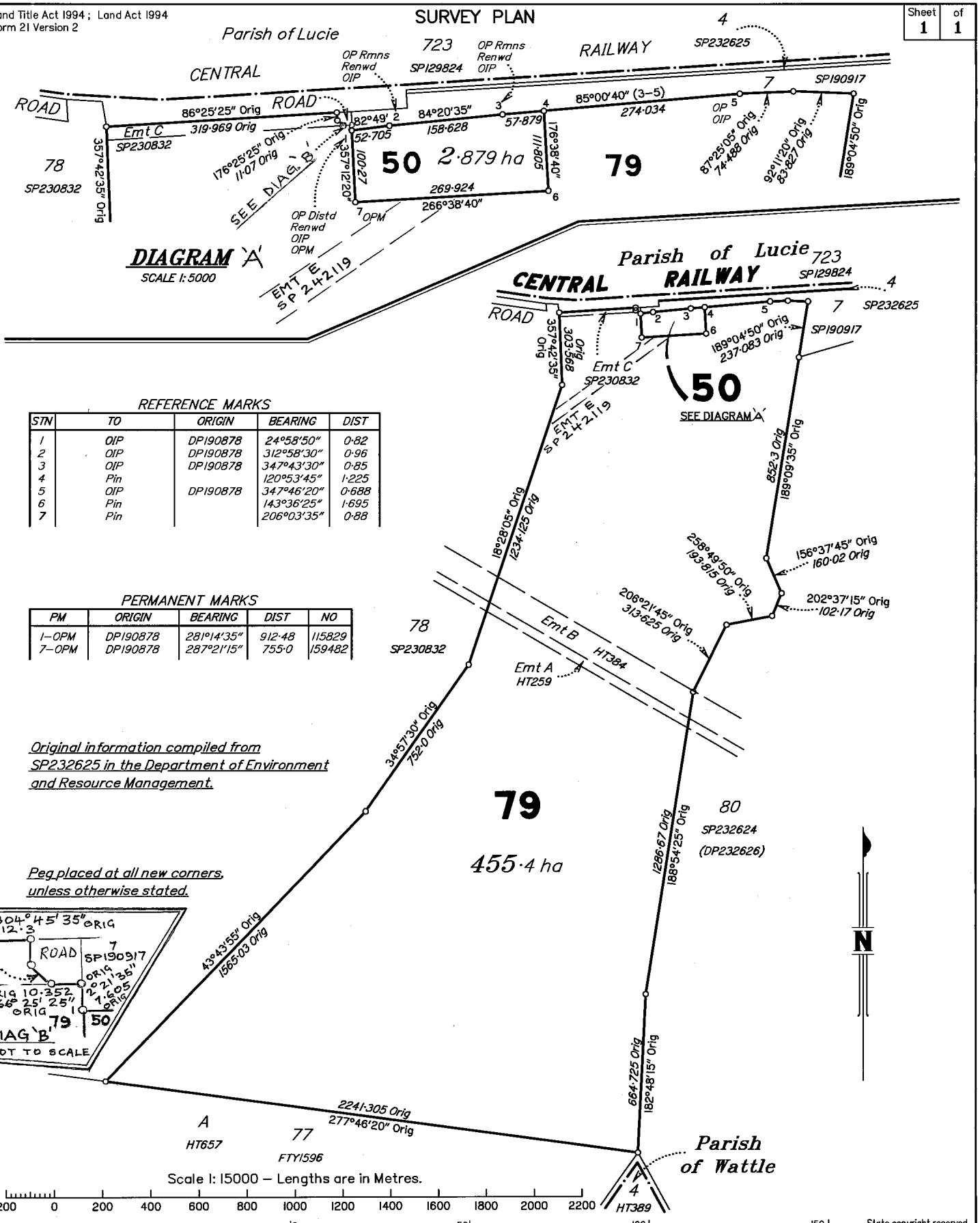


DIAGRAM 'A'

SCALE 1:5000

REFERENCE MARKS

STN	TO	ORIGIN	BEARING	DIST
1	OIP	DP190878	24°58'50"	0·82
2	OIP	DP190878	312°58'30"	0·96
3	OIP	DP190878	347°43'30"	0·85
4	Pin		120°53'45"	1·225
5	OIP	DP190878	347°46'20"	0·688
6	Pin		143°36'25"	1·695
7	Pin		206°03'35"	0·88

PERMANENT MARKS

PM	ORIGIN	BEARING	DIST	NO
1–OPM	DP190878	281°14'35"	912·48	115829
7–OPM	DP190878	287°21'15"	755·0	159482

Original information compiled from SP232625 in the Department of Environment and Resource Management.

Peg placed at all new corners, unless otherwise stated.

Scale 1: 15000 — Lengths are in Metres.

200 0 200 400 600 800 1000 1200 1400 1600 1800 2000 2200

0 50 mm 100 mm 150 mm

I, Sunil Kumar GOVIND, hereby certify that the land comprised in this plan was surveyed by Derek Craven, (Surveying Associate) for whose work I accept responsibility and that the plan is accurate, that the said survey was performed in accordance with the Survey and Mapping Infrastructure Act 2003 and Surveyors Act 2003 and associated Regulations and Standards and that the said survey was completed on 02-02-2011

Cadastral Surveyor

Date 7/2/11

Plan of Lots 50 & 79

Cancelling Lot 79 on SP232625.

PARISH: COLUMBA COUNTY: Humboldt

Meridian: vide DP190878 F/N's: No

Scale: 1:15000

Format: STANDARD

SP238443

Plan Status:

WARNING : Folded or Mutilated Plans will not be accepted.
Plans may be rolled.
Information may not be placed in the outer margins.

714437017

$431.80
27/04/2012 15:20

BE 400 NT

Registered

5. Lodged by

(Include address, phone number, reference, and Lodger Code)

1. Certificate of Registered Owners or Lessees.

I/We COLIN WILLIAM GOODWIN

(Names in full)

*as Registered Owners of this land agree to this plan and dedicate the Public Use Land as shown hereon in accordance with Section 50 of the Land Title Act 1994.

*as Lessees of this land agree to this plan.

C W Goodwin

Signature of *Registered Owners *Lessees

* Rule out whichever is inapplicable

2. Local Government Approval.

* Central Highlands Regional Council

hereby approves this plan in accordance with the :

%

This plan for reconfiguring a lot does not require local government approval under schedule 19 of the Sustainable Planning Regulation 2009 because it is not a "subdivision plan" for the purpose of the Sustainable Planning Regulation 2009: see schedule 26 of the Sustainable Planning Regulation 2009, definition of "subdivision plan", items 3 (b)(i),(ii) or (iii).

The chief executive for the
Department of Transport and Main Roads
for and on behalf of the State of Queensland

Dated this 9th day of Dec 2011

the Delegate of the chief executive for the
Department of Transport and Main Roads

.....

.....

* Insert the name of the Local Government. % Insert Integrated Planning Act 1997 or
# Insert designation of signatory or delegation Local Government (Planning & Environment) Act 1990

3. Plans with Community Management Statement :

CMS Number :

Name :

4. References :

Dept File :

Local Govt :

Surveyor : 090229

6. Existing / Created

Title Reference	Description	New Lots	Road	Emts	Cov.	Profit a prendre
~~50876088~~ to issue	Lot 79 on SP232625	50 & 79	——	——	——	——

ENCUMBRANCE EASEMENT ALLOCATIONS

Easement	Lots to be Encumbered
602800209	79
602800210	79
713109817	79
713991448	79

EXISTING ADMINISTRATIVE ADVICE ALLOCATIONS

Administrative Advice	Lots to be Encumbered
712781273	50 & 79

SECTION 174 NOTIFICATION

Dealing No	Lots to be Encumbered
711587462	50 & 79

Note: – Survey Plan 190917 is to be registered prior to this plan.

MORTGAGE ALLOCATIONS

MORTGAGE	LOTS FULLY ENCUMBERED	LOTS PARTIALLY ENCUMBERED
713281266	50, 79	——

50 & 79	Lot 3 on SP136854
Lots	Orig

7. Portion Allocation :

8. Map Reference :
8750–44323

9. Locality :
BLUFF

10. Local Government :
CENTRAL HIGHLANDS REGIONAL COUNCIL

11. Passed & Endorsed :

By : S.K. Govind
Date : 7/12/11 12/9/11 10/4/11 14/3/11
Signed :
Designation : CADASTRAL SURVEYOR

12. Building Format Plans only.

I certify that :

* As far as it is practical to determine, no part of the building shown on this plan encroaches onto adjoining lots or road;

* Part of the building shown on this plan encroaches onto adjoining * lots and road

Cadastral Surveyor/Director* Date

*delete words not required

13. Lodgement Fees :

Survey Deposit	$.....
Lodgement	$.....
.....New Titles	$.....
Photocopy	$.....
Postage	$.....
TOTAL	$.....

14. Insert Plan Number SP238443

Planning Report

Annex D

EMR/ CLR SEARCH RESULTS

Department of Environment and Heritage Protection (EHP)
ABN 46 640 294 485
400 George St Brisbane, Queensland 4000
GPO Box 2454 Brisbane QLD 4001 AUSTRALIA
www.ehp.qld.gov.au

SEARCH RESPONSE
ENVIRONMENTAL MANAGEMENT REGISTER (EMR)
CONTAMINATED LAND REGISTER (CLR)

Transaction ID: 50354369 EMR Site Id: 08 February 2017
This response relates to a search request received for the site:
Lot: 79 Plan: SP238443

EMR RESULT

The above site is NOT included on the Environmental Management Register.

CLR RESULT

The above site is NOT included on the Contaminated Land Register.

ADDITIONAL ADVICE

All search responses include particulars of land listed in the EMR/CLR when the search was generated.
The EMR/CLR does NOT include:-

1. land which is contaminated land (or a complete list of contamination) if EHP has not been notified
2. land on which a notifiable activity is being or has been undertaken (or a complete list of activities) if EHP has not been notified

If you have any queries in relation to this search please phone 13QGOV (13 74 68)

Administering Authority

Department of Environment and Heritage Protection (EHP)
ABN 46 640 294 485
400 George St Brisbane, Queensland 4000
GPO Box 2454 Brisbane QLD 4001 AUSTRALIA
www.ehp.qld.gov.au

SEARCH RESPONSE
ENVIRONMENTAL MANAGEMENT REGISTER (EMR)
CONTAMINATED LAND REGISTER (CLR)

Transaction ID: 50370568 EMR Site Id: 11 April 2017
This response relates to a search request received for the site:
Lot: 723 Plan: SP129824

EMR RESULT

The above site is NOT included on the Environmental Management Register.

CLR RESULT

The above site is NOT included on the Contaminated Land Register.

ADDITIONAL ADVICE

All search responses include particulars of land listed in the EMR/CLR when the search was generated.
The EMR/CLR does NOT include:-

1. land which is contaminated land (or a complete list of contamination) if EHP has not been notified
2. land on which a notifiable activity is being or has been undertaken (or a complete list of activities) if EHP has not been notified

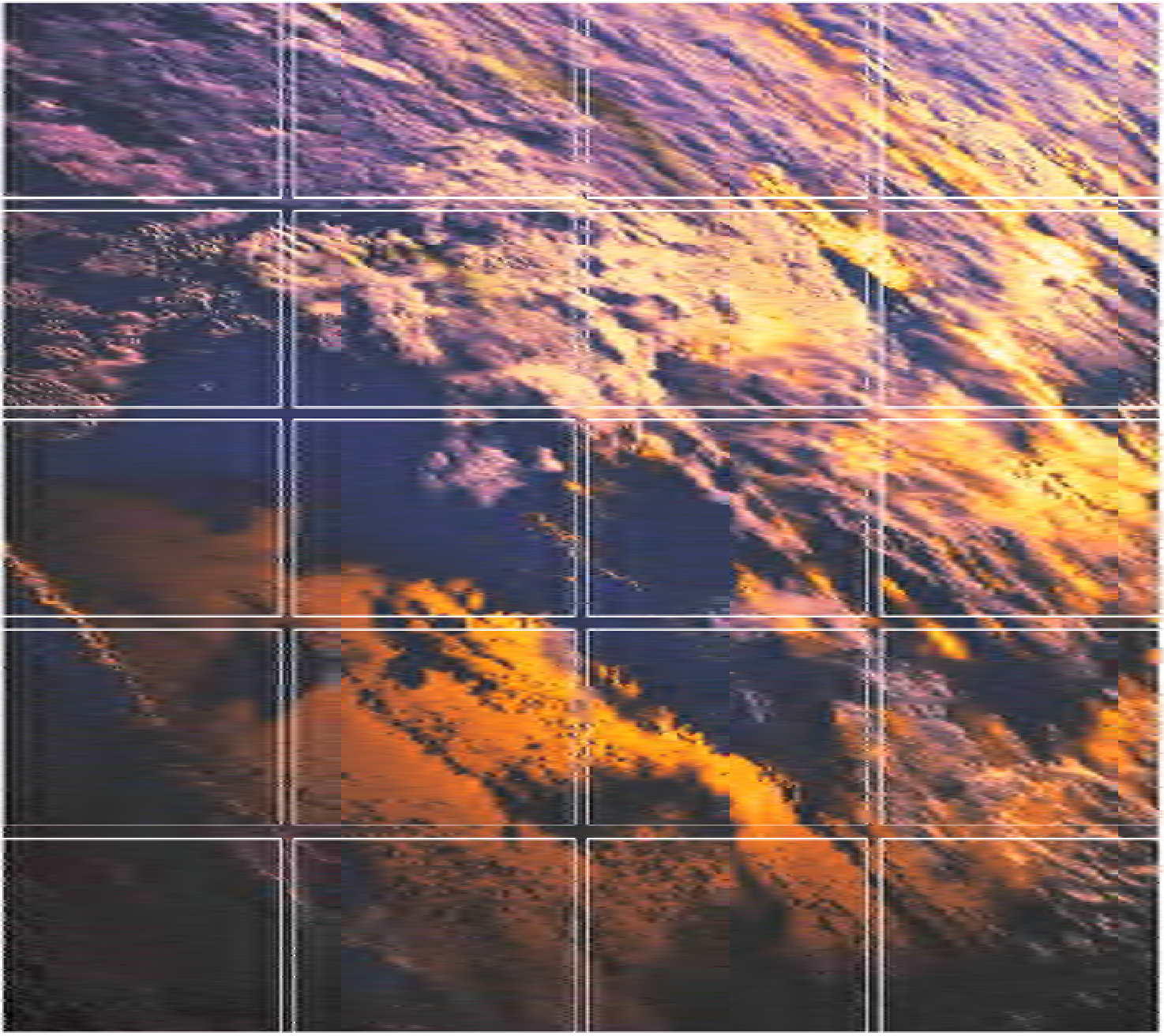
If you have any queries in relation to this search please phone 13QGOV (13 74 68)

Administering Authority

Planning Report

Annex E

ECOLOGICAL ASSESSMENT



Bluff Solar Farm

Ecological Assessment (Final)

Bluff Solar Farm Pty Limited

April 2017

0387539

www.erm.com

The business of sustainability

ERM

Approved by:	Tom Cotter
Position:	*Ecologist*
Signed:	
Date:	13 April, 2017

Approved by:	Alan Simonic
Position:	*Partner Director*
Signed:	
Date:	13 April, 2017

Environmental Resources Management Australia Pty Ltd Quality System

Bluff Solar Farm

Ecological Assessment (Final)

Bluff Solar Farm Pty Limited

April 2017

0387539_03

www.erm.com

FINAL REPORT

Bluff Solar Farm
Ecological Assessment

Capricorn Highway, Bluff
Part of Lot 79 on SP238443 and Part of Lot 723 on SP129824

April 2017

Reference: 0387539

Environmental Resources Management Australia
Level 1, 60 Leichhardt Street
Spring Hill, QLD 4000
Telephone +61 7 3839 8393
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CONTENTS

LIST OF TABLES

ANNEXURES

BPA	Biodiversity Planning Assessments
CHRC	Central Highlands Regional Council
DA	Development Application
DEHP	Department of Environment and Heritage Protection (Queensland)
DNRM	Department of Natural Resources and Mines (Queensland)
DoE	Department of the Environment (Commonwealth)
DoEE	Department of the Environment and Energy (Commonwealth)
DSEWPAC	Department of Sustainability, Environment, Water, Population and Communities (Commonwealth)
DSITI	Department of Science, Information Technology and Innovation (Queensland)
EPBC Act	Environment Protection and Biodiversity Conservation Act 1999
ERM	Environmental Resources Management Australia Pty Ltd
EVNT	Endangered, Vulnerable, Near Threatened (Queensland)
ha	hectares
HVR	High Value Regrowth
LGA	Local Government Area
MCU	Material Change of Use
MNES	Matters of National Environmental Significance
MSES	Matters of State Environmental Significance
NC Act	Nature Conservation Act 1992
PMST	Protected Matters Search Tool
ROL	Reconfiguring a Lot
SIG 1.1	Significant Impact Guidelines 1.1
SMP	Species Management Program
SPRAT	Species Profile and Threats Database
TECs	Threatened Ecological Communities
VM Act	Vegetation Management Act 1999

Bluff Solar Farm Pty Limited is seeking approval for a Material Change of Use – Renewable Energy Facility and a Reconfiguring a Lot ((2 lots into 4 lots), Subdivision by Lease Agreement (2 lots) and Access Easement, to facilitate the development of the Bluff Solar Farm (the Project). This report has been prepared as supporting information for the Development Application.

The Project Area is within the Queensland Brigalow Belt bioregion in the Bowen Basin and consists largely of cleared land which is used for cattle grazing. Patches of regrowth open woodland characterised by eucalypts and brigalow (*Acacia harpohylla*) associated with drainage lines and adjacent plains occur at the north of the Project Area. Introduced buffel grass (*Cenchrus ciliaris*) dominates the ground layer in these patches. The Project Area occurs in a heavily transformed agricultural landscape, although large tracts of native vegetation are retained in protected areas (state forests and national parks) to the south and adjacent to the Project Area.

One threatened ecological community (TEC) protected under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) was confirmed as present at the Project Area. Approximately 5.9 ha of the vulnerable *Brigalow (Acacia harpophylla dominant and co-dominant*) TEC was recorded from a linear regrowth patch that occurs along a drainage line at the north of the Project Area. It is proposed that construction of the Project will avoid the vegetation associated with this TEC.

No threatened flora species protected under the EPBC Act or the Queensland *Nature Conservation Act 1992* were recorded or are consider likely to occur at the Project Area. The squatter pigeon (southern) (*Geophaps scripta scripta*) (vulnerable under the EPBC Act and NC Act) has been previously recorded in the local landscape. As a result, regrowth woodland that occurs at the north of the Project Area may provide foraging resources. However, due to the level of degradation, this habitat is considered to be suboptimal. An assessment against the Department of the Environment (DoE) Significant Impact Guidelines 1.1 (2013) (SIG 1.1) for the squatter pigeon (southern) was undertaken and concluded that the development is unlikely to significantly impact the squatter pigeon (southern).

The EPBC Act-listed migratory fork-tailed swift has the potential to occur at the Project Area. Due to the generalist habitat requirements of this species and its exclusively aerial behaviour, the development of the Project is not likely to significantly impact this species.

1 INTRODUCTION

Bluff Solar Farm Pty Limited is seeking approval for the construction and operation of the Bowen Solar Farm (the Project) on land within Lot 79 on SP238443 and Lot 723 on SP129824 (access only). The Project Area is approximately 332.2 ha in total. The Project requires a Development Application (DA) including Reconfiguring a Lot (ROL) and Material Change of Use (MCU) to be supported by an ecological assessment. This ecological assessment report meets this requirement.

For the purposes of this report, the 'Project Area' is defined as the 322 ha area in which the Project will occur (Lot 79 on SP238443). Indicatively, the construction of the solar facility is proposed to occur within the 'Proposed Development Area' (noting that this indicative footprint does not include access roads or power connections associated with the areas to be occupied by solar panels), which has an area of approximately 270 ha.

The location of the Project Area and the Proposed Development Area are displayed in *Figure 1* provided as *Annex A*.

1.1 PURPOSE OF THIS REPORT

The purpose of this Ecological Assessment Report is to present a review of desktop ecological databases and mapping, and summarise observations from a two day site visit, in order to describe the existing ecological constraints and identify potential impacts associated with the Project. This review will be utilised to:

- Identify ecological values mapped by Commonwealth and State government spatial data sets within the Project Area and local council planning scheme overlays and relevant codes;
- Determine the known or likely presence of Matters of National Environmental Significance (MNES) identified under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)* including listed threatened species and ecological communities;
- Determine the known or likely presence of Matters of State Environmental Significance (MSES) identified under the *Nature Conservation Act 1992 (NC Act)* and *Vegetation Management Act 1999 (VM Ac*t) including listed flora and fauna species and vegetation communities;
- Identify potential impacts associated with the Project based on the understanding of the ecological values of the site. In the event MNES listed under the EPBC Act are identified as known or likely to occur, the relevant impact guidelines will be referred to and considered as part of the impact assessment; and
- Identify measures for management or mitigation of potential impacts to ecological values within the Project Area.

1.2 PROJECT AREA DESCRIPTION

The Project Area is located on freehold rural land along the Capricorn Highway, approximately 2km west of the township of Bluff, 15km east of the township of Blackwater, and 90km east of Emerald, within the Central Highlands Regional Council ('Council') LGA.

The Project Area is within the Brigalow Belt bioregion in the Bowen Basin and consists largely of cleared grazing land. Patches of regrowth open woodland occur in association with drainage lines and adjacent plains at the north of the Project Area. The Project Area occurs in a heavily transformed agricultural landscape, although large tracts of native vegetation are retained in protected areas (state forests and national parks) to the immediate south.

Refer to *Figure 1* of *Annex A* which provides a plan of the Project Area showing the lot boundary and proposed development area in relation to local area.

1.3 LEGISLATIVE FRAMEWORK

Table 1.1 summarises the relevant Commonwealth, State and local council legislation governing biodiversity conservation in the Central Highlands area.

Table 1.1 Overview of key legislation and policies governing biodiversity conservation in the Central Highlands Area

Act/scheme	Administering Authority	Purpose	Application/Implementation of the Policy
Legislation			
Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act) (Commonwealth)	Department of the Environment and Energy (DoEE)	The protection of the environment within Australia – in particular Matters of National Environmental Significance (MNES), which include: • World heritage properties; • National heritage properties; • Wetlands of international importance; • Threatened species and ecological communities; • Migratory species; • Commonwealth marine areas; • The Great Barrier Reef Marine Park; • Nuclear Actions (include. uranium mines); and • Water Resources.	Should a project or action have the potential to significantly impact MNES, approval from the Commonwealth Environment Minister is required.

Act/scheme	Administering Authority	Purpose	Application/Implementation of the Policy
Nature Conservation Act 1992 (NC Act) (QLD)	Department of Environment and Heritage Protection (DEHP)	The object of the NC Act is the conservation of nature while allowing for certain uses of protected areas. The NC Act allows the declaration of protected areas and the listing of threatened species under the regulations of the NC Act.	The NC Act regulates actions impacting protected native flora and fauna species. Permits for disturbance to native flora and fauna can be administered under the NC Act. The associated Nature Conservation (Wildlife) Regulation 2006 lists flora and fauna species that are extinct in the wild, endangered, vulnerable and near threatened. The Nature Conservation (Wildlife Management) Regulation 2006 prohibits tampering with a native animal breeding place except under specific conditions which include the activity being part of an approved Species Management Program (SMP). The guideline for preparation of a SMP notes that impacts to breeding places for least concern species may be managed through a standard SMP. However, the guideline states that special least concern species and colonial breeding animals are excluded from this allowance.
Vegetation Management Act 1999 (VM Act) (QLD)	Department of Natural Resources and Mines (DNRM)	Regulates the broad-scale clearing of vegetation, with the intent of conserving remnant vegetation, preventing the loss of biodiversity, maintaining ecological processes and allowing for sustainable use.	The VM Act regulates the clearing of remnant vegetation and the clearing of regrowth vegetation on leasehold land for agriculture and grazing. One of the mechanisms for implementation of the VM Act is assessment against the vegetation clearing code provided in the State Development Assessment Provisions as part of the Integrated Development Assessment System.
Central Highlands Regional Council Planning Scheme 2016	Central Highlands Regional Council (CHRC)	Guide the way land, buildings and structures are used and developed in the Central Highlands to ensure development occurs that allows for sustained economic growth and protects the regions values and way of life and is in accordance with the *Sustainable Planning Act 2009*.	The CHRC Planning Scheme provides map overlays which identify Matters of State Environmental Significance (MSES) and details biodiversity outcomes which developments are required to meet.

2 METHODOLOGY

2.1 DESKTOP ASSESSMENT

Publicly available desktop sources were examined to review and document the known and potential listed ecological values within and surrounding the Project Area, and guide the design of the field survey. Desktop sources included available mapping and species databases:

Available Mapping

- DNRM Regional Ecosystem version 8.0 mapping. This product maps remnant vegetation communities across Queensland and identifies communities listed as endangered, of concern or least concern status.
- DNRM Regrowth vegetation version 2.1 mapping. This product maps high value regrowth and mature regrowth vegetation areas;
- DNRM Property Maps of Assessable Vegetation mapping published 23 August 2016. This product provides certified property scale maps indicating where landholders can clear regrowth in 'Category X' areas without further approval;
- DoEE Ecological Communities of National Environmental Significance Database. This product maps the general occurrence and distribution of Threatened Ecological Communities (TEC) listed under the Commonwealth EPBC Act;
- DEHP Matters of State Environmental Significance (MSES) version 4.1 mapping. This product maps areas of MSES as defined under the State Planning Policy in Queensland;
- DNRM Essential Habitat Mapping version 4.36 mapping. This product maps habitat for species listed under the Queensland NC Act;
- DEHP Wetland Management Areas published 21 November 2011. This product maps wetlands of high ecological significance (HES) and general ecological significance (GES) in order to identify areas where planning and assessment policies will apply;
- DNRM Vegetation Management Wetlands Map version 2.36. This product maps areas of wetland vegetation certified by the chief executive for the State;
- DEHP Statewide Corridor Buffers version 1.3. This product maps terrestrial and riparian corridor buffers derived from the Biodiversity Planning Assessments (BPA);
- DEHP Protected Plants Endangered, Vulnerable, Near Threatened (EVNT) Flora Survey Trigger Map version 4.1. This product maps areas where a survey of EVNT plants is required before a proposed vegetation clearing program can take place;

- Department of Science, Information Technology and Innovation (DSITI) Queensland Herbarium Specimen Data (HERBRECS) published 28 August 2016. This product maps a subset of the locations of native and naturalised flora specimens from the Queensland Herbarium database with confidential species removed;
- Central Highlands Regional Council Planning Scheme Biodiversity Overlay version 1.1. This product maps biodiversity areas, waterways and wetlands within the Central Highlands Regional Council Local Government Area;
- DoEE National Flying-fox Monitoring Viewer. This product maps the locations of daytime flying-fox roost site counted as part of the National Flying-fox Monitoring Program Flying-fox Census;
- Department of Sustainability, Environment, Water, Population and Communities (DSEWPAC – now DoEE) Biogeographic Regionalisation for Australia version 7. This product maps the bioregions of Australia according to land surface, including attributes of climate, geomorphology and landform, lithology, and characteristic flora and fauna; and
- Satellite and aerial photography.

Species Databases

Species databases that were examined are listed below and detailed in *Table 2.1:*

- Queensland Wildlife Online Database; and
- Protected Matters Search Tool (PMST).

Table 2.1 Species databases queried in desktop assessment

Database	Database Description	Search Terms
Wildlife Online	The wildlife online database provides records of flora and fauna species in the search area listed under the NC Act.	• All flora and fauna species; • Recorded since 1980; and • 10 km buffer of the Project Area.
PMST	The PMST provides predictive results of MNES based on mapping of known and potential species distribution, habitat, ecological communities and wetlands. Results are not known records.	• 10 km buffer of the Project Area.

2.2 *FIELD SURVEY*

A two day survey of the Project Area was conducted by an ecologist (24 Jan – 25 Jan 2017). The purpose of this site visit was to verify the findings of the desktop assessment. Specifically, the site visit sought to verify the various

environmental mapping products assessed as part of the desktop review, and provide information about the types and quality of vegetation communities and habitats occurring at the Project Area. Information collected during the field survey allowed for a characterisation of the broad ecological values of the Project Area, and guided the assessment of the potential for species and communities of national and/or state environmental significance to occur.

The site visit comprised the following activities:

- Verification of mapped remnant vegetation (Regional Ecosystems (RE)), utilising a 'quaternary' level of assessment as per Neldner et al. (2012) at seven sites in representative vegetation communities across the Project Area;
- Identification of the type and locality of flora communities that may qualify as an EPBC Act-listed TEC;
- Identification of the type and prevalence of non-native plants;
- Identification of habitat values—including broad habitat types, finer-scale microhabitat features, and evidence of degradation—associated with remnant vegetation, non-remnant vegetation and waterbodies/watercourses (corresponding with seven RE verification sites);
- Identification of the type and locality of habitats that may support conservation-significant fauna species listed under the EPBC Act and/or NC Act; and
- Opportunistic records of fauna at RE verification sites, and across the broader Project Area.

2.3 *LIKELIHOOD OF OCCURRENCE ASSESSMENT*

Database searches identified a number of flora and fauna species listed under the EPBC Act and NC Act that have been previously recorded or are predicted to occur within a 10 km buffer of the Project Area, from here on referred to as the 'locality'. In order to refine the list to those species that are known or may occur within the Project Area, a likelihood of occurrence assessment was undertaken. The assessment ranks the likelihood of the species occurring through analysis of species distribution information and the presence of specific habitat attributes as revealed through the desktop analysis and site visit. A likelihood rank was provided based on the combination of the criteria outlined in *Table 2.2*.

Table 2.2 Likelihood of Occurrence Criteria

	Preferred habitat exists	Suitable habitat exists[1]	Habitat does not exist[2]
Records within Project Area (based on site surveys and recent database records)	Known	Known	Known
Records in the locality[3]	Likely	Potential	Unlikely
No records in the locality, but Project Area is within known distribution	Potential	Unlikely	Unlikely
No records in the locality, and Project Area is outside of distribution	Unlikely	Unlikely	Unlikely

1. Habitat may be considered suitable, but not preferred because: some desired habitat features may be present, but not all; habitat may have poor connectivity; or habitat may be known to be disturbed.
2. Based on sources reviewed.
3. Locality refers to a 10 km buffer of the Project Area.

Specific to this project, likelihood of occurrence criteria indicate that species:

- are 'known' to occur if they have been recorded within the Project Area;
- are 'likely' to occur if preferred habitat exists in the Project Area and recent records of the species have been identified within the locality;
- have 'potential' to occur if there are records within the locality and suitable habitat exists, however the habitat is not considered to be preferred habitat;
- have 'potential' to occur if there are no records within the locality, but the Project Area provides preferred habitat;
- are 'unlikely' to occur if the Project Area is outside the species distribution or the Project Area does not contain preferred or suitable habitat for the species.

The likelihood rank is based on information obtained from the desktop assessment sources and observations made during a two day site visit, as outlined in *Section 2.1* above. Desktop sources, particularly vegetation mapping, are indicative only. Likelihood rankings, particularly in regard to the presence of preferred habitat, are conservative.

2.4 LIMITATIONS

The following limitations apply to the methodology employed for this ecological assessment:

- The purpose of this study is to identify known and potential ecological values recognised under Commonwealth and Queensland legislation using a desktop assessment and two day site visit.
- In compiling the desktop assessment, ERM has utilised industry standard databases and mapping products and has assumed the accuracy of these products where appropriate.

3 DESCRIPTION OF ECOLOGICAL VALUES AT THE PROJECT AREA

The following sections describe the ecological values of the Project Area following analysis of information obtained from the desktop assessment and two day site visit.

3.1 GENERAL PROJECT AREA CHARACTERISTICS

3.1.1 Vegetation Communities

The majority of the Project Area is characterised by cleared land that is used for grazing cattle. No remnant vegetation is mapped as occurring within the Project Area. This mapping was verified during the site visit. Patches of regrowth woodland were observed in the northern part of the Project Area, corresponding with the following REs (*Annex A*):

- 11.3.1: *Acacia harpophylla* and/or *Casuarina cristata* open forest on alluvial plains
- 11.3.2: *Eucalyptus populnea* woodland on alluvial plains
- 11.4.2: *Eucalyptus spp*. and/or *Corymbia spp*. grassy or shrubby woodland on Cainozoic clay plains
- 11.4.9: *Acacia harpophylla* shrubby woodland with *Terminalia oblongata* on Cainozoic clay plains

This regrowth vegetation is associated with drainage lines and adjacent areas on alluvial deposits and clay plains.

During the field survey, mapped remnant vegetation to the immediate south (and outside) of the Project Area, but within Lot 79 on SP238443, was verified as being endangered RE 11.4.9 (*Figure 2*).

Refer to *Figure 2* of *Annex A* which shows the location of RE verification and fauna habitat assessment sites, ground-truthed vegetation communities, and regrowth vegetation corresponding with the Brigalow TEC.

3.1.2 Waterbodies

No wetlands of high ecological significance, high ecological value waters, or vegetation management wetlands are mapped as occurring in the Project Area (as per the Queensland Government MSES mapping for the Project Area). Five first-order ephemeral watercourses, which are mapped MSES ('Regulated Vegetation (intersecting a watercourse)') drain the Project Area. These appear to drain the upland country to the south of the Project Area, and flow to the north. A small number of surface waterbodies, in the form of farm dams occur in the Project Area.

3.1.3 Fauna Habitat

The Project Area consists largely of cleared land which is utilised for cattle grazing. Small patches of regrowth *Eucalyptus* and brigalow open woodland habitat occur in association with drainage lines and adjacent plains at the

north of the Project Area. Introduced buffel grass (*Cenchrus ciliaris*) dominates the ground layer in theses patches. The Project Area occurs in a heavily transformed local landscape that is dominated by agricultural land use. However, large tracts of native vegetation are retained in protected areas (state forests and national parks) to the immediate south of the Project Area.

Field observations revealed that the regrowth woodland at the north of the Project Area was typified by a relatively open tree layer, shrubby understorey and sparse to dense ground layer of native and introduced grasses. Introduced plants were common in these regrowth patches, particularly in the form of exotic grasses and ground covers. Degradation associated with cattle grazing was noted, as was the presence of introduced animals including dogs (*Canis familiaris*), cats (*Felis cattus*) and European hare (*Lepus capensis*).

This regrowth woodland is likely to provide habitat resources for a suite of common woodland birds that are associated with modified environments, as well as common reptiles, amphibians and mammals such as macropods. However, the degradation and lack of structural complexity of this habitat, in combination with the observed paucity of microhabitat features such as coarse woody debris, leaf litter, cracking clays, gilgais and tree hollows, limits the heterogeneity of this habitat. This likely reduces the potential for less-disturbance tolerant and/or more specialised species to occur. The regrowth vegetation does potentially represent a corridor (in an approximately south-west to north-east direction) by which fauna may move between larger tracts of native vegetation in what is a heavily transformed agricultural landscape.

Cleared land, which is characterised by a mix of buffel grass and native grass, dominates the remainder of Project Area. This habitat, which features log piles and scattered trees (mainly along ephemeral drainage lines), is likely to be of limited value for fauna, beyond common generalist species that typify modified agricultural environments.

3.2 STATUTORY ASPECTS

3.2.1 Commonwealth Listed Threatened Ecological Communities

The PMST identified four EPBC Act-listed Threatened Ecological Communities (TECs) with potential to occur in the Project Area:

- Brigalow (*Acacia harpophylla* dominant and codominant) – endangered
- Coolibah-Black Box Woodlands of the Darling Riverine Plains and The Brigalow Belt South Bioregions - endangered
- Natural Grasslands of the Queensland Central Highlands and the northern Fitzroy Basin – endangered
- Weeping Myall Woodlands - endangered

No remnant vegetation (i.e. remnant Regional Ecosystems (REs)) is mapped as occurring within the Project Area. This was verified during the site visit. Vegetation consistent with the 'Natural Grasslands TEC'does not occur at the Project Area. Similarly, vegetation that characterises the 'Weeping Myall TEC' (*Acacia pendula*) is absent. The northern extent of the 'Coolibah-Black Box TEC' coincides with the boundary of the Brigalow Belt South Bioregion (as per the Interim Biogeographic Regionalisation of Australia). The Project Area occurs near this boundary, with the vast majority of the Project Area occurring in the Brigalow Belt North Bioregion. Given its distribution, and the lack of requisite REs, this TEC is not applicable to the Project Area.

Brigalow regrowth at the north of the Project Area was observed to correspond with REs 11.3.1 and 11.4.9 (*Figure 2*). Of this regrowth vegetation, a small strip (5.9 ha) occurring along a drainage line (in regrowth vegetation aligning with RE 11.3.1) was observed to meet the condition thresholds for the 'Brigalow TEC' (*Figure 2*). This regrowth vegetation will be avoided through project design, and so a significant impact to the 'Brigalow TEC' will not occur.

3.2.2 State Listed Regional Ecosystems

No remnant vegetation ('Category B') is mapped as occurring within the Project Area, with the entirety of the Project Area mapped as non-remnant 'Category X' vegetation on the DNRM Regulated Vegetation Management Map. This mapping was verified during the site visit. Mapped remnant vegetation does occur to the immediate south (and outside) of the Project Area, but within Lot 79 on SP238443. During the field survey, this 'Category B' remnant vegetation—a MSES—was verified as endangered RE 11.4.9 (*Acacia harpophylla* shrubby woodland with *Terminalia oblongata* on Cainozoic clay plains).

No High-value regrowth ('Category C') is mapped within the Project Area.

3.2.3 Essential Habitat

The Project Area does not include any areas mapped as Essential Habitat for NC Act listed species.

3.2.4 Protected Plants Flora Survey Trigger

The Project Area is not within the Protected Plants EVNT Flora Survey Trigger mapping.

3.2.5 Central Highlands Regional Council Planning Scheme

The Project Area contains five first order watercourses mapped as 'Regulated Vegetation (intersecting a watercourse)' (a MSES), which are incorporated into the Biodiversity Overlay in the *Central Highlands Regional Council Planning Scheme 2016*. Field verification of vegetation communities, as shown *Figure 2*,

indicates that riparian vegetation is not present along some of these watercourses. Moreover, mapped endangered remnant vegetation to the immediate south (and outside) of the Project Area (but within Lot 79 on SP238443) is identified in the Biodiversity Overlay as an MSES.

3.2.6 Threatened Species

The likelihood of occurrence assessment (*Annex B*) identified one threatened species as 'likely to occur' and seven threatened species with the 'potential to occur' at the Project Area *(Table 3.1*). It is important to note that potential habitat for these species at the Project Area—namely, small patches or linear strips of regrowth woodland—is unlikely to represent high-value habitat, given the fragmented and disturbed nature of the vegetation.

The development of the Project will disturb regrowth open woodland habitat in which the EPBC Act and NC Act-listed vulnerable squatter pigeon (southern) (*Geophaps scripta scripta*) is considered likely to occur. Although this woodland is considered to represent suboptimal foraging habitat due to its fragmented and degraded nature, a significant impact assessment against the Significant Impact Guidelines 1.1 (DoE 2013) for the species has been undertaken given that it has been previously recorded in the locality (provided in *Annex C).* The assessment indicates that the development is unlikely to significantly impact the squatter pigeon (southern).

For the seven species that have the potential to occur, regrowth woodland habitat, which primarily occurs at the north of the Project Area, may provide habitat resources and landscape connectivity. This includes potential foraging habitat for three microchiropteran bats (large-eared pied bat (*Chalinolobus dwyeri*), ghost bat (*Macroderma gigas*), south-eastern long-eared bat (*Nyctophilus corbeni*)), potential foraging and shelter habitat for one reptile (yakka skink (*Egernia rugosa*)), potential local landscape connectivity for one arboreal mammal (greater glider (*Petauroides volans*)), and potential foraging habitat for one bird (painted honeyeater (*Grantiella picta*)). Although only small, disturbed regrowth patches of *Eucalyptus* and brigalow woodland are present and may provide potential habitat for these threatened species given the Project Area's proximity to extensive tracts of remnant vegetation outside of the Project Area. Woodland communities growing on heavy soils (alluvium – associated with Queensland Land Zone 3; clay plains associated with Queensland Land Zone 4) may provide habitat for one threatened grass, *Dichanthium setosum*.

Table 3.1 Summary of likelihood of occurrence findings

Scientific Name	Common Name	EPBC Act Status	NC Act Status	Likelihood of Occurrence (Project Area)
PLANTS				
Dichanthium setosum	bluegrass	V	-	Potential
REPTILES				
Egernia rugosa	yakka skink	V	V	Potential
MAMMALS				
Chalinolobus dwyeri	large-eared pied bat	V	V	Potential
Macroderma gigas	ghost bat	V	V	Potential
Nyctophilus corbeni	south-eastern long-eared bat	V	V	Potential
Petauroides volans	greater glider	V	-	Potential
BIRDS				
Geophaps scripta scripta	squatter pigeon (southern)	V	V	Likely
Grantiella picta	painted honeyeater	V	V	Potential

3.2.7 Migratory Species

The PMST identified nine species listed as migratory under the EPBC Act with potential to occur in the locality. These species have been categorised into three groups based on their habitat preferences. The groups, species and relevance to the Project Area are presented in *Table 3.2*

Table 3.2 Migratory species identified in the PSMT

Species Group	Species Name	Relevance to Project Area
Wetland or coastal species	• Latham's snipe (*Gallinago hardwickii*) • osprey (*Pandion haliaetus*) • curlew sandpiper (*Calidris ferruginea*)	These species occur in wetlands, or close to coastal areas, and are **unlikely** to occur in the Project Area due to the distance from the coastline (approximately 185 km) and the absence of wetlands.
Rainforest and wet forest species	• black-faced monarch (*Monarcha melanopsis*) • satin flycatcher *(Myiagra cyanoleuca)* • rufous fantail (*Rhipidura rufifrons*) • oriental cuckoo (*Cuculus optatus)*	These species have a preference for rainforest or wet forest habitats that do not occur in the Project Area and are **unlikely** to occur due to the absence of these habitats.
Species with generalist habitat requirements	• fork-tailed swift (*Apus pacificus*) • yellow wagtail (*Motacilla flava*)	These two species have generalist habitat requirements, including a variety of natural habitats, farmland and residential areas. Due to its generalist (exclusively aerial) habitat requirements, the fork-tailed swift has the **potential** to occur in the Project Area. The yellow wagtail is typically recorded near the coast, and is **unlikely** to occur.

The majority of the Project Area is cleared, although small patches and linear strips of disturbed regrowth woodland are present at the north. No remnant vegetation is mapped as occurring at the Project Area (verified during the two day site visit). Several ephemeral first order watercourses drain the Project Area. In summary, the Project Area is a highly modified environment, with generally limited ecological values.

The Project Area was designated to avoid endangered remnant vegetation at the south of Lot 79 on SP238443. Moreover, the Proposed Development Area avoids some of the regrowth woodland at the north of the Project Area (primarily along a watercourse).

One vulnerable TEC protected under the EPBC Act—the 'Brigalow TEC'—was confirmed to occur at the Project Area during the two day site visit. This TEC was associated with a narrow strip of regrowth riparian brigalow woodland (5.9 ha) that aligns with RE 11.3.1 (a constituent RE of the TEC). Project design avoids this area of vegetation, and so no impact is likely to occur. Where linear infrastructure such as access tracks and/or power connections needs to be established, it is recommended that this also avoids intersecting the identified linear strip of 'Brigalow TEC'.

No threatened flora species protected under Commonwealth or Queensland legislation were confirmed present, or are considered likely to occur at the Project Area.

Fauna habitat values are limited at the Project Area. Regrowth woodland likely provides habitat resources for a range of common species that are widely distributed in the modified agricultural landscapes of central Queensland. This regrowth woodland is unlikely to support more specialised/less disturbance tolerant species, due to its lack of structural complexity, paucity of microhabitat features, and exposure to ongoing disturbance/degradation. It is considered possible that a small number of listed threatened species which potentially occur in the local landscape may utilise this regrowth woodland as a conduit for dispersal, or as a (sub-optimal) foraging resource.

The EPBC Act and NC Act-listed vulnerable squatter pigeon (southern), which has been previously recorded in the local landscape, may utilise disturbed regrowth woodland at the north of the Project Area as suboptimal foraging habitat. An assessment against the Significant Impact Guidelines 1.1 concluded that the Project is unlikely to significantly impact the squatter pigeon (southern).

The EPBC Act-listed migratory fork-tailed swift may occur at the Project Area. Due to the generalist habitat requirements of this species and its exclusively aerial behaviour, the development of the Project is not likely to significantly impact this migratory bird.

Notwithstanding the limited ecological values of the Project Area, a range of measures should be implemented to avoid or minimise impacts to vegetation communities, watercourses, fauna habitat and fauna present at the Project Area. As noted, endangered remnant vegetation at the south of Lot 79 on SP238443 has been excluded from the Project Area. Regrowth woodland fringing a drainage line at the north of the Project Area identified as Brigalow TEC on *Figure 1*, is also proposed to be avoided. Vehicle hygiene procedures will be implemented to minimise the risk of the introduction/spread of weed species. Erosion control measures will be implemented to minimise the runoff of sediment into watercourses during the construction phase of the Project. Fauna mortality will be managed by initiating vehicle speed limits in close proximity to vegetated areas.

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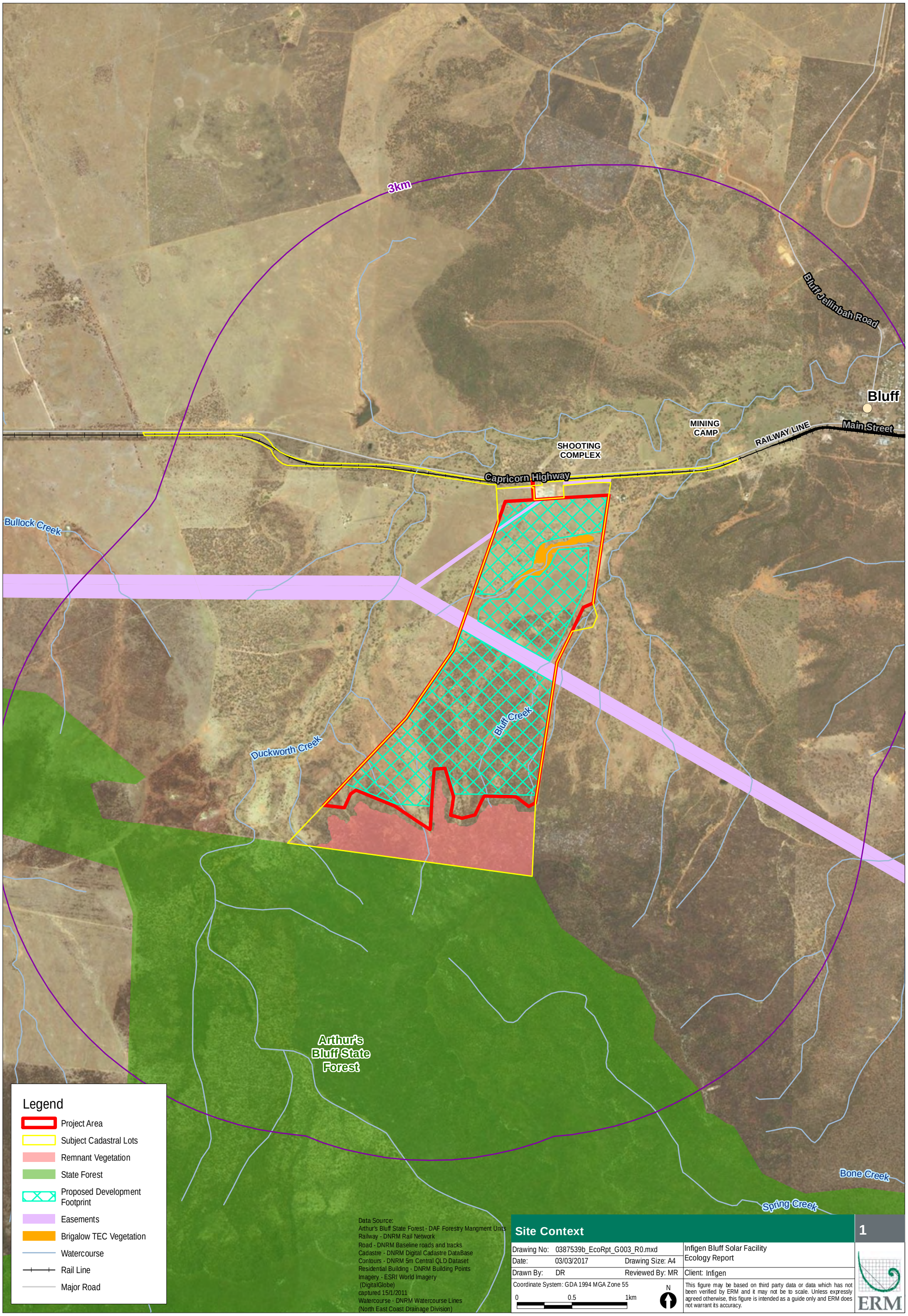
Annex A

Figures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Bluff Jellinbah Road
Bluff
MINING CAMP
RAILWAY LINE
Main Street
SHOOTING COMPLEX
Capricorn Highway
Bullock Creek
Bluff Creek
Duckworth Creek
Arthur's Bluff State Forest
Bone Creek
Spring Creek
Legend
Project Area
Subject Cadastral Lots
Remnant Vegetation
State Forest
Proposed Development Footprint
Easements
Brigalow TEC Vegetation
Watercourse
Rail Line
Major Road
Data Source:
Arthur's Bluff State Forest - DAF Forestry Mangment Units
Railway - DNRM Rail Network
Road - DNRM Baseline roads and tracks
Cadastre - DNRM Digital Cadastre DataBase
Contours - DNRM 5m Central QLD Dataset
Residential Building - DNRM Building Points
Imagery - ESRI World Imagery
(DigitalGlobe)
captured 15/1/2011
Watercourse - DNRM Watercourse Lines
(North East Coast Drainage Division)
Site Context
1
Drawing No: 0387539b_EcoRpt_G003_R0.mxd
Date: 03/03/2017
Drawing Size: A4
Drawn By: DR
Reviewed By: MR
Coordinate System: GDA 1994 MGA Zone 55
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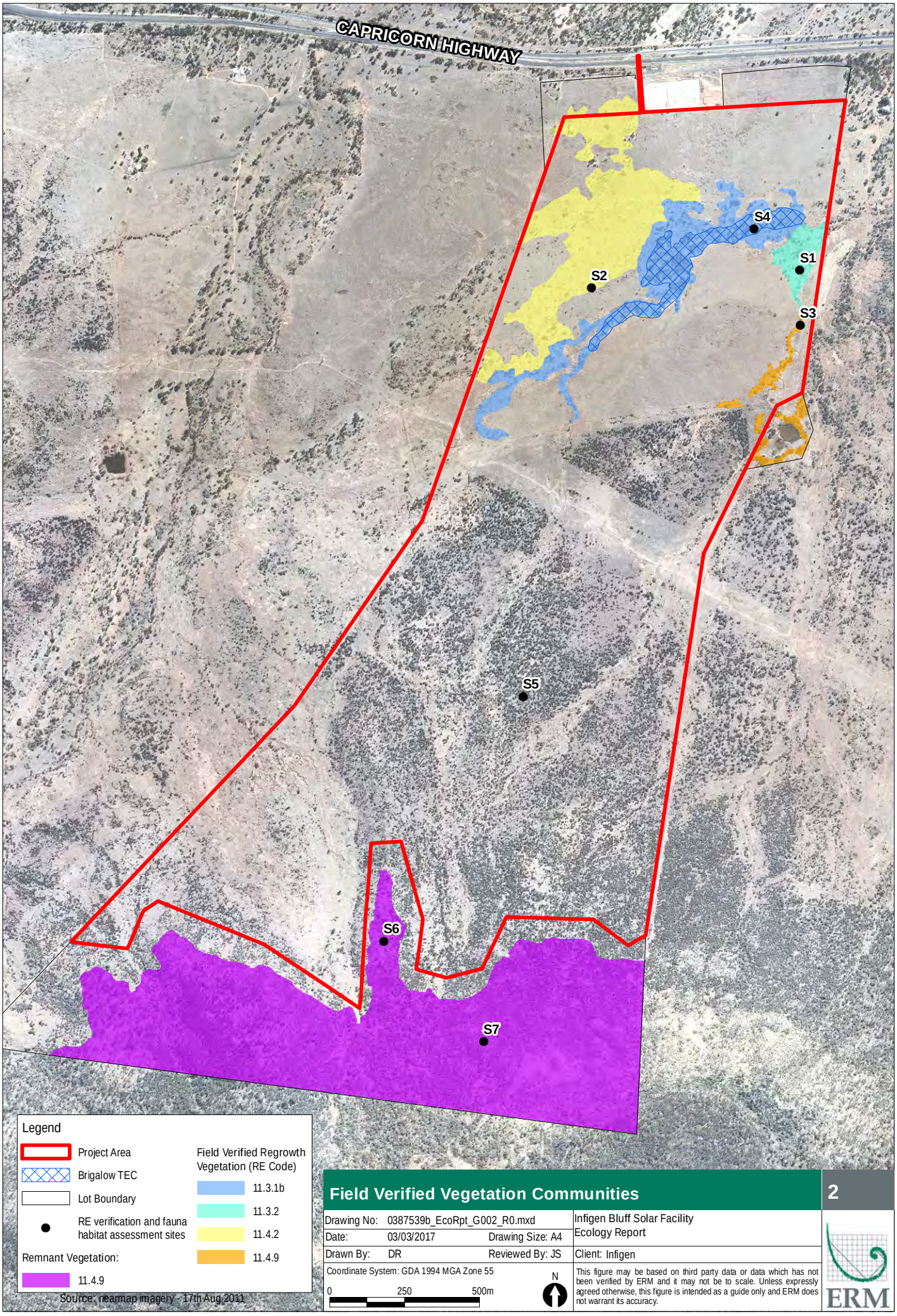
1km
N
Infigen Bluff Solar Facility
Ecology Report
Client: Infigen
This figure may be based on third party data or data which has not been verified by ERM and it may not be to scale. Unless expressly agreed otherwise, this figure is intended as a guide only and ERM does not warrant its accuracy.
ERM


CAPRICORN HIGHWAY
S1
S2
S3
S4
S5
S6
S7
Legend
Project Area
Brigalow TEC
Lot Boundary
RE verification and fauna habitat assessment sites
Remnant Vegetation:
11.4.9
Field Verified Regrowth Vegetation (RE Code)
11.3.1b
11.3.2
11.4.2
11.4.9
Source: nearmap imagery - 17th Aug 2011
Field Verified Vegetation Communities
2
Drawing No: 0387539b_EcoRpt_G002_R0.mxd
Date: 03/03/2017
Drawing Size: A4
Drawn By: DR
Reviewed By: JS
Coordinate System: GDA 1994 MGA Zone 55
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Infigen Bluff Solar Facility
Ecology Report
Client: Infigen
This figure may be based on third party data or data which has not been verified by ERM and it may not be to scale. Unless expressly agreed otherwise, this figure is intended as a guide only and ERM does not warrant its accuracy.
ERM

Annex B

Likelihood of Occurrence Assessment*

*Note: The Likelihood of Occurrence Assessment (LoO) below has been provided for the Project Area as a whole, noting that the Proposed Development Area will occur within the Project Area, but not encompass its entire extent (refer *Figure 1*)

Scientific Name	Common Name	EPBC Act Status[2]	NC Act Status[2]	Distribution[3]	Habitat Requirements[3]	Likelihood of Occurrence	Source
FLORA							
Cadellia pentastylis	ooline	V	V	The distribution of ooline is from central northern New South Wales in the south to inland central Queensland in the north.	This tree species occurs in dry rainforest, semi-evergreen vine thicket and sclerophyll vegetation communities on undulating terrain. It is often associated with soils that occur in the upper and mid-slopes of landscapes.	**Unlikely -** this species has not been recorded in the locality[1]. The fragmented regrowth sclerophyll woodland in the Project Area is unlikely to represent suitable habitat for this species.	PMST
Dichanthium setosum	bluegrass	V	-	This species has been primarily recorded from inland northern New South Wales. It also occurs patchily in Queensland.	*Dichanthium setosum* is primarily associated with heavy soils such as cracking clays or alluvium (often in association with gilgais), in open woodland habitats featuring brigalow or *Eucalyptus* species. It can persist in modified environments such as cleared woodland and grazed land.	**Potential -** this species has not been recorded in the locality[1]. Woodland fragments occurring on land zone 4 may provide potentially suitable habitat for this grass.	PMST
Homoranthus decumbens		E	V	This shrub is restricted to two areas in central Queensland, namely the Blackdown Tableland and Barakula State Forest. Blackdown Tableland National Park is approximately 10 km south of the Project Area at its nearest point.	This species is associated with tall shrubland or heath, and often occurs on sandstone cliff edges, or in shallow sand soils where lateritic pebbles are prevalent.	**Unlikely -** this species has not been recorded in the locality[1]. Shrubland and heath habitat is absent from the Project Area, as are habitat features such as sandstone cliffs and areas with lateritic pebbles.	PMST
CYCAD							
Macrozamia platyrhachis	cycad	E	E	This cycad is restricted to the Blackdown Tableland / Planet Downs area of the Dawson Range in central Queensland. Blackdown Tableland National Park is approximately 10 km south of the Project Area at its nearest point.	Eucalypt woodland or open forest on sandy soil at elevations of between 300 m and 780 m.	**Unlikely -** this species has not been recorded in the locality[1]. The fragmented regrowth sclerophyll woodland in the Project Area is unlikely to represent suitable habitat for this species. REs from which this species has been previously recorded do not occur at the Project Area.	PMST
REPTILES							
Delma torquata	collared delma	V	V	Recorded in central and south east Queensland.	The collared delma normally inhabits eucalypt-dominated woodlands and open-forests in Regional Ecosystem (RE) Land Zones: 3 (Alluvium); 9 (undulating country on fine-grained sedimentary rocks) and 10 (Sandstone ranges). Tends to be found on ridge tops and slopes of a westerly aspect with relatively undisturbed vegetation and rocky outcrops or weathered loose rocks on soil. The presence of rocks, logs, bark and other coarse woody debris, and mats of leaf litter (typically 30–100 mm thick) appears to be an essential characteristic of the collared delma microhabitat.	**Unlikely -** this species has not been recorded in the locality[1]. The Project Area supports a small area of potentially suitable eucalypt-dominated regrowth woodland habitat in RE Land Zone 3, however this is confined to a small fragment, and lacks areas of deep leaf litter. Suitable rocky habitats is generally lacking within the Project Area.	PMST

Scientific Name	Common Name	EPBC Act Status[2]	NC Act Status[2]	Distribution[3]	Habitat Requirements[3]	Likelihood of Occurrence	Source
Denisonia maculata	ornamental snake	V	V	The species is known only from the Brigalow Belt North and parts of the Brigalow Belt South bioregions. The core of the species' distribution occurs within the drainage system of the Fitzroy and Dawson Rivers. Known localities occur in the following regions: Blackwater, Dysart, Peak Downs, Moranbah, Coppabella, Rockhampton region, east of Midgee, Yeppoon Crossing, Emerald, near Moura, the Dawson Valley, Charters Towers, Biloela, Duaringa, St Lawrence, St George, Goondiwindi, Dipperu National Park and adjacent to South Walker Creek near Nebo.	The ornamental snake's preferred habitat is within, or close to, habitat that is favoured by its prey, frogs. The species prefers woodlands and open forests associated with moist areas, particularly gilgai (melon-hole) mounds and depressions in Regional Ecosystem (RE) Land Zone 4, but also lake margins and wetlands. Gilgai formations are found where deep-cracking alluvial soils with high clay contents occur.	**Unlikely** - this species has not been recorded in the locality. Narrow fragments of regrowth brigalow associated with Land Zone 4 occur at the north of the Project Area, although these were observed to lack preferred gilgai habitat.	PMST
Egernia rugosa	yakka skink	V	V	The known distribution of the yakka skink extends from the coast to the hinterland of sub-humid to semi-arid eastern Queensland. This vast area covers portions of the Brigalow Belt (North and South), Mulga Lands, South-east Queensland, Einasleigh Uplands, Wet Tropics and Cape York Peninsula bioregions. Locations range from the Queensland/New South Wales border to Mungkan Kandju National Park (NP) on Cape York Peninsula, and from Bundaberg and the region west of Gympie to Mariala NP west of Charleville.	The species is known to occur in open dry sclerophyll forest, woodland and scrub. The core habitat of this species is within the Mulga Lands and Brigalow Belt South Bioregions. It occurs in a wide variety of vegetation types within Regional Ecosystem (RE) Land Zones (LZ): LZ 3 - Alluvium (river and creek flats); LZ 4 - Clay plains not associated with current alluvium; LZ 5 - Old loamy and sandy plains; LZ 7 - Ironstone jump-ups; LZ 9 - Undulating country on fine-grained sedimentary rocks and LZ 10 - Sandstone ranges. Whilst LZ 8 (basalt plains and hills) is not considered to be representative of core habitat for the Yakka Skink, the species may still occur in this land zone.	**Potential** - this species has not been recorded in the locality[1]. The Project Area provides potentially suitable brigalow and *Eucalyptus* woodland habitat.	PMST
Elseya albagula	southern snapping turtle	CE	E	Found only in Queensland in the Fitzroy, Mary and Burnett Rivers and associated smaller drainages in south eastern Queensland.	The southern snapping turtle is recognised as a habitat specialist. Within the river system the species prefers clear, flowing, well-oxygenated waters. The species does occur in non-flowing waters, but typically at much reduced densities.	**Unlikely** - this species has not been recorded in the locality[1], and, due to the absence of permanent clear, flowing, well-oxygenated waters, the Project Area does not provide suitable habitat.	PMST
Rheodytes leukops	Fitzroy River turtle	V	V	The Fitzroy River turtle is only found in the drainage system of the Fitzroy River, Queensland. Known sites include Boolburra, Gainsford, Glenroy Crossing, Theodore, Baralba, the Mackenzie River, the Connors River, Duaringa, Marlborough Creek, and Gogango	The Fitzroy River turtle is found in rivers with large deep pools with rocky, gravelly or sandy substrates, connected by shallow riffles. Preferred areas have high water clarity, and are often associated with Ribbonweed (*Vallisneria* sp.) beds. Common riparian vegetation associated with the Fitzroy River Turtle includes Blue Gums (*Eucalyptus tereticornis*), River Oaks (*Casuarina cunninghamiana*), Weeping Bottlebrushes (*Callistemon viminalis*) and Paperbarks (*Melaleuca linariifolia*). Turtles often associate with logs in deeper water, and may sit on the downstream side or under rocks in fast flowing riffles.	**Unlikely** - this species has not been recorded in the locality[1], and, due to the absence of rivers with large deep pools, the Project Area does not provide suitable habitat.	PMST

Scientific Name	Common Name	EPBC Act Status[2]	NC Act Status[2]	Distribution[3]	Habitat Requirements[3]	Likelihood of Occurrence	Source
MAMMALS							
Chalinolobus dwyeri	large-eared pied bat; large pied bat	V	V	In Queensland, this species is associated with the central Queensland sandstone belt – namely the Carnarvon Ranges, Blackdown Tableland and Cania Gorge. Blackdown Tableland National Park is approximately 10 km south of the Project Area at its nearest point.	This species occurs where sandstone gorges/cliffs occur near tall open forest, dry sclerophyll forests and woodland, and forest ecotones. It roosts in caves, crevices, holes in cliffs, mines and fairy martin (*Petrochelidon ariel*) nests. It forages within a few kilometres of roosting habitat, and shows a preference for higher fertility woodlands that are less exposed to fragmentation.	**Potential -** this species has not been recorded in the locality[1]. Dry sclerophyll woodland may represent foraging habitat for this species, which is known from the nearby Blackdown Tableland National Park.	PMST
Dasyurus hallucatus	northern quoll	E	-	In Queensland, the northern quoll is known to occur as far south as Gracemere and Mt Morgan, south of Rockhampton, as far north as Weipa, and extends west into central Queensland to the vicinity of Carnarvon Range National Park. There are occasionally records as far south in Queensland as Maleny on the Sunshine Coast hinterland.	The species occupies a diversity of habitats across its range which includes rocky areas, eucalypt forest and woodlands, rainforests, sandy lowlands and beaches, shrubland, grasslands and desert. This species is also known to occupy non-rocky lowland habitats such as beach scrub communities in central Queensland. Northern quoll habitat generally encompasses some form of rocky area for denning purposes with surrounding vegetated habitats used for foraging and dispersal. Eucalypt forest or woodland habitats usually have a high structural diversity containing large diameter trees, termite mounds or hollow logs for denning purposes. Dens are made in rock crevices, tree holes or occasionally termite mounds. Northern quolls sometimes occur around human dwellings and campgrounds.	**Unlikely -** this species has not been recorded in the locality[1]. The Project Area does not support rocky denning habitat, and fragmented woodland at the Project Area is unlikely to represent suitable foraging habitat for this species.	PMST
Macroderma gigas	ghost bat	V	V	This species is broadly distributed in disjunct colonies across tropical and non-tropical Australia.	The ghost bat utilises a range of woodland and forest habitats, although it requires deep natural cave systems or large disused mines for permanent roosts.	**Potential** - this species has not been recorded in the locality[1]. Dry sclerophyll woodland may represent foraging habitat for this species, although the nearest known permanent roost is at Mount Etna Caves National Park (approximately 150 km north east of the Project Area).	PMST
Nyctophilus corbeni	south-eastern long-eared bat	V	V	In Queensland, the south-eastern long-eared bat is mainly recorded in the Brigalow Belt South Bioregion, extending eastwards to the Bunya Mountains National Park. It has been recorded as far north as the Expedition Range and Dawson River areas. Its westerly range extends into the Mulgalands Bioregion and west of Bollon.	The south-eastern long-eared bat occurs in a range of inland woodland vegetation types, including box, ironbark and cypress pine woodlands. The species also occurs in Buloke woodland, Brigalow woodland, Belah woodland, Smooth-barked Apple, *Angophora leiocarpa*, woodland; *Eucalyptus camaldulensis* forests lining watercourses and lakes, Black Box, *Eucalyptus largiflorens*, woodland, dry sclerophyll forest. Throughout inland Queensland, this species' habitat is dominated by various eucalypt and bloodwood species and various types of tree mallee with it being most abundant in vegetation with a distinct canopy and a dense cluttered shrub layer.	**Potential -** this species has not been recorded in the locality[1]. Dry sclerophyll woodland may represent foraging habitat for this species, although the Project Area is at the northern extreme of the currently described distribution of this species.	PMST

Scientific Name	Common Name	EPBC Act Status[2]	NC Act Status[2]	Distribution[3]	Habitat Requirements[3]	Likelihood of Occurrence	Source
Onychogalea fraenata	bridled nail-tail wallaby, bridled nailtail wallaby	E	E	This species is restricted to three protected areas in central Queensland – Taunton National Park (Scientific), Idalia National Park and Avocet Nature Refuge. Taunton National Park (Scientific) is approximately 12 km north east of the Project Area.	The bridled nailtail wallaby inhabits various woodland types including grassy *Eucalyptus* woodland, brigalow (*Acacia harpophylla*) woodland, and regrowth stands of woodland. It shows a preference for habitat edges, and favours vegetation growing on fertile soils.	**Unlikely** - this species has not been recorded in the locality[1]. While records of this species have been noted from up to 10 km from Taunton National Park (Scientific), given the low population and intensive management of the species, it is considered unlikely that it would occur and utilise habitat at the Project Area (which is approximately 12 km south west of Taunton National Park (Scientific) at its nearest point).	PMST
Petauroides volans	greater glider	V	-	The greater glider is restricted to eastern Australia, occurring from the Windsor Tableland in north Queensland through to central Victoria (Wombat State Forest), with an elevational range from sea level to 1200 m above sea level. An isolated inland subpopulation occurs in the Gregory Range west of Townsville, and another in the Einasleigh Uplands.	The greater glider is an arboreal nocturnal marsupial, largely restricted to eucalypt forests and woodlands. It is primarily folivorous, with a diet mostly comprising eucalypt leaves, and occasionally flowers. It is typically found in highest abundance in taller, montane, moist eucalypt forests with relatively old trees and abundant hollows. The greater glider favours forests with a diversity of eucalypt species, due to seasonal variation in its preferred tree species. During the day it shelters in tree hollows, with a particular selection for large hollows in large, old trees. In Grafton/Casino, Urbenville and the Urunga/Coffs Harbour Forestry Management Areas in northern New South Wales, the abundance of greater gliders on survey sites was significantly greater on sites with a higher abundance of tree hollows.	**Potential -** this species has been previously recorded in the locality[1]. Regrowth *Eucalyptus* woodland at the Project Area is considered to represent sub-optimal habitat for this species, although it may facilitate landscape dispersal.	PMST; WO
Phascolarctos cinereus	koala	V	V	The koala is endemic to Australia. The species' range extends from north-eastern Queensland to the south-east corner of South Australia.	Koalas naturally inhabit a range of temperate, sub-tropical and tropical forest, woodland and semi-arid communities dominated by *Eucalyptus* species.	**Unlikely -** this species has not been recorded in the locality[1]. Regrowth *Eucalyptus* woodland that occurs at the Project Area is considered to represent sub-optimal habitat for this species.	PMST
BIRDS							
Calidris ferruginea	curlew sandpiper	CE	-	The curlew sandpiper is widely distributed around the coast of Australia, and while records occur across a broad extent of inland Australia, this species' occurrence away from the coast tends to be erratic. A number of sites of international importance have been identified for this species, of which 22 are located in Australia (Bamford et al. 2008). The closest to the Project Area is Moreton Bay (approximately 560 km south east of Bluff) (Bamford et al. 2008).	The curlew sandpiper is a wading bird that is typically associated with intertidal mudflats in coastal areas. Additionally, this species utilises coastal swamps, lakes and lagoons, as well as ponds at saltworks and sewage farms. The curlew sandpiper is less frequently recorded inland where exposed mud or sand abuts ephemeral and permanent water bodies such as lakes, dams and waterholes. The species is a non-breeding migrant in Australia.	**Unlikely -** this species has not been recorded in the locality[1], and, due to the absence of wetlands or substantial areas likely to be inundated, the Project Area does not provide suitable habitat.	PMST

Scientific Name	Common Name	EPBC Act Status[2]	NC Act Status[2]	Distribution[3]	Habitat Requirements[3]	Likelihood of Occurrence	Source
Erythrotriorchis radiatus	red goshawk	V	E	The red goshawk is endemic to Australia. It is very sparsely dispersed across coastal and sub-coastal Australia, from western Kimberley Division to northeastern NSW.	The red goshawk occurs in coastal and sub-coastal areas in wooded and forested lands of tropical and warm-temperate Australia. The red goshawk nests in large trees, frequently the tallest and most massive in a tall stand, and nest trees are invariably within one km of permanent water (an average distance of 164 m has been reported). Forests of intermediate density are favoured, or ecotones between habitats of differing densities, e.g. between rainforest and eucalypt forest, between gallery forest and woodland, or on edges of woodland and forest where they meet grassland, cleared land, roads or watercourses.	**Unlikely -** this species has not been recorded in the locality[1]. Regrowth *Eucalyptus* woodland and brigalow woodland at the Project Area is considered to represent sub-optimal habitat for this species.	PMST
Geophaps scripta scripta	squatter pigeon (southern)	V	V	The known distribution of the squatter pigeon (southern) extends south from the Burdekin-Lynd divide in the southern region of Cape York Peninsula to the Border Rivers region of northern NSW, and from the east coast to Hughenden, Longreach and Charleville, Queensland.	Natural foraging habitat for the squatter pigeon is any remnant or regrowth open-forest to sparse, open-woodland or scrub dominated by *Eucalyptus*, *Corymbia*, *Acacia* or *Callitris* species, on sandy or gravelly soils, within 3 km of a suitable, permanent or seasonal waterbody. Groundcover generally consists of patchy, tussocky grasses that do not exceed 33% groundcover. Where scattered trees still occur, and the distance of cleared land between remnant trees or patches of habitat does not exceed 100 m, individuals may be found foraging in, or moving across modified or degraded environments. Breeding habitat occurs on stony rises occurring on sandy or gravelly soils, within 1 km of a suitable, permanent waterbody.	**Likely -** this species has been recorded once in the locality[1]. Regrowth *Eucalyptus* woodland and brigalow woodland at the Project Area is considered to represent potential foraging habitat for this species	PMST, WO
Grantiella picta	painted honeyeater	V	V	The painted honeyeater is endemic to mainland Australia, being found in Queensland and New South Wales west of the Great Dividing Range, through to northern Victoria. It is also found occasionally in the Northern Territory and may be a vagrant to South Australia. It is rare throughout its range.	The painted honeyeater is found in dry open forests and woodlands, and is strongly associated with mistletoe. The species inhabits mistletoes in eucalypt forests/woodlands, riparian woodlands of black box and river red gum, box-ironbark-yellow gum woodlands, acacia-dominated woodlands, paperbarks, casuarinas, callitris, and trees on farmland or gardens. The species prefers woodlands which contain a higher number of mature trees with more mistletoe. It is more common in wider blocks of remnant woodland than in narrower strips. It may also be found along rivers, on plains with scattered trees and on farmland with remnant vegetation. It has been seen in urban parks and gardens where large eucalypts are available.	**Potential -** this species has not been recorded in the locality[1]. The Project Area contains *Eucalyptus* woodland which may be suitable habitat if mistletoe is present.	PMST

Scientific Name	Common Name	EPBC Act Status[2]	NC Act Status[2]	Distribution[3]	Habitat Requirements[3]	Likelihood of Occurrence	Source
Neochmia ruficauda ruficauda	star finch	E	E	The distribution of the star finch is very poorly known. The species occurs only in central Queensland extending north to Bowen, west to beyond Winton and, south to near Wowan. It is possible that the distribution extends farther north to Mount Surprise and the Cloncurry-Mount Isa region. It has not been seen in the wild since 1995.	The star finch occurs mainly in grasslands and grassy woodlands that are located close to bodies of fresh water such as swamps and riparian zones. It also occurs in cleared or suburban areas such as along roadsides and in towns. The species has also been recorded in areas where native vegetation has been partially cleared. The species forages on the ground, where it picks up fallen seed, and in vegetation (including grasses and shrubs), where it takes seeds from seed-heads and *Casuarina* cones and insects from grasses and other foliage. It also captures insects in flight.	**Unlikely -** this species has not been recorded in the locality[1]. Suitable habitat for this species is generally lacking from the Project Area. The total population of the star finch is estimated to consist of 50 or less breeding birds and it has not been seen in the wild since 1995.	PMST
Poephila cincta cincta	southern black-throated finch	E	E	The southern black-throated finch occurs at two general locations: Townsville (and its surrounds (Giru, Serpentine Lagoon, Toonpan, and near Ross River Dam)), Ingham, Charters Towers area; and at scattered sites in central-eastern Queensland between Aramac and Great Basalt Wall National Park.	The southern black-throated finch occurs mainly in grassy, open woodlands and forests, typically dominated by *Eucalyptus*, *Corymbia* and *Melaleuca*, and occasionally in tussock grasslands or other habitats (for example freshwater wetlands), often along or near watercourses, or in the vicinity of water. Almost all recent records of the finch from south of the tropics have been in riparian habitat. The species is thought to require a mosaic of different habitats in which it can find seed during the wet season. The species has occasionally been recorded in other habitats, including in freshwater wetlands, in cultivation surrounded by woodland, and in a heavily grazed paddock.	**Unlikely -** this species has not been recorded in the locality[1] and the Project Area is outside the species' known current distribution.	PMST
Rostratula australis	Australian painted snipe	E	V	The Australian painted snipe has been recorded at wetlands in all states of Australia. It is most common in eastern Australia, where it has been recorded at scattered locations throughout much of Queensland, NSW, Victoria and south-eastern South Australia.	The Australian painted snipe generally inhabits shallow terrestrial freshwater (occasionally brackish) wetlands, including temporary and permanent lakes, swamps and claypans. They also use inundated or waterlogged grassland or saltmarsh, dams, rice crops, sewage farms and bore drains.	**Unlikely -** this species has not been recorded in the locality[1], and, due to the absence of wetlands or substantial areas likely to be inundated, the Project Area does not provide suitable habitat.	PMST
Turnix melanogaster	black-breasted button-quail	V	V	This species occurs in coastal and near-coastal parts of southern Queensland and northern New South Wales.	Rainforests and forests provide preferred habitat for the black-breasted button-quail. Specifically, this species favours low, closed forest such as vine thickets, which support areas of dense leaf litter.	**Unlikely -** this species has not been recorded in the locality[1] and the Project Area does not contain suitable habitat.	PMST

1. 'Locality' refers to a 10 km buffer of the Project Area.
2. Conservation Status: NT = Near Threatened, V = Vulnerable, E = Endangered, CE = Critically Endangered.
3. Distribution and Habitat Requirement source: Species Profiles and Threats Database (DoEE, various dates); Conservation Listing Advice (TSSC, various dates); DEHP A to Z of Animals (DEHP 2013).

Source: PMST = Protected Matters Search Tool (DoEE) which is provided in *Annex D*; WO = Wildlife Online Database search (DEHP) as provided in *Annex E*.

Annex C

Assessment of Significance

SQUATTER PIGEON

The development is unlikely to significantly impact the squatter pigeon

The significant impact guidance for vulnerable species in the SIG 1.1 refers to impacts to 'important populations' of a species. Important population is defined as a population that is necessary for a species' long-term survival and recovery. This may include populations identified as such in recovery plans, and/or that are:

- key source populations either for breeding or dispersal;
- populations that are necessary for maintaining genetic diversity; and/or
- populations that are near the limit of the species' range (DoEE 2013).

The southern boundary of the known distribution of the squatter pigeon (southern) is contracting northwards. Therefore, all of the relatively small isolated and sparsely distributed sub-populations occurring south of the Carnarvon Ranges in Central Queensland (which the Project Area is contiguous with, although to the north of), are considered to be important sub-populations of the subspecies. This includes, but is not limited to:

- populations occurring in the Condamine River catchment and Darling Downs of southern Queensland;
- the populations known to occur in the Warwick-Inglewood-Texas region of southern Queensland; and
- any populations potentially occurring in northern NSW (DoEE 2016).

It is difficult to confidently determine if a population occurring within the Project Area would be considered an important population given the subspecies' known distribution is contracting northwards. Populations in the southern parts of the subspecies' distribution (i.e. south of Injune and Tin Can Bay, Queensland) are largely fragmented, but there is potential habitat connecting the Nandewar-New England Tablelands bioregions and the Carnarvon Ranges in the Brigalow Belt South bioregion. The degree of fragmentation of the overall population and the effect this has upon the subspecies' long-term persistence and recovery in the region, especially with regards to the capacity of the subspecies to disperse and exchange its genetic material is unknown. To be conservative, and for the purposes of this high level significant impact assessment, the assessment in *Table C.1* has assumed that individuals potentially occurring within the Project Area may form part of an 'important population' of the subspecies.

Table C.1 Significant Impact Assessment for the squatter pigeon (southern)

Significant Impact Criteria	Assessment for Development Area	Criteria Triggered?
An action is likely to have a significant impact on a vulnerable species if there is a real chance or possibility that it will:		
Lead to a long-term decrease in the size of an important population of a species	The Project Area is dominated by cleared pasture land that is not suitable habitat for the squatter pigeon (southern). No remnant vegetation occurs within the proposed Project Footprint. Disturbed regrowth open woodland that may represent suboptimal foraging habitat for this subspecies will be removed for the development of the Project. It is anticipated that this minimal disturbance will not adversely affect the carrying capacity of the area, and therefore will not lead to a long term decrease in the size of a population. The area of disturbed regrowth open woodland to be disturbed is approximately 23.1 ha. The risk of fauna mortality due to vehicle strike during construction and operation is considered low, due to the cleared nature of the Project Area, low levels of traffic and restricted speeds.	No
Reduce the area of occupancy of an important population	The 'area of occupancy' of a species is defined as the area within a species' extent of occurrence that is occupied by that species (TSSC 2014). The proposed disturbance to suboptimal foraging habitat for the squatter pigeon (southern) is restricted to a small area of regrowth open woodland (23.1 ha). This minimal disturbance is unlikely to prevent the subspecies from occurring within surrounding habitat, and will not reduce the area of occupancy of the subspecies.	No
Fragment an existing important population into two or more populations	The proposed development does not present a barrier to movement of the squatter pigeon (southern). The proposed development will be constructed primarily in already cleared pasture land, with a small area (23.1 ha) of regrowth woodland to be cleared. Regrowth woodland along a drainage line at the north of the Project Area, which represents a potential conduit for the movement of fauna across the local landscape, is proposed not to be cleared.	No

Significant Impact Criteria	Assessment for Development Area	Criteria Triggered?
Adversely affect habitat critical to the survival of a species.	No definitions of habitat critical to the survival of the squatter pigeon (southern) are provided in available documentation. The SIG 1.1 states that: 'Habitat critical to the survival of a species or ecological community' refers to areas that are necessary: • for activities such as foraging, breeding, roosting, or dispersal; • for the long-term maintenance of the species or ecological community (including the maintenance of species essential to the survival of the species or ecological community, such as pollinators); • to maintain genetic diversity and long term evolutionary development; or • for the reintroduction of populations or recovery of the species or ecological community.' The disturbed regrowth woodland habitat within the Project Area is unlikely to be necessary for any of the above activities, as substantial habitat remains within the immediate surrounding area and the locality.	No
Disrupt the breeding cycle of an important population	A small area of regrowth woodland (23.1 ha) will be cleared for the Project. This is unlikely to result in the disruption of the breeding cycle of an important squatter pigeon (southern) population, given that this disturbed regrowth woodland is unlikely to represent optimal breeding habitat for the subspecies. There is potential for noise disturbance during construction to affect behaviour of fauna species during breeding, however, due to the small scale of works in the context of available habitat in the broader region, any disturbance is likely to be limited to minor disturbance to a small number of individuals, rather than a substantial portion of an important population.	No

Significant Impact Criteria	Assessment for Development Area	Criteria Triggered?
Modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	The proposed development will disturb an area of cleared land and small portion of degraded regrowth woodland, the latter of which is potential (suboptimal) foraging habitat for the squatter pigeon (southern). There is available habitat for this subspecies within the immediate surrounds and the locality and disturbance due to the proposed development is not of an extent that is likely to lead to a decline in the subspecies. Habitat outside the proposed development will not be modified as a result of the works.	No
Result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat	A range of invasive weed species are known from the Project Area and introduction of additional access tracks could lead to the spread of these pest plants. Vehicle hygiene procedures should be implemented, to minimise risk of introduction of weed species. Pest fauna species that are harmful to the squatter pigeon (southern) (e.g. feral cats) are already known from the Project Area (site observations, PMST), with the development unlikely to increase the risk of harm from pest species.	No
Introduce disease that may cause the species to decline, or	There is no evidence to suggest that presence of a solar farm would introduce disease that may cause the subspecies to decline.	No
Interfere substantially with the recovery of the species.	A small area (23.1 ha) of potential (suboptimal) foraging habitat in the form of disturbed regrowth woodland will be cleared during construction of the Project. The risk of mortality during construction and operation of the Project is considered low, due to low levels of traffic and restricted vehicle speeds. The action is therefore unlikely to interfere substantially with the recovery of the species.	No

Annex D

PMST Search Results

Australian Government
Department of the Environment and Energy

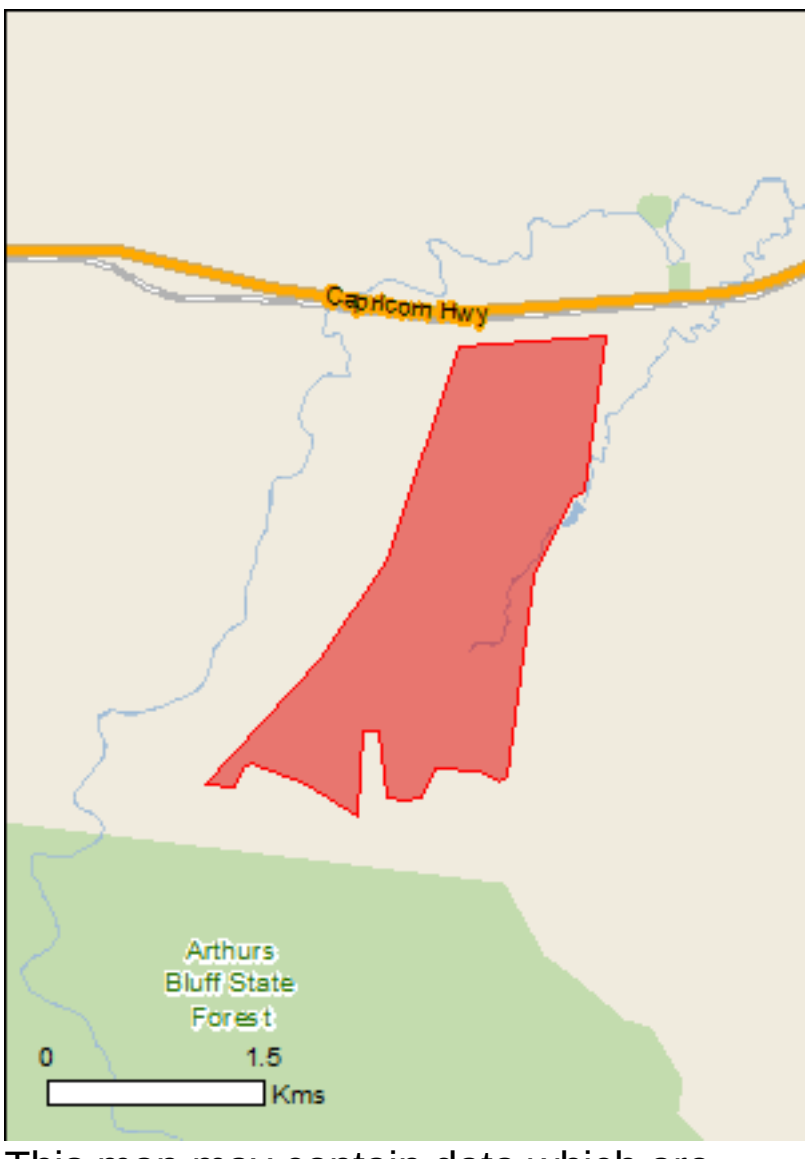
EPBC Act Protected Matters Report

This report provides general guidance on matters of national environmental significance and other matters protected by the EPBC Act in the area you have selected.

Information on the coverage of this report and qualifications on data supporting this report are contained in the caveat at the end of the report.

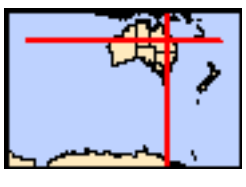
Information is available about Environment Assessments and the EPBC Act including significance guidelines, forms and application process details.

Report created: 22/01/17 11:20:15



Coordinates

Buffer: 10.0Km



Summary

Matters of National Environmental Significance

This part of the report summarises the matters of national environmental significance that may occur in, or may relate to, the area you nominated. Further information is available in the detail part of the report, which can be accessed by scrolling or following the links below. If you are proposing to undertake an activity that may have a significant impact on one or more matters of national environmental significance then you should consider the Administrative Guidelines on Significance.

World Heritage Properties:	None
National Heritage Places:	None
Wetlands of International Importance:	None
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	None
Listed Threatened Ecological Communities:	4
Listed Threatened Species:	24
Listed Migratory Species:	9

Other Matters Protected by the EPBC Act

This part of the report summarises other matters protected under the Act that may relate to the area you nominated. Approval may be required for a proposed activity that significantly affects the environment on Commonwealth land, when the action is outside the Commonwealth land, or the environment anywhere when the action is taken on Commonwealth land. Approval may also be required for the Commonwealth or Commonwealth agencies proposing to take an action that is likely to have a significant impact on the environment anywhere.

The EPBC Act protects the environment on Commonwealth land, the environment from the actions taken on Commonwealth land, and the environment from actions taken by Commonwealth agencies. As heritage values of a place are part of the 'environment', these aspects of the EPBC Act protect the Commonwealth Heritage values of a Commonwealth Heritage place. Information on the new heritage laws can be found at http://www.environment.gov.au/heritage

A permit may be required for activities in or on a Commonwealth area that may affect a member of a listed threatened species or ecological community, a member of a listed migratory species, whales and other cetaceans, or a member of a listed marine species.

Commonwealth Land:	None
Commonwealth Heritage Places:	None
Listed Marine Species:	15
Whales and Other Cetaceans:	None
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Commonwealth Reserves Marine:	None

Extra Information

This part of the report provides information that may also be relevant to the area you have nominated.

State and Territory Reserves:	1
Regional Forest Agreements:	None
Invasive Species:	22
Nationally Important Wetlands:	None
Key Ecological Features (Marine)	None

Details

Matters of National Environmental Significance

Listed Threatened Ecological Communities [Resource Information]

For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

Name	Status	Type of Presence
Brigalow (Acacia harpophylla dominant and co-dominant)	Endangered	Community known to occur within area
Coolibah - Black Box Woodlands of the Darling Riverine Plains and the Brigalow Belt South Bioregions	Endangered	Community may occur within area
Natural Grasslands of the Queensland Central Highlands and the northern Fitzroy Basin	Endangered	Community may occur within area
Weeping Myall Woodlands	Endangered	Community likely to occur within area

Listed Threatened Species [Resource Information]

Name	Status	Type of Presence
Birds		
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area
Erythrotriorchis radiatus Red Goshawk [942]	Vulnerable	Species or species habitat known to occur within area
Geophaps scripta scripta Squatter Pigeon (southern) [64440]	Vulnerable	Species or species habitat known to occur within area
Grantiella picta Painted Honeyeater [470]	Vulnerable	Species or species habitat may occur within area
Neochmia ruficauda ruficauda Star Finch (eastern), Star Finch (southern) [26027]	Endangered	Species or species habitat likely to occur within area
Poephila cincta cincta Southern Black-throated Finch [64447]	Endangered	Species or species habitat may occur within area
Rostratula australis Australian Painted Snipe [77037]	Endangered	Species or species habitat may occur within area
Turnix melanogaster Black-breasted Button-quail [923]	Vulnerable	Species or species habitat may occur within area
Mammals		
Chalinolobus dwyeri Large-eared Pied Bat, Large Pied Bat [183]	Vulnerable	Species or species habitat likely to occur

Name	Status	Type of Presence
		within area
Dasyurus hallucatus		
Northern Quoll, Digul [331]	Endangered	Species or species habitat likely to occur within area
Macroderma gigas		
Ghost Bat [174]	Vulnerable	Species or species habitat likely to occur within area
Nyctophilus corbeni		
Corben's Long-eared Bat, South-eastern Long-eared Bat [83395]	Vulnerable	Species or species habitat may occur within area
Onychogalea fraenata		
Bridled Nail-tail Wallaby, Bridled Nailtail Wallaby [239]	Endangered	Species or species habitat may occur within area
Petauroides volans		
Greater Glider [254]	Vulnerable	Species or species habitat likely to occur within area
Phascolarctos cinereus (combined populations of Qld, NSW and the ACT)		
Koala (combined populations of Queensland, New South Wales and the Australian Capital Territory) [85104]	Vulnerable	Species or species habitat likely to occur within area
Other		
Macrozamia platyrhachis		
cycad [3412]	Endangered	Species or species habitat likely to occur within area
Plants		
Cadellia pentastylis		
Ooline [9828]	Vulnerable	Species or species habitat likely to occur within area
Dichanthium setosum		
bluegrass [14159]	Vulnerable	Species or species habitat likely to occur within area
Homoranthus decumbens		
a shrub [55186]	Endangered	Species or species habitat may occur within area
Reptiles		
Delma torquata		
Collared Delma [1656]	Vulnerable	Species or species habitat likely to occur within area
Denisonia maculata		
Ornamental Snake [1193]	Vulnerable	Species or species habitat likely to occur within area
Egernia rugosa		
Yakka Skink [1420]	Vulnerable	Species or species habitat may occur within area
Elseya albagula		
Southern Snapping Turtle, White-throated Snapping Turtle [81648]	Critically Endangered	Species or species habitat likely to occur within area
Rheodytes leukops		
Fitzroy River Turtle, Fitzroy Tortoise, Fitzroy Turtle, White-eyed River Diver [1761]	Vulnerable	Species or species habitat likely to occur within area

Listed Migratory Species [Resource Information]

* Species is listed under a different scientific name on the EPBC Act - Threatened Species list.

Name	Threatened	Type of Presence
Migratory Marine Birds		
Apus pacificus		
Fork-tailed Swift [678]		Species or species habitat likely to occur

Name	Threatened	Type of Presence within area
Migratory Terrestrial Species		
Cuculus optatus Oriental Cuckoo, Horsfield's Cuckoo [86651]		Species or species habitat may occur within area
Monarcha melanopsis Black-faced Monarch [609]		Species or species habitat likely to occur within area
Motacilla flava Yellow Wagtail [644]		Species or species habitat may occur within area
Myiagra cyanoleuca Satin Flycatcher [612]		Species or species habitat may occur within area
Rhipidura rufifrons Rufous Fantail [592]		Species or species habitat may occur within area
Migratory Wetlands Species		
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]		Species or species habitat may occur within area
Pandion haliaetus Osprey [952]		Species or species habitat likely to occur within area

Other Matters Protected by the EPBC Act

Listed Marine Species [Resource Information]		
* Species is listed under a different scientific name on the EPBC Act - Threatened Species list.		
Name	Threatened	Type of Presence
Birds		
Anseranas semipalmata Magpie Goose [978]		Species or species habitat may occur within area
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area
Ardea alba Great Egret, White Egret [59541]		Species or species habitat likely to occur within area
Ardea ibis Cattle Egret [59542]		Species or species habitat may occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area
Cuculus saturatus Oriental Cuckoo, Himalayan Cuckoo [710]		Species or species habitat may occur within area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]		Species or species

Name	Threatened	Type of Presence
		habitat may occur within area
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Species or species habitat likely to occur within area
Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may occur within area
Monarcha melanopsis Black-faced Monarch [609]		Species or species habitat likely to occur within area
Motacilla flava Yellow Wagtail [644]		Species or species habitat may occur within area
Myiagra cyanoleuca Satin Flycatcher [612]		Species or species habitat may occur within area
Pandion haliaetus Osprey [952]		Species or species habitat likely to occur within area
Rhipidura rufifrons Rufous Fantail [592]		Species or species habitat may occur within area
Rostratula benghalensis (sensu lato) Painted Snipe [889]	Endangered*	Species or species habitat may occur within area

Extra Information

State and Territory Reserves	[Resource Information]
Name	State
Blackdown Tableland	QLD

Invasive Species	[Resource Information]

Weeds reported here are the 20 species of national significance (WoNS), along with other introduced plants that are considered by the States and Territories to pose a particularly significant threat to biodiversity. The following feral animals are reported: Goat, Red Fox, Cat, Rabbit, Pig, Water Buffalo and Cane Toad. Maps from Landscape Health Project, National Land and Water Resouces Audit, 2001.

Name	Status	Type of Presence
Birds		
Columba livia Rock Pigeon, Rock Dove, Domestic Pigeon [803]		Species or species habitat likely to occur within area
Passer domesticus House Sparrow [405]		Species or species habitat likely to occur within area
Streptopelia chinensis Spotted Turtle-Dove [780]		Species or species habitat likely to occur within area

Name	Status	Type of Presence
Sturnus vulgaris Common Starling [389]		Species or species habitat likely to occur within area
Frogs		
Rhinella marina Cane Toad [83218]		Species or species habitat likely to occur within area
Mammals		
Bos taurus Domestic Cattle [16]		Species or species habitat likely to occur within area
Canis lupus familiaris Domestic Dog [82654]		Species or species habitat likely to occur within area
Felis catus Cat, House Cat, Domestic Cat [19]		Species or species habitat likely to occur within area
Lepus capensis Brown Hare [127]		Species or species habitat likely to occur within area
Mus musculus House Mouse [120]		Species or species habitat likely to occur within area
Oryctolagus cuniculus Rabbit, European Rabbit [128]		Species or species habitat likely to occur within area
Rattus rattus Black Rat, Ship Rat [84]		Species or species habitat likely to occur within area
Sus scrofa Pig [6]		Species or species habitat likely to occur within area
Vulpes vulpes Red Fox, Fox [18]		Species or species habitat likely to occur within area
Plants		
Acacia nilotica subsp. indica Prickly Acacia [6196]		Species or species habitat may occur within area
Cryptostegia grandiflora Rubber Vine, Rubbervine, India Rubber Vine, India Rubbervine, Palay Rubbervine, Purple Allamanda [18913]		Species or species habitat likely to occur within area
Jatropha gossypifolia Cotton-leaved Physic-Nut, Bellyache Bush, Cotton-leaf Physic Nut, Cotton-leaf Jatropha, Black Physic Nut [7507]		Species or species habitat likely to occur within area
Lantana camara Lantana, Common Lantana, Kamara Lantana, Large-leaf Lantana, Pink Flowered Lantana, Red Flowered Lantana, Red-Flowered Sage, White Sage, Wild Sage [10892]		Species or species habitat likely to occur within area
Opuntia spp. Prickly Pears [82753]		Species or species habitat likely to occur within area
Parkinsonia aculeata Parkinsonia, Jerusalem Thorn, Jelly Bean Tree, Horse Bean [12301]		Species or species habitat likely to occur within area

Name	Status	Type of Presence
Parthenium hysterophorus Parthenium Weed, Bitter Weed, Carrot Grass, False Ragweed [19566]		Species or species habitat likely to occur within area
Vachellia nilotica Prickly Acacia, Blackthorn, Prickly Mimosa, Black Piquant, Babul [84351]		Species or species habitat likely to occur within area

Caveat

The information presented in this report has been provided by a range of data sources as acknowledged at the end of the report.

This report is designed to assist in identifying the locations of places which may be relevant in determining obligations under the Environment Protection and Biodiversity Conservation Act 1999. It holds mapped locations of World and National Heritage properties, Wetlands of International and National Importance, Commonwealth and State/Territory reserves, listed threatened, migratory and marine species and listed threatened ecological communities. Mapping of Commonwealth land is not complete at this stage. Maps have been collated from a range of sources at various resolutions.

Not all species listed under the EPBC Act have been mapped (see below) and therefore a report is a general guide only. Where available data supports mapping, the type of presence that can be determined from the data is indicated in general terms. People using this information in making a referral may need to consider the qualifications below and may need to seek and consider other information sources.

For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

Threatened, migratory and marine species distributions have been derived through a variety of methods. Where distributions are well known and if time permits, maps are derived using either thematic spatial data (i.e. vegetation, soils, geology, elevation, aspect, terrain, etc) together with point locations and described habitat; or environmental modelling (MAXENT or BIOCLIM habitat modelling) using point locations and environmental data layers.

Where very little information is available for species or large number of maps are required in a short time-frame, maps are derived either from 0.04 or 0.02 decimal degree cells; by an automated process using polygon capture techniques (static two kilometre grid cells, alpha-hull and convex hull); or captured manually or by using topographic features (national park boundaries, islands, etc). In the early stages of the distribution mapping process (1999-early 2000s) distributions were defined by degree blocks, 100K or 250K map sheets to rapidly create distribution maps. More reliable distribution mapping methods are used to update these distributions as time permits.

Only selected species covered by the following provisions of the EPBC Act have been mapped:

- migratory and
- marine

The following species and ecological communities have not been mapped and do not appear in reports produced from this database:

- threatened species listed as extinct or considered as vagrants
- some species and ecological communities that have only recently been listed
- some terrestrial species that overfly the Commonwealth marine area
- migratory species that are very widespread, vagrant, or only occur in small numbers

The following groups have been mapped, but may not cover the complete distribution of the species:

- non-threatened seabirds which have only been mapped for recorded breeding sites
- seals which have only been mapped for breeding sites near the Australian continent

Such breeding sites may be important for the protection of the Commonwealth Marine environment.

Coordinates

-23.602 149.041,-23.6135 149.0393,-23.6138 149.0388,-23.6131 149.0376,-23.613 149.0348,-23.6146 149.034,-23.6149 149.0328,-23.6147 149.0319,-23.6108 149.0313,-23.6109 149.0303,-23.6158 149.03,-23.6139 149.0268,-23.6127 149.0234,-23.613 149.0229,-23.6141 149.0224,-23.6139 149.0205,-23.6067 149.0277,-23.6011 149.0318,-23.5889 149.0363,-23.5882 149.0455,-23.5971 149.0442,-23.5975 149.0434,-23.602 149.041

Acknowledgements

This database has been compiled from a range of data sources. The department acknowledges the following custodians who have contributed valuable data and advice:

-Office of Environment and Heritage, New South Wales
-Department of Environment and Primary Industries, Victoria
-Department of Primary Industries, Parks, Water and Environment, Tasmania
-Department of Environment, Water and Natural Resources, South Australia
-Department of Land and Resource Management, Northern Territory
-Department of Environmental and Heritage Protection, Queensland
-Department of Parks and Wildlife, Western Australia
-Environment and Planning Directorate, ACT
-Birdlife Australia
-Australian Bird and Bat Banding Scheme
-Australian National Wildlife Collection
-Natural history museums of Australia
-Museum Victoria
-Australian Museum
-South Australian Museum
-Queensland Museum
-Online Zoological Collections of Australian Museums
-Queensland Herbarium
-National Herbarium of NSW
-Royal Botanic Gardens and National Herbarium of Victoria
-Tasmanian Herbarium
-State Herbarium of South Australia
-Northern Territory Herbarium
-Western Australian Herbarium
-Australian National Herbarium, Canberra
-University of New England
-Ocean Biogeographic Information System
-Australian Government, Department of Defence
Forestry Corporation, NSW
-Geoscience Australia
-CSIRO
-Australian Tropical Herbarium, Cairns
-eBird Australia
-Australian Government – Australian Antarctic Data Centre
-Museum and Art Gallery of the Northern Territory
-Australian Government National Environmental Science Program
-Australian Institute of Marine Science
-Reef Life Survey Australia
-American Museum of Natural History
-Queen Victoria Museum and Art Gallery, Inveresk, Tasmania
-Tasmanian Museum and Art Gallery, Hobart, Tasmania
-Other groups and individuals

The Department is extremely grateful to the many organisations and individuals who provided expert advice and information on numerous draft distributions.

Please feel free to provide feedback via the Contact Us page.

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Annex E

Wildlife Online Database Extract Report

Queensland Government

Wildlife Online Extract

Search Criteria: Species List for a Defined Area
Species: All
Type: All
Status: All
Records: All
Date: Since 1980
Latitude: 23.4979 to 23.7061
Longitude: 148.9225 to 149.1434
Email: tom.cotter@erm.com
Date submitted: Sunday 22 Jan 2017 10:28:12
Date extracted: Sunday 22 Jan 2017 10:30:06

The number of records retrieved = 120

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
animals	birds	Acanthizidae	*Gerygone olivacea*	white-throated gerygone		C		3
animals	birds	Accipitridae	*Aquila audax*	wedge-tailed eagle		C		1
animals	birds	Aegothelidae	*Aegotheles cristatus*	Australian owlet-nightjar		C		1
animals	birds	Anatidae	*Anas superciliosa*	Pacific black duck		C		1
animals	birds	Ardeidae	*Egretta novaehollandiae*	white-faced heron		C		1
animals	birds	Ardeidae	*Ardea pacifica*	white-necked heron		C		1
animals	birds	Artamidae	*Artamus cinereus*	black-faced woodswallow		C		1
animals	birds	Artamidae	*Cracticus tibicen*	Australian magpie		C		3
animals	birds	Artamidae	*Cracticus torquatus*	grey butcherbird		C		1
animals	birds	Artamidae	*Cracticus nigrogularis*	pied butcherbird		C		3
animals	birds	Burhinidae	*Burhinus grallarius*	bush stone-curlew		C		1
animals	birds	Cacatuidae	*Eolophus roseicapilla*	galah		C		2
animals	birds	Cacatuidae	*Cacatua galerita*	sulphur-crested cockatoo		C		1
animals	birds	Campephagidae	*Coracina novaehollandiae*	black-faced cuckoo-shrike		C		1
animals	birds	Campephagidae	*Coracina maxima*	ground cuckoo-shrike		C		1
animals	birds	Casuariidae	*Dromaius novaehollandiae*	emu		C		1
animals	birds	Columbidae	*Phaps chalcoptera*	common bronzewing		C		1
animals	birds	Columbidae	*Ocyphaps lophotes*	crested pigeon		C		1
animals	birds	Columbidae	*Geophaps scripta scripta*	squatter pigeon (southern subspecies)		V	V	3
animals	birds	Coraciidae	*Eurystomus orientalis*	dollarbird		C		1
animals	birds	Corcoracidae	*Corcorax melanorhamphos*	white-winged chough		C		1
animals	birds	Corcoracidae	*Struthidea cinerea*	apostlebird		C		2
animals	birds	Corvidae	*Corvus orru*	Torresian crow		C		4
animals	birds	Cuculidae	*Centropus phasianinus*	pheasant coucal		C		1
animals	birds	Cuculidae	*Scythrops novaehollandiae*	channel-billed cuckoo		C		1
animals	birds	Dicruridae	*Dicrurus bracteatus*	spangled drongo		C		1
animals	birds	Eurostopodidae	*Eurostopodus argus*	spotted nightjar		C		1
animals	birds	Falconidae	*Falco cenchroides*	nankeen kestrel		C		1
animals	birds	Gruidae	*Grus rubicunda*	brolga		C		1
animals	birds	Halcyonidae	*Dacelo novaeguineae*	laughing kookaburra		C		2
animals	birds	Halcyonidae	*Todiramphus sanctus*	sacred kingfisher		C		1
animals	birds	Hirundinidae	*Petrochelidon nigricans*	tree martin		C		1
animals	birds	Meliphagidae	*Entomyzon cyanotis*	blue-faced honeyeater		C		2
animals	birds	Meliphagidae	*Plectorhyncha lanceolata*	striped honeyeater		C		1
animals	birds	Meliphagidae	*Meliphaga lewinii*	Lewin's honeyeater		C		1
animals	birds	Meliphagidae	*Melithreptus albogularis*	white-throated honeyeater		C		1
animals	birds	Meliphagidae	*Lichmera indistincta*	brown honeyeater		C		1
animals	birds	Meliphagidae	*Philemon corniculatus*	noisy friarbird		C		2
animals	birds	Meliphagidae	*Manorina melanocephala*	noisy miner		C		3
animals	birds	Meliphagidae	*Manorina flavigula*	yellow-throated miner		C		1
animals	birds	Meropidae	*Merops ornatus*	rainbow bee-eater		C		2
animals	birds	Monarchidae	*Grallina cyanoleuca*	magpie-lark		C		5
animals	birds	Monarchidae	*Myiagra rubecula*	leaden flycatcher		C		2
animals	birds	Oriolidae	*Oriolus sagittatus*	olive-backed oriole		C		2
animals	birds	Oriolidae	*Sphecotheres vieilloti*	Australasian figbird		C		1
animals	birds	Otididae	*Ardeotis australis*	Australian bustard		C		4

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
animals	birds	Pachycephalidae	*Colluricincla harmonica*	grey shrike-thrush		C		1
animals	birds	Pardalotidae	*Pardalotus striatus*	striated pardalote		C		4
animals	birds	Phalacrocoracidae	*Microcarbo melanoleucos*	little pied cormorant		C		1
animals	birds	Phasianidae	*Coturnix ypsilophora*	brown quail		C		1
animals	birds	Podargidae	*Podargus strigoides*	tawny frogmouth		C		1
animals	birds	Pomatostomidae	*Pomatostomus temporalis*	grey-crowned babbler		C		1
animals	birds	Psittacidae	*Platycercus adscitus*	pale-headed rosella		C		1
animals	birds	Psittacidae	*Melopsittacus undulatus*	budgerigar		C		1
animals	birds	Psittacidae	*Trichoglossus haematodus moluccanus*	rainbow lorikeet		C		2
animals	birds	Psittacidae	*Aprosmictus erythropterus*	red-winged parrot		C		1
animals	birds	Rhipiduridae	*Rhipidura leucophrys*	willie wagtail		C		2
animals	birds	Strigidae	*Ninox boobook*	southern boobook		C		1
animals	birds	Threskiornithidae	*Threskiornis spinicollis*	straw-necked ibis		C		1
animals	mammals	Leporidae	*Lepus europaeus*	European brown hare	Y			1
animals	mammals	Leporidae	*Oryctolagus cuniculus*	rabbit	Y			1
animals	mammals	Petauridae	*Petaurus breviceps*	sugar glider		C		1
animals	mammals	Potoroidae	*Aepyprymnus rufescens*	rufous bettong		C		1
animals	mammals	Pseudocheiridae	*Petauroides volans volans*	southern greater glider		C	V	1
animals	ray-finned fishes	Terapontidae	*Leiopotherapon unicolor*	spangled perch				1
animals	reptiles	Carphodactylidae	*Nephrurus asper*	spiny knob-tailed gecko		C		1/1
animals	reptiles	Diplodactylidae	*Oedura monilis*	ocellated velvet gecko		C		1/1
animals	reptiles	Elapidae	*Demansia psammophis*	yellow-faced whipsnake		C		1
animals	reptiles	Gekkonidae	*Heteronotia binoei*	Bynoe's gecko		C		1
animals	reptiles	Gekkonidae	*Gehyra catenata*	chain-backed dtella		C		1/1
animals	reptiles	Pygopodidae	*Lialis burtonis*	Burton's legless lizard		C		1
animals	reptiles	Scincidae	*Carlia pectoralis sensu lato*			C		1/1
animals	reptiles	Scincidae	*Cyclodomorphus gerrardii*	pink-tongued lizard		C		1
animals	reptiles	Scincidae	*Morethia taeniopleura*	fire-tailed skink		C		1
animals	reptiles	Scincidae	*Concinnia brachysoma*	northern bar-sided skink		C		1/1
animals	reptiles	Scincidae	*Lerista fragilis*	eastern mulch slider		C		1
animals	reptiles	Scincidae	*Cryptoblepharus virgatus sensu lato*			C		1
plants	higher dicots	Amaranthaceae	*Alternanthera pungens*	khaki weed	Y			1/1
plants	higher dicots	Amaranthaceae	*Ptilotus polystachyus*			C		1/1
plants	higher dicots	Asteraceae	*Gynura drymophila var. drymophila*			C		1/1
plants	higher dicots	Capparaceae	*Capparis lasiantha*	nipan		C		1/1
plants	higher dicots	Chenopodiaceae	*Sclerolaena*			C		1/1
plants	higher dicots	Crassulaceae	*Bryophyllum x houghtonii*		Y			1/1
plants	higher dicots	Erythroxylaceae	*Erythroxylum australe*	cocaine tree		C		2/2
plants	higher dicots	Euphorbiaceae	*Croton phebalioides*	narrow-leaved croton		C		1/1
plants	higher dicots	Fabaceae	*Bossiaea carinalis*			C		1/1
plants	higher dicots	Fabaceae	*Medicago polymorpha*	burr medic	Y			1/1
plants	higher dicots	Fabaceae	*Crotalaria verrucosa*			C		1/1
plants	higher dicots	Fabaceae	*Zornia muriculata subsp. angustata*			C		1/1
plants	higher dicots	Fabaceae	*Pultenaea millarii var. millarii*			C		1/1
plants	higher dicots	Fabaceae	*Hardenbergia perbrevidens*			C		1/1
plants	higher dicots	Loganiaceae	*Mitrasacme oasena*			C		1/1

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
plants	higher dicots	Meliaceae	*Owenia acidula*	emu apple		C		1/1
plants	higher dicots	Mimosaceae	*Acacia bancroftiorum*			C		1/1
plants	higher dicots	Mimosaceae	*Vachellia farnesiana*		Y			1/1
plants	higher dicots	Mimosaceae	*Acacia blakei subsp. blakei*			C		1/1
plants	higher dicots	Mimosaceae	*Acacia sp. (Comet L.Pedley 4091)*			C		1/1
plants	higher dicots	Mimosaceae	*Leucaena leucocephala subsp. glabrata*		Y			1/1
plants	higher dicots	Mimosaceae	*Acacia macradenia*	zig-zag wattle		C		1/1
plants	higher dicots	Mimosaceae	*Acacia cretata*			C		4/4
plants	higher dicots	Mimosaceae	*Leucaena leucocephala subsp. leucocephala*		Y			1/1
plants	higher dicots	Mimosaceae	*Albizia lebbeck*	Indian siris		C		1/1
plants	higher dicots	Mimosaceae	*Acacia shirleyi*	lancewood		C		1/1
plants	higher dicots	Myrtaceae	*Syncarpia glomulifera subsp. glomulifera*			C		1/1
plants	higher dicots	Myrtaceae	*Eucalyptus thozetiana*			C		1/1
plants	higher dicots	Myrtaceae	*Eucalyptus cambageana*	Dawson gum		C		1/1
plants	higher dicots	Myrtaceae	*Corymbia tessellaris*	Moreton Bay ash		C		1/1
plants	higher dicots	Myrtaceae	*Eucalyptus populnea*	poplar box		C		1/1
plants	higher dicots	Myrtaceae	*Eucalyptus suffulgens*			C		1/1
plants	higher dicots	Polygalaceae	*Comesperma patentifolium*			C		1/1
plants	higher dicots	Proteaceae	*Petrophile canescens*			C		1/1
plants	higher dicots	Proteaceae	*Grevillea parallela*			C		1/1
plants	higher dicots	Rubiaceae	*Oldenlandia galioides*			C		1/1
plants	higher dicots	Sapindaceae	*Alectryon diversifolius*	scrub boonaree		C		1/1
plants	higher dicots	Scrophulariaceae	*Eremophila mitchellii*			C		1/1
plants	higher dicots	Verbenaceae	*Phyla canescens*		Y			1/1
plants	monocots	Poaceae	*Eragrostis sororia*			C		1/1
plants	monocots	Poaceae	*Paspalum dilatatum*	paspalum	Y			1/1
plants	monocots	Poaceae	*Eragrostis elongata*			C		1/1
plants	monocots	Poaceae	*Chloris gayana*	rhodes grass	Y			1/1

CODES

I - Y indicates that the taxon is introduced to Queensland and has naturalised.

Q - Indicates the Queensland conservation status of each taxon under the *Nature Conservation Act 1992.* The codes are Extinct in the Wild (PE), Endangered (E), Vulnerable (V), Near Threatened (NT), Least Concern (C) or Not Protected ( ).

A - Indicates the Australian conservation status of each taxon under the *Environment Protection and Biodiversity Conservation Act 1999.* The values of EPBC are Conservation Dependent (CD), Critically Endangered (CE), Endangered (E), Extinct (EX), Extinct in the Wild (XW) and Vulnerable (V).

Records – The first number indicates the total number of records of the taxon for the record option selected (i.e. All, Confirmed or Specimens).
This number is output as 99999 if it equals or exceeds this value. The second number located after the / indicates the number of specimen records for the taxon.
This number is output as 999 if it equals or exceeds this value.

Planning Report

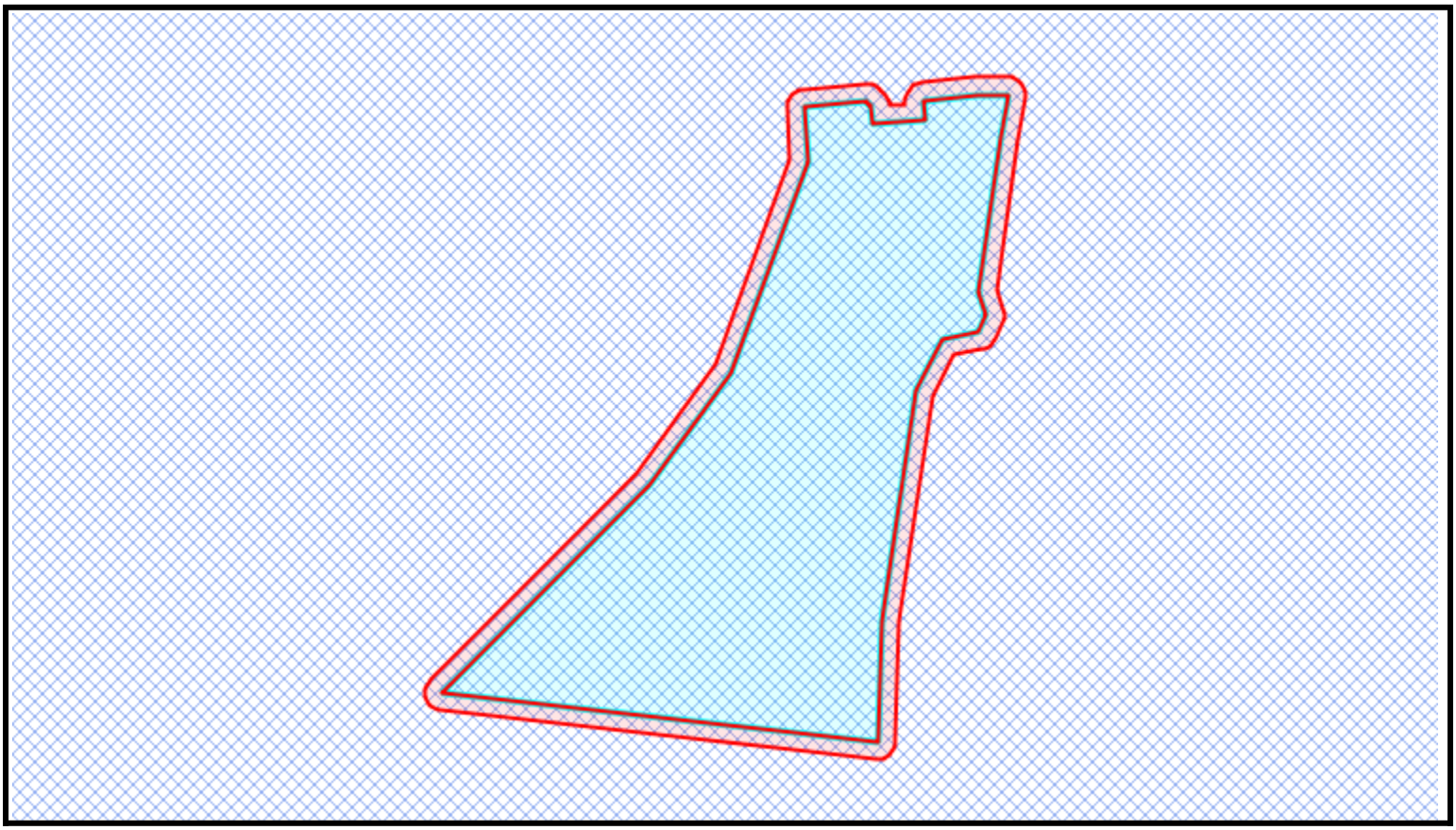
Annex F

CULTURAL HERITAGE SEARCH

Queensland Government
Department of Aboriginal and Torres Strait Islander Partnerships

Lot on Plan Search

Reference Number:	17400
Lot:	79
Plan:	SP238443
LGA:	Central Highlands Regional
Buffer Distance:	100 metres



There are no Aboriginal cultural heritage site points recorded in your specific search area.

There are no Aboriginal cultural heritage site polygons recorded in your specific search area.

Jan 18, 2017, 3:11 PM

Queensland Government
Department of Aboriginal and Torres Strait Islander Partnerships

Lot on Plan Search

Cultural heritage party for the area is:

QC Ref Number	QUD Ref Number	Party Name	Contact Details
QC2012/009	QUD400/2012	Gaangalu Nation	D&G Lawyers Level 1 25 Sturt Street TOWNSVILLE QLD 4810 Robert Toby Mobile: 0419709040 Email: robert.gangulu@gmail.com Lyn Blucher Mobile: 0427528829 Email: lyn.gangulu@gmail.com Phone: (07) 4722 2748 Fax: (07) 4722 2778

There is no cultural heritage body recorded in your specific search area.

Cultural Heritage Management Plans (CHMPs) for the area is:

CHL Number	Sponsor	Party	Approved
CLH013012	Carabella Resources Limtied	Gaangalu Nation People	Jun 30, 2014

There are no Designated Landscape Areas (DLA) recorded in your specific search area.

There are no Registered Study Cultural Heritage Areas recorded in your specific search area.

Regional Coordinator:

Name	Position	Phone	Mobile	Email
Greg Heath	Cultural Heritage Coordinator Central Region	07 4938 4100	0427 406 004	Gregory.Heath@datsip.qld.gov.au

Queensland Government
Department of Aboriginal and Torres Strait Islander Partnerships

Lot on Plan Search

I refer to your application in which you requested advice on Aboriginal cultural heritage places recorded on the above location.

The Cultural Heritage Database and Register search has been completed and I would like to advise that no Aboriginal cultural heritage is currently recorded in your specific search area, from the data provided by you. However, it is probable that the absence of recorded Aboriginal cultural heritage places reflects a lack of previous cultural heritage surveys of the area. Therefore, our records are not likely to reflect a true picture of the Aboriginal cultural heritage values of the area.

I note that, pursuant to the Cultural Heritage Duty of Care Guidelines, you have advised that the proposed activity is a 'Category 5 activity'. As such, I take this opportunity to remind you that in accordance with those Guidelines:-

Where an activity is proposed under category 5 there is generally a high risk that it could harm Aboriginal cultural heritage. In these circumstances, the activity should not proceed without cultural heritage assessment.

Where an activity is proposed under category 5, it is necessary to notify the Aboriginal Party and seek:

(a) Advice as to whether the feature constitutes Aboriginal cultural heritage; and

(b) If it does, agreement as to how best the activity may be managed to avoid or minimise harm to any Aboriginal cultural heritage.

I remind you also that the extent to which the person has complied with Cultural Heritage Duty of Care Guidelines and the extent to which the person consulted with Aboriginal parties about the carrying out of the activity, and the results of the consultation are factors a court may consider when determining if a party has complied with the duty of care.

Please refer to our website www.datsip.qld.gov.au/people-communities/aboriginal-and-torres-strait-islander-cultural-heritage for a copy of the gazetted Cultural Heritage duty of care guidelines, which set out reasonable and practical measures for meeting the duty of care.

Should you have any further queries, please do not hesitate to contact the approval officer on 1300 378 401.

Kind regards

The Director
Cultural Heritage | Community Participation | Department of Aboriginal and Torres Strait Islander Partnerships

Planning Report

Annex G

GLARE ASSESSMENT

Bluff Solar Farm

Solar Glare Assessment Report

Bluff Solar Farm Pty Limited

0387539

April 2017

Bluff Solar Farm

For and on behalf of
Environmental Resources Management Australia

Approved by: Alan Simonic
Position: *Partner*
Signed:

Date: 13 April 2017

Solar Glare Assessment

Project Reference 0387539_02 FINAL

EXECUTIVE SUMMARY

Bluff Solar Farm Pty Limited is seeking approval to develop the Bluff Solar Farm (the Project) on Lot 79 on SP238443. Environmental Resources Management Australia Pty Ltd (ERM) has been engaged to provide an assessment of the potential glare impact resulting from the Project.

The Project is approximately 90 km east of Emerald within the Central Highlands Regional Council (CHRC) Local Government Area (LGA) of Queensland. Bluff Township is approximately 2.8 km to the north-east and is the nearest regional centre to the Project.

The Project will involve the construction of a solar farm either side of the existing transmission line easement, a new dedicated substation, PV panels, inverters, battery storage, control building, internal roads and access tracks. The detailed design and specific layout has not been finalised which is typical for a PV project at this stage of development. Detailed design decisions and key equipment specifications are confirmed closer to the commencement of construction.

Those components that are likely to contribute to glare include:

- *the photovoltaic (PV) plant array;*
- *a substation;*
- *inverter buildings (either containerised or in an outdoor configuration);*
- *battery storage; and*
- *a control building, car park and refuse storage area.*

The specifications and assumptions for each are described within this report.

Eight (8) observation points were selected where human receptors are likely to view the Project from which to assess the potential glare impacts of the project. Locations where human receptors are likely to frequent and view the Project are limited to areas generally to north of the project and include the Capricorn Highway, part of Bluff Township and residential dwellings.

Arthurs Bluff State Forest is to the south of the site. The Seen Area Analysis mapping demonstrated that visibly of the project is limited to the northern slopes and foothill of this area. This is due to the Bluff landform, which limits visibility to the south of the escarpment and to areas within the State Forest. There were no tracks, walking trails or lookouts identified within the area that can potentially see the project from the northern foothills and slopes below the Bluff.

The Assessment was undertaken utilising the Solar Glare Hazard Analysis Tool (SGHAT) developed by Sandi National Laboratory to assess potential glare and ocular impact rating from the selected observation locations.

Five of the eight selected observation locations locations where predicted to experience solar glare. These locations were generally to the north east of the project.

For those locations where glare was recorded, none were predicted to have the potential for an after image greater than Low. View to the project from each of the observation locations are also screened by existing vegetation. This vegetation will assist to reduce or mitigate the already low effect of glare.

Given that there are no locations identified that may have a glare potential for after image impact greater than low, landscape mitigation is unlikely to be required.

Contents

Figures

Tables

1 INTRODUCTION

Bluff Solar Farm Pty Limited is seeking approval for the construction and operation of the Bluff Solar Farm (the Project) on land within Lot 79 on SP238443. The Project area is approximately 322 ha in total with a potential development footprint of approximately 270 ha.

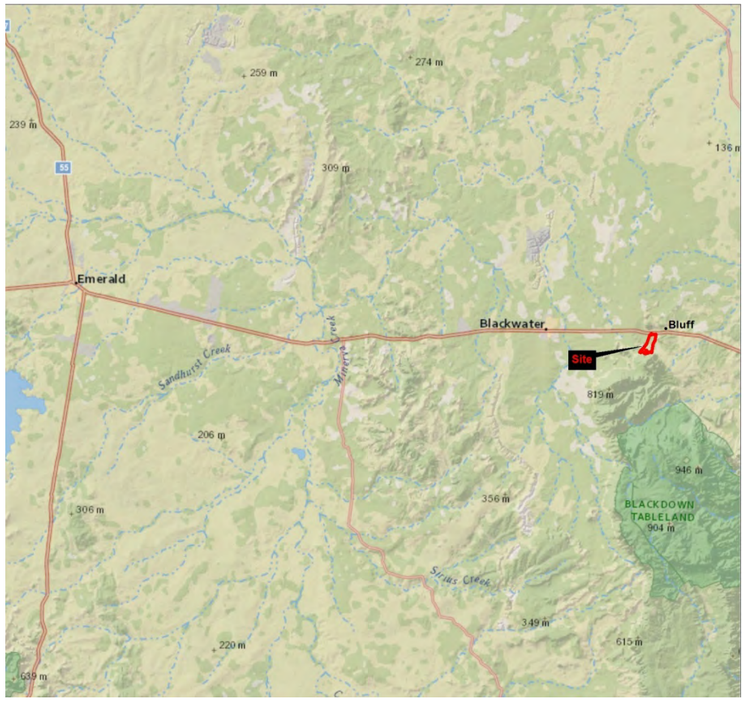
The Project requires a Development Application (DA) including Reconfiguring a Lot (ROL) and Material Change of Use (MCU).

The location of the Project is shown in *Figure 1.1.*

1.1 Purpose of this report

This report will identify locations where sensitive receptors are likely to see the Project and assess the potential for glare impact at sensitive receptors.

Figure 1.1 Project location



2 ASSESSMENT APPROACH

The methodology utilises the Solar Glare Hazard Analysis Tool (SGHAT) developed by Sandi National Laboratory to assess potential glare and ocular impact rating. The assessment of glare impacts associated with the Project includes the following steps:

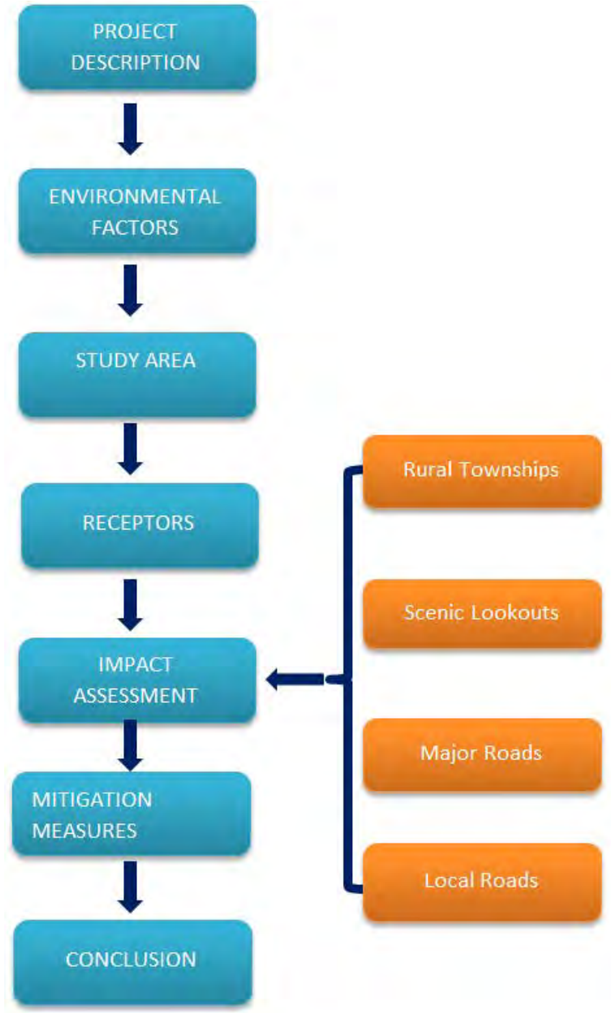
- Describe the Project and components that may contribute to glare;
- Describe the environmental factors that contribute to glare;
- Defines the study area;
- Identify receptors within the study area;
- Describe the likely impact to receptors: and
- Describe mitigation measures available for the Project (where) required.

The glare assessment methodology adopted for the Project is shown in *Figure 2.1*.

The methodology comprises a combination of quantitative and qualitative assessments for glare from the Project. The Quantitative assessment defines the study area and locations from the surrounding landscape that have theoretical visibility of the Project. The study area is defined by the components of the Project that are pertinent to glare. These include the photovoltaic arrays and reflectivity parameters of surfaces.

Qualitative assessment utilises the SGHAT to determine sensitivity of receptors (human) to glare and the contribution of the landscape setting surrounding the project makes to solar glare effect.

Figure 2.1 Glare Assessment Methodology



3 PROJECT DESCRIPTION

The site is located on the southern side of the Capricorn Highway approximately 90 km east of Emerald. Bluff Township is approximately 2.8 km's to the east and is the nearest populated area to the site.

The site, is approximately 322 ha, oriented roughly north south with irregular boundaries. The Bluff Substation is between the sites northern boundary and the Capricorn Highway.

A transmission line easement bisects the site in an east-west direction roughly central to the site. A second easement affects the sites north-western corner and connects the Bluff Sub-station to the above transmission line.

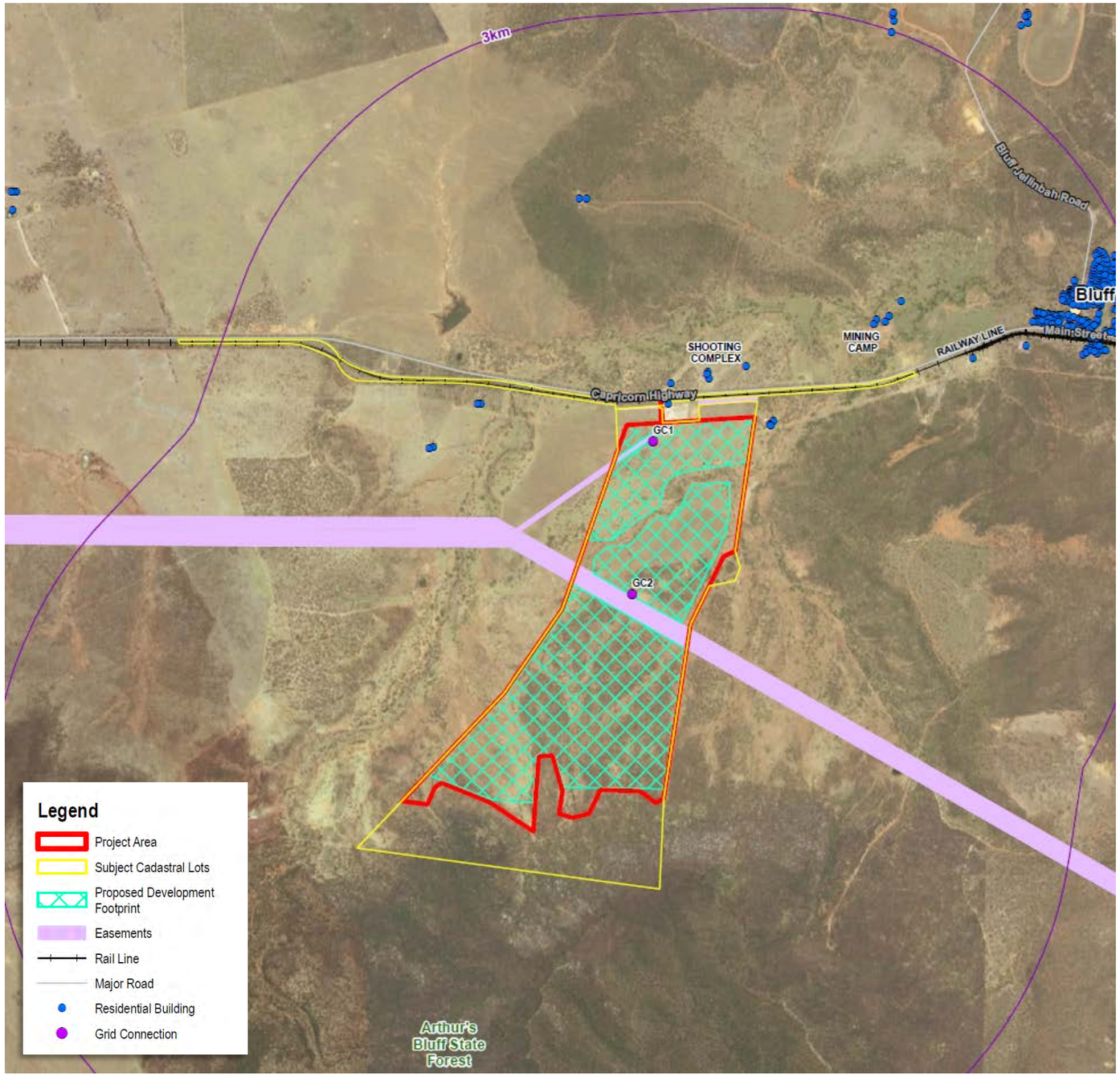
The Project will comprise:

- the photovoltaic (PV) plant array;
- inverter buildings and battery storage;
- substation; and
- control building, car park and refuse storage area.

There are two (2) grid connection options under consideration by the project. Each of the connections options are within the sites boundaries. The grid connection options are shown in *Figure 3.1.*

The following section will briefly describe the key Project components and their potential to contribute to glare before identifying locations from which to assess the potential for glare impact.

Figure 3.1 Project Area



3.1 Substation

A dedicated Project substation will connect the Project to the national electricity network via a transmission line. The final substation location/s will be at one or more of the four proposed investigation locations shown in *Figure 3.1.*

The final design and dimensions of the substations will determined during the construction phase. The substation/s will be within a fenced enclosure and will comprise voltage switching equipment, protection and control equipment, a transformer and a circuit breaker. Electrical infrastructure will be open-air with limited surfaces sufficient to contribute to glare.

Figure 3.2 shows an indicative substation.

Figure 3.2 Typical sub-station layout

3.2 Inverter and Battery Storage Buildings

Inverters will convert direct current (DC) electricity generated by the PV array to alternating current (AC) to feed into the electricity grid. The inverter power blocks will be integrated with transformers that increase the voltage for reticulation around the solar farm site.

Inverters and battery storage facilities will be containerised (shipping containers or similar) or skid mounted to enable movement around the site. Although the building will comprise large flat external surfaces, they will be non-refeletive and similar to other structures such as sheds already found in the area. *Figure 3.3* shows the indicative inverter building proposed for the Project.

Figure 3.3 Inverter building (top) and typical Battery Storage (bottom)

3.3 Control building car park and refuse storage area

The control building will be approximately 1,000 m^2 and no more that 6.0 m high. The location of the control building and car park are likely to be located close to the main entrance to the south of the Bluff Substation. Similar to the Inverter building, the Control building will comprise large flat external surfaces, similar to many other structures already found in the area. They will also be screened from the Higway by the existing Bluff substation.

Figure 3.4 shows a typical control building

Figure 3.4 Controller building

3.4 Photovoltaic plant array

Photovoltaic plant arrays capture sunlight to generate electricity. The photovoltaic arrays are largest the component of the Project and the largest potential contributor to solar glare.

A solar panel comprises photovoltaic cells are mounted on a supporting frame behind a non-reflective tempered glass layer. Each panel will be approximately 2 m tall x 1.0 m wide and mounted on a rotational tracking system, which orients each panel towards the sun.

Solar modules are mounted on racks that are aligned roughly north-south within a PV array. Each array is approximately 100m long with individual arrays spaced roughly 5.0 m apart. *Figure 3.5* shows the layout and arrangement of a typical PV Solar Farm arrays.

The solar modules are linked to a tracking system which follows the sun from east in the morning to west in the afternoon. *Figure 3.6* shows the tracking system and rotational angles of the PV panel configurations.

The operational rotation range of the tracking system is approximately 120 degrees from east to west.

The maximum height of the PV panels above natural ground is approximately 2 m to 3.0 m.

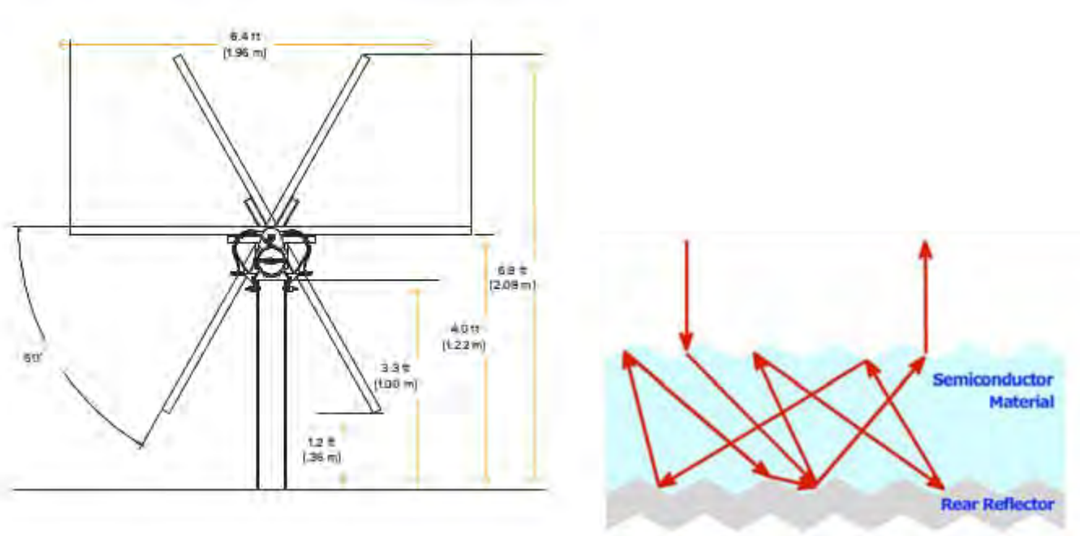
Solar panels similar to those proposed for the Project typically use “high-transmission, low-iron” glass reduces glare and reflectance than that of normal glass. A stippled finish is also used to allow more light energy to be transmitted through the glass surface while diffusing reflected light energy. The stippled finish gives the panel a hazy appearance as opposed to standard glass.

Trapped or absorbed light mimics natural surface textures to “trap” light within the layers of the solar cell. The stippled finish traps light within the PV panel glass and cell texture transferring a larger percentage of light to the solar cell.

The following section will determine areas from the surrounding landscape that have visibility of the project. Locations from which to assess the potential for glare impact will be selected from these locations of theoretical visibility.

Figure 3.5 Photovoltaic Arrays

Figure 3.6 Racking system rotation angle and Surface Finish



4 SEEN AREA ANALYSIS

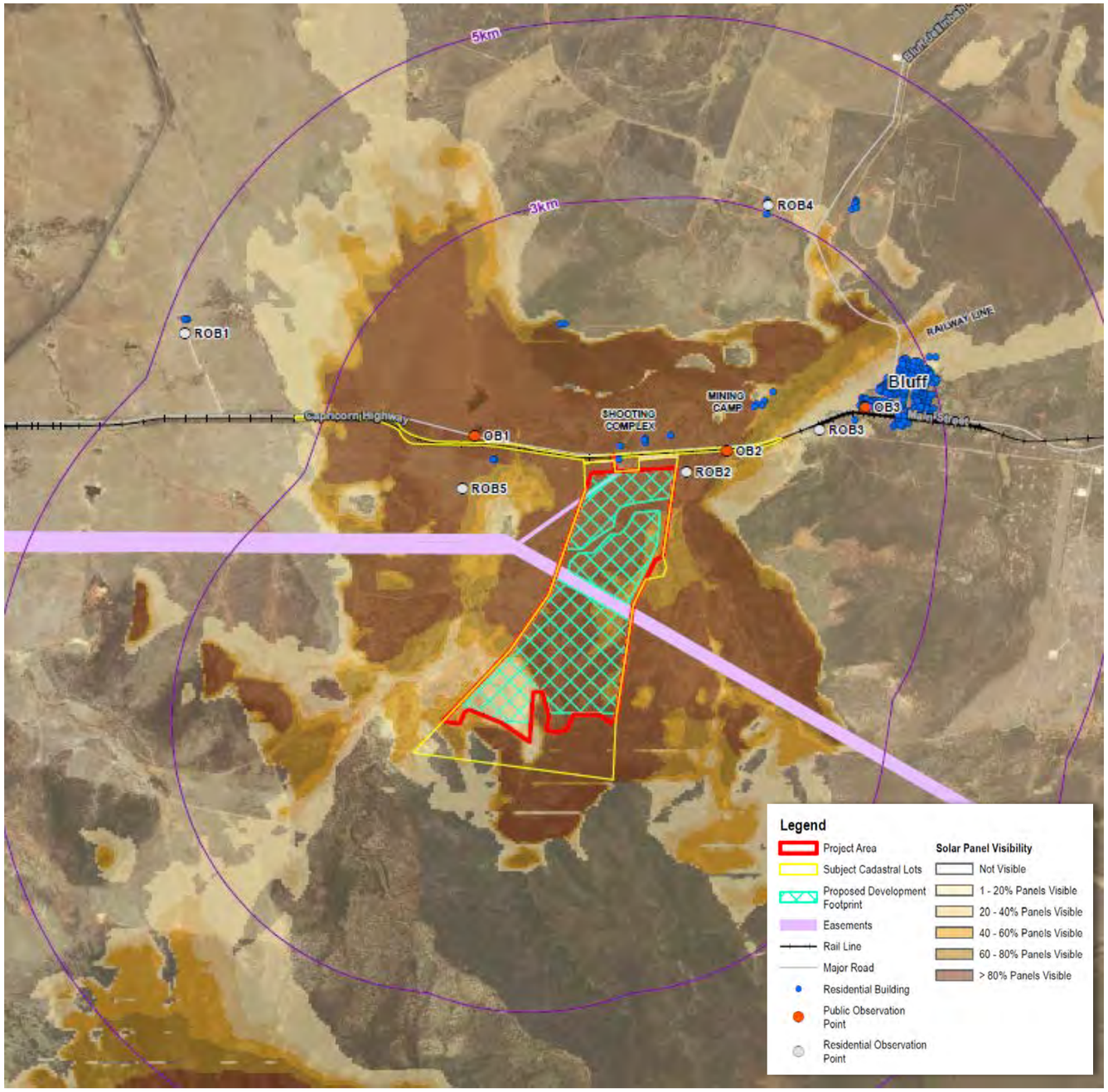
A Seen Area Analysis is based on Geographical Information System (GIS) to identify areas from where the Project infrastructure may be visible. This assessment is based on topography and the parameters of the project infrastructure (i.e. height, width and spread).

Figure 4.1 shows the areas surrounding the Bluff Solar Projects that can theoretically see the proposed solar panels. This is a conservative assessment in that the mapped areas don't take into account the screening effects of intervening vegetation, buildings and topographical variation such as dam walls, road cuttings and rail sidings.

Areas that can potentially see the project and therefore may experience glare include the eastern portion of Bluff township, a section of the Capricorn Highway, Residential dwellings and the north facing slopes of Arthurs Bluff State Forest. Observations points on which to assess the potential for glare will be selected from within these areas and from locations where sensitive receptors are likely to frequent such as roads, recreational trails and dwellings.

Other areas that have the potential to see the Project and therefore may experience glare include farming land. Agricultural land is not publicly accessible and therefore afford limited attraction for sensitive (human) receptors.

Figure 4.1 Seen Area Analysis



5 GLARE EFFECTS

Solar glare hazard is the human impact caused by exposure to reflected light. Factors that contribute to solar glare hazard for a solar facility include:

- Reflectivity of surfaces
- Angle of incidence
- Strength of the light source
- Receptors
- Distance

Photovoltaic efficiency describes the efficiency or percentage of radiation (sun) energy that can be converted into electrical energy. The more light that can be absorbed by a solar panel, the more efficient the process.
For these reasons, photovoltaic panel surfaces are designed to absorb as much light as possible and limit reflection. However glare or reflection can still occur at various times throughout the day.

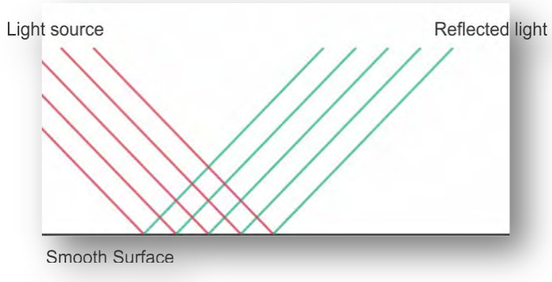
For these reasons, solar panels are designed to reduce glare and reflectance.

5.1 Reflectivity

Specular and Diffuse reflection are the two main types of light reflection caused by the sun reflecting off the surface of solar panels.

Specular reflection occurs when light is reflected from a smooth surface. In specular reflection, reflected light is usually parallel and the angle of reflected light is similar to that of the incoming light source.

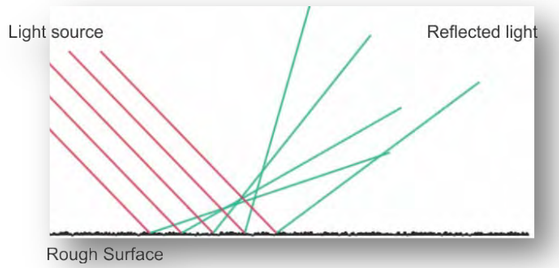
Figure 5.1 Specular reflection



Specular reflection is experienced as a flash similar to that of moving car windscreen.

Diffuse reflection occurs when light is reflected from a dull or matt surface. The reflected light is scattered with inconsistent angles. The rougher the surface, the more diffuse the reflection.

Figure 5.2 Diffuse reflection



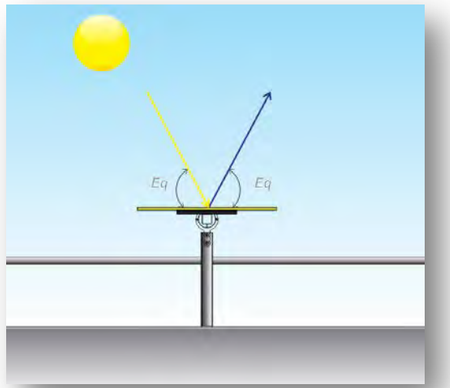
Diffuse light is usually experienced as a glow, and although usually less intense than specular reflection, the glare effects of diffuse reflection can be longer lasting than Specular reflection.

The amount of light reflected from a PV panel depends on the amount of sunlight hitting the surface as well as the surface reflectivity. The amount of sunlight exposure will vary based on geographic location, time of year, cloud cover, and solar panel orientation.

5.2 Reflection and Angle of Incidence

Angle of incidence describes the angle at which a line or trajectory (in this case light) deviates from perpendicular to a surface.

Figure 5.3 Angle of incidence



The angle of incidence alters as the sun moves across the sky and during various times of the year. The angle of incidence for the sun is at its lowest around noon where the sun is directly overhead, and at its highest at dawn and at dusk.

At a simple level, a single-axis tracking PV array, as is being proposed for the Project, are designed to optimise the efficiency by reducing the angle of incidence over the course of the day, which will also reduce the potential for glare. The tracking systems also utilise backtracking technology, to reduce shading-impacts of individual rows. This means that the angle of incidence will vary across individual rows early in the morning and later in the afternoon. These slight changes in angle have no significant impacts on glare.

6 SCALE OF EFFECTS

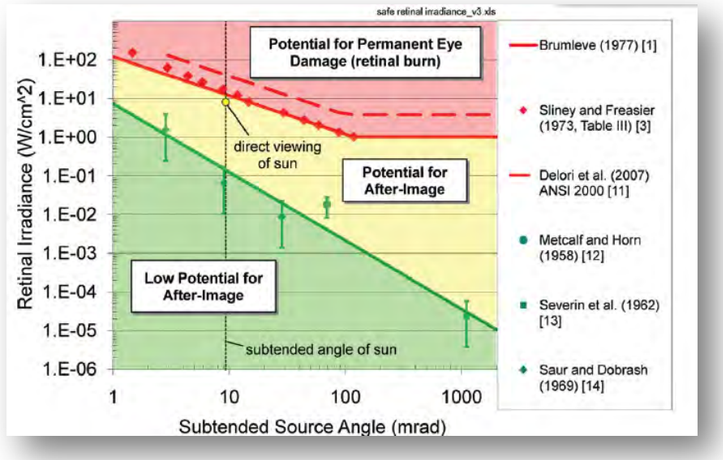
Glare effect can be described as the presence of light within the human field of vision that will result in visual discomfort or impairment.

This can be experienced when looking at a reflection of the sun from a surface such as glass, water or metal. Glare can also be experienced when looking out of a darkened room into daylight.

The assessment of the effect of glare varies depending on the intensity of the incoming light, relativity to the field of human vision, duration of exposure, size of the glare and distance of the receiver from the glare source.

Glare is defined as either discomfort or disability glare. Discomfort glare creates difficulty in seeing the object(s) being focussed upon. Disability glare can impair vision for wither a short or sustained period. Disability glare is a primary and common cause of concern in relation to traffic safety.

Figure 6.1 Ocular Impacts and Hazard Ranges



The assessment of glare effects and associated scale of effects are primarily based on the assessment distance to the Project, viewer numbers based on location and potential for after image.

- **Distance:** The distance of the viewer from the Project. The level of impact decreases as distance increases.
- **Number of viewers:** The level impact is less likely to occur where there are fewer people able to experience after image
- **Theoretical Visibility:** Visibility in terms of line of sight towards the project also plays a factor in the potential for after image effect. If the project is not visible from a specific location then there is no chance for after image. Theoretical visibility can be determined by a GIS Seen Area Analysis. This analysis predicts visibility based on a digital terrain model (DTM) and the Project specification. This analysis does not take into account minor topographical changes such as road cuttings, embankments, dam structures, vegetation buildings or other structures.

6.1 Scale of Effects

This study will use the following scale of effects for assessing the Solar Glare impacts of the Project:

- Nil Potential for After-Image
- Low Potential for After-Image
- Potential for After-Image
- Potential for Permanent Eye Damage (retinal burn)

Nil effect:
No recorded glare effect at the specified location at any time of the year.

Low potential for after image:
Adverse effects that are noticeable however will not cause any significant adverse impacts.

Potential for After Image
Significant effects that may be require mitigation and / or remedied.

Potential for Permanent Eye Damage
Potential for permanent adverse effects that will require mitigation or design changes.

This scale will be used when describing the overall Glare Assessment of the Project from indicative publicly accessible and residential observation points, discussed in the following sections.

6.2 Observation Points

Observations points on which to assess the potential effects of solar glare are selected from locations where sensitive receptors are likely to be, such as roads, reserves, residential dwellings or identified vantage points that lie within the area affected by the Seen Area Analysis.

6.3 Solar Glare Hazard Analysis Tool (SGHAT)

This Solar Glare Assessment of the Project will utilise the Solar Glare Hazard Analysis Tool (SGHAT) developed by Sandi National Laboratory to assess potential glare and ocular impact rating.

SGHAT uses latitude and longitudinal coordinates and elevation data from Google Earth in conjunction with proprietary algorithms software to predict the sun position and angle at various times throughout the year.

Project specific information such as the size and orientation of the PV array orientation, surface reflectivity are Project specific.

SGHAT will predict glare potential and at a nominated observation point as well as the magnitude of potential ocular impact based on the scale of effects identified in *Figure 6.1*.

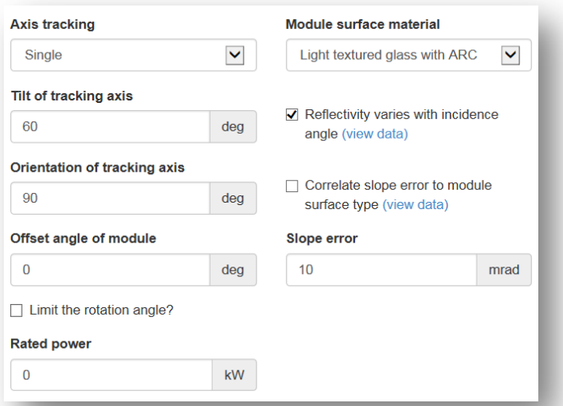
To be conservative, a rotation range of 120$_0$ (+/- 60$_0$) and a maximum height of 4.0 m is used in all modelling.

Figure 6.2 PV Array Boundaries

	deg	deg	m	m	m
1	-23.5886	149.04534	184.398	4	188.398
2	-23.59757	149.04387	190.607	4	194.607
3	-23.59774	149.04311	191.645	4	195.645
4	-23.59875	149.0423	194.765	4	198.765
5	-23.60187	149.04093	198	4	202
6	-23.6134	149.03943	255.167	4	259.167
7	-23.61436	149.03847	274.749	4	278.749
8	-23.61366	149.03728	264.048	4	268.048
9	-23.61366	149.03557	260.625	4	264.625
10	-23.61449	149.03437	260.891	4	264.891
11	-23.61563	149.03337	269.384	4	273.384
12	-23.61516	149.0318	258.979	4	262.979
13	-23.61149	149.03104	239.543	4	243.543
14	-23.61192	149.02999	234.893	4	238.893
15	-23.61605	149.02918	256.957	4	260.957
16	-23.61355	149.02343	239.116	4	243.116
17	-23.61521	149.02238	252.017	4	256.017
18	-23.61486	149.01956	239.856	4	243.856
19	-23.60654	149.02798	216.485	4	220.485
20	-23.60016	149.0327	201.206	4	205.206
21	-23.58925	149.03603	190.852	4	194.852

Figure 6.3 boundary CO-ORDINATE ID

Figure 6.4 SGHAT Input Data



7 ASSESSMENT LOCATIONS

This section examines locations within the surrounding landscape where receptors are likely to have views towards the Project.

Eight observation points were selected from locations identified within the Seen Area Analysis as having views to the Project and where sensitive receptors are most likely to frequent. These include two locations along Capricorn Highway, one from the south-western edge of Bluff township and four residential dwellings. The location of observation points with the corresponding GPS co-ordinates and distance to nearest site boundary are shown in *Table 6-1*.

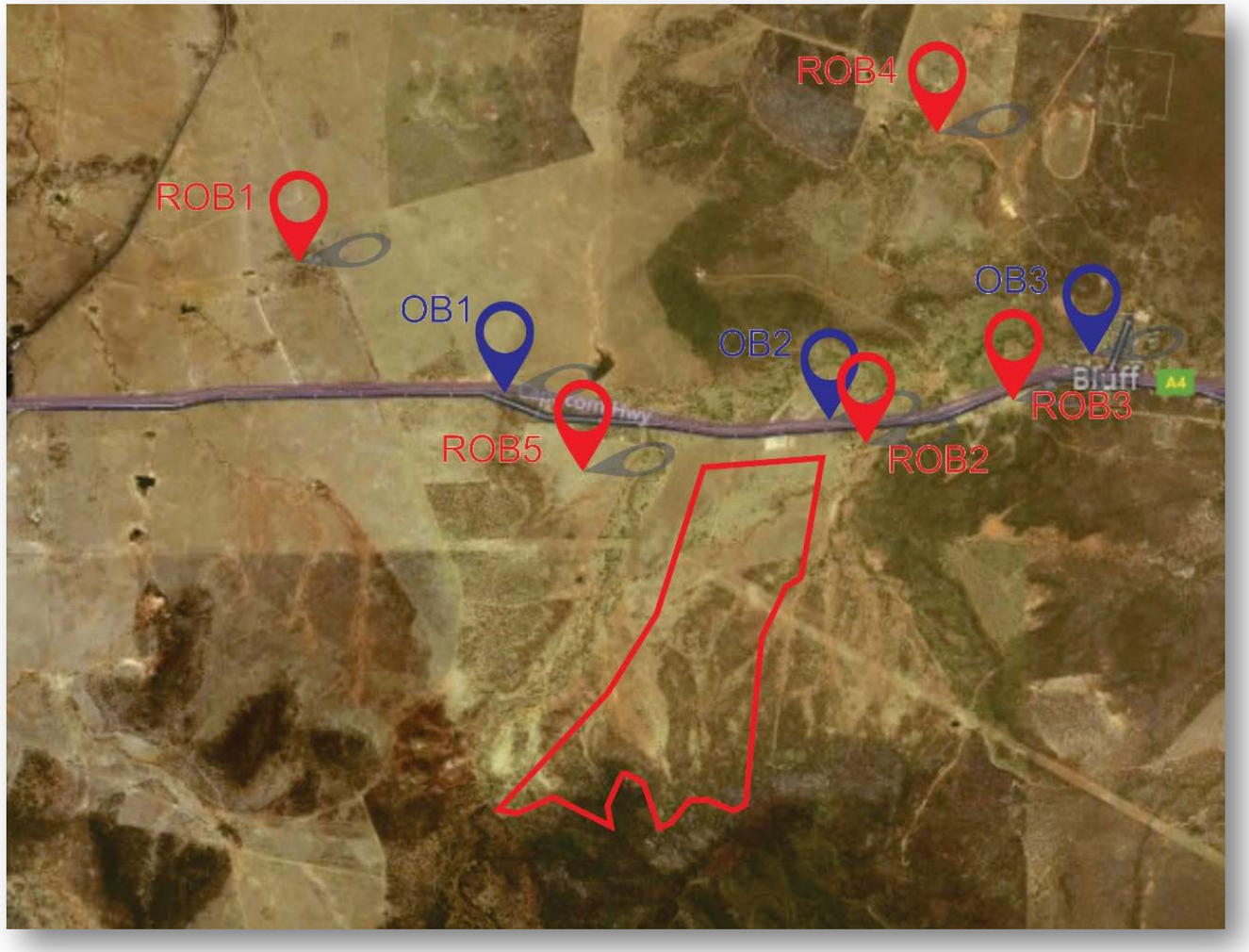
Each observation point is shown in *Figure 7.1* with the corresponding GPS co-ordinates and distance to nearest site boundary shown *Table 7-1*.

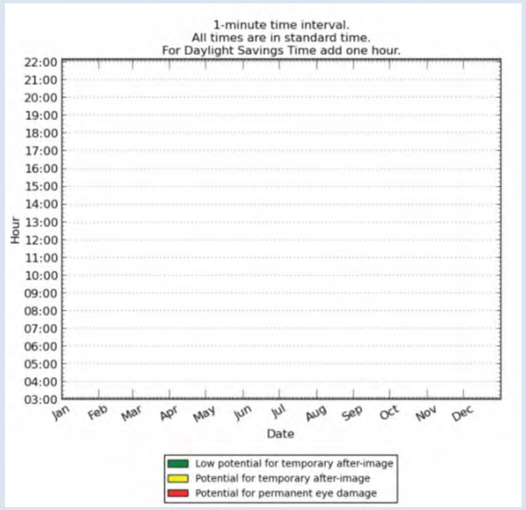
Table 7-1 Public Observation locations

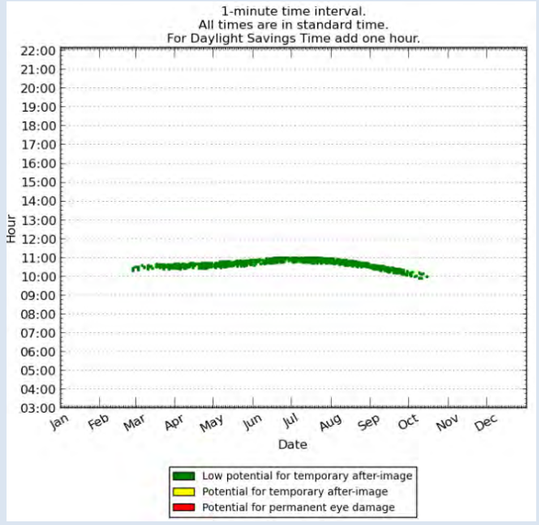
Observation No.	GPS Co-ordinates	Distance to nearest Site Boundary
OB1 – Capricorn Highway and Train line#1	Zone 55k - 706501.00 m E, 7390221.00 m	1.3 km W
OB2 – Capricorn Highway and Train line#2	Zone 55k - 709292.00 m E, 7390057.00 m S	600 m N
OB3 – Bluff Township	Zone 55k - 710828.00 m E, 7390542.00 m S	2.2 km NE
ROB1 – Residential Dwelling	Zone 55k - 703296.00 m E, 7391366.00 m S	4.7 km NW
ROB2 – Residential Dwelling	Zone 55k - 708848.00 m E, 7389824.00 m S	200 m E
ROB3 – Residential Dwelling	Zone 55k - 710325.00 m E, 7390286.00 m S	1.7 km NE
ROB4 – Residential Dwelling	Zone 55k - 709757.00 m E, 7392784.00 m S	3.2 km N
ROB5 – Residential Dwelling	Zone 55k - 706366.00 m E, 7389639.00 m S	1.2 km W

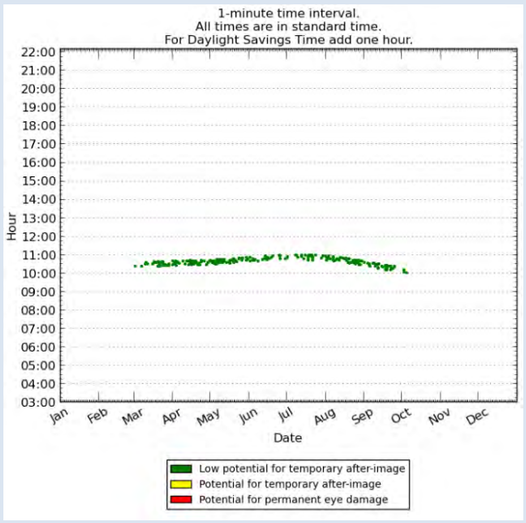
The glare assessment is based on topography only and does not take into account the potential screening or filtering effect of existing vegetation or minor road cuttings or embankments. The landscape setting surrounding each observation location (as shown on the aerial photos) would assist to shield direct views and therefore glare from locations to the east.

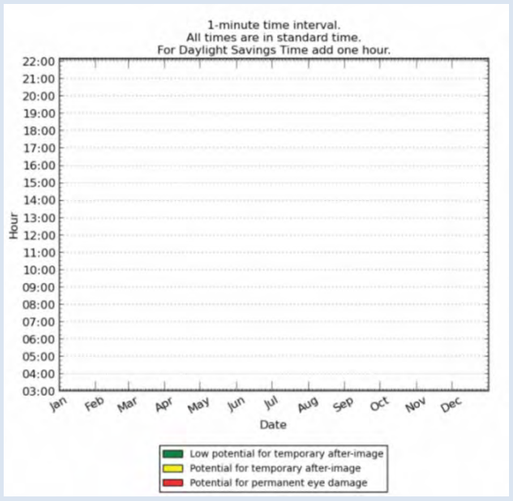
Figure 7.1 Viewpoint locations

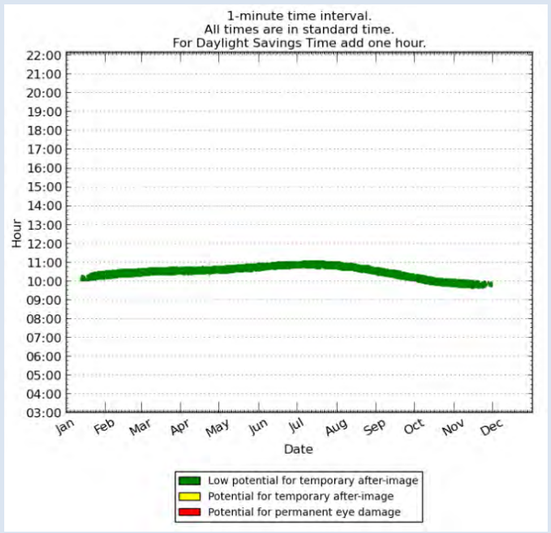
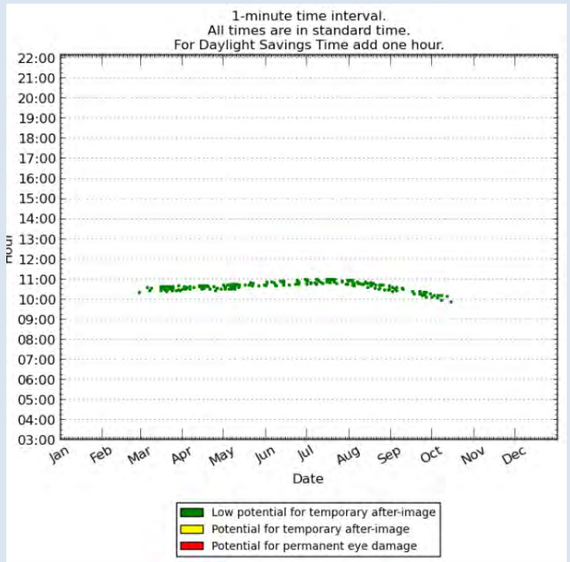


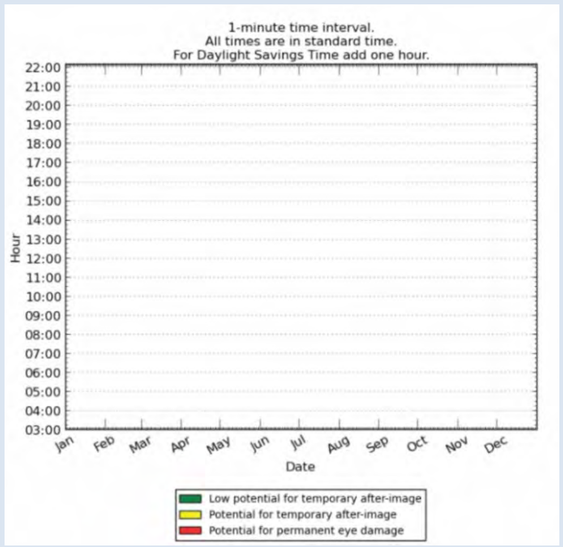
7.1 Observation Point 1: Capricorn Highway West *Zone 55k - 706501.00 m E, 7390221.00 m*	**Glare Occurrence Plot**	**Assessment Discussion**
		*Observation point 1 is located on the Capricorn Highway approximately 1.3 km west of the nearest site boundary. The rail line is directly south of this location.* *This location is within an area of the highway identified within the Seen Area Analysis as having visibility of the project.* ***No glare was predicted at this location.***

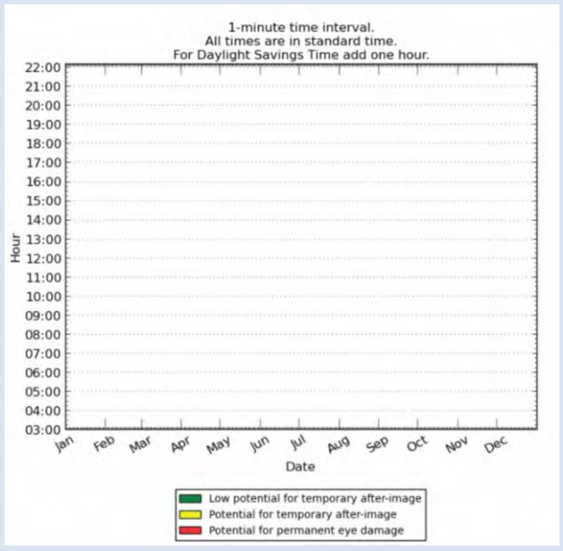
7.2 Observation Point 2: Capricorn Highway East *Zone 55k - 709292.00 m E, 7390057.00 m S*	**Glare Occurrence Plot**	**Assessment Discussion**
		*Observation point 2 is also from the Capricorn Highway approximately 600 m to the north east of the nearest site boundary. The rail line is directly south of this location. This location is within an area of identified as having visibility of the project within the Seen Area Analysis.* ***The SGHAT Assessment predicts glare to occur from March to October between approximately 10:00 and 11:00 am. The glare effect is predicted to be a "Low potential for temporary after image". Views to the site are oblique and are likely to be filtered by existing vegetation between the Highway and the Project (as shown in image on the right)*** 

7.3 Observation Point 3: Bluff Township *Zone 55k - 710828.00 m E, 7390542.00 m S*	**Glare Occurrence Plot**	**Assessment Discussion**
		*Observation point 3 is at the southwestern edge of Bluff Township at the edge of a residential cluster.* *This point is approximately 2.2 km to the north east of the nearest site boundary and within an area of identified as having visibility of the project.* ***The SGHAT Assessment predicts glare to occur from March to October between approximately 10:00 and 11:00 am. The glare effect is predicted to be a "Low potential for temporary after image". SGHAT Modelling is similar to the Seen Area Analysis in that it does not take into account the screening effects of vegetation, minor topographical changes and structures. Given the distance between the site and Bluff township, views to the site and therefore Glare effects will be filtered if not screened by existing vegetation and structures, including the railway siding as shown on the aerial.***

7.4 Residential Observation Point 1 *Zone 55k - 703296.00 m E, 7391366.00 m S*	**Glare Occurrence Plot**	**Assessment Discussion**
		*RO1 is a residentail viewing location approximately 4.75 km to the north west of the nearest site boundary. This dwelling is within a area identified as potentially being able to see the site by the Seen Area Analaysis Mapping.* *The dwelling is at a higher elevation than the site.* ***Even though the dwelling at this location is within an area as being able to see the site and at a higher elevation, No glare was predicted at this location.***

7.5 Residential Observation Point 2 *Zone 55k - 708848.00 m E, 7389824.00 m S*	**Glare Occurrence Plot**	**Assessment Discussion**
		*RO2 is a residentail dwelling approximately 200 m to the east of the nearest site boundary.* *This dwelling is within a area identified as potentially being able to see the site by the Seen Area Analaysis Mapping.* ***Glare is predicted from mid-January to the end of November. The glare effect is predicted to be a "Low potential for temporary after image" between the hours of approximately 9:30 and 11:00 am.*** ***There are extensive plantings that surround the dwelling as well as a number of existing trees in the area to the south west of the dwelling.*** ***The SGHAT Modelling is similar to the Seen Area Analysis in that it does not take into account the screening effects of vegetation. Although the glare effects are predicted to be a low level, these effects will be filtered by existing vegetation between the dwelling and the site.***
7.6 Residential Observation Point 3 *Zone 55k - 710325.00 m E, 7390286.00 m S*	**Glare Occurrence Plot**	**Assessment Discussion**
		*RO 3 is a residential dwelling to the south of the Capricorn Highway and the train laine. The dwelling is approxiamtely1.7 km north east of the nearest site boundary. This dwelling is also within an area identified as potentially being able to see the site. Extensive area of vegeation exist in the landscape between the dwelling and the site.* *The foothills of Arthurs Bluff Stgatre Forest will screen views and therefore glare potential to the southern portion of the site.* ***The SGHAT Assessment predicts glare to occur from March to October between the hours of approximately 10:00 and 11:00 am. Although the glare effect is predicted to be a "Low potential for temporary after image", SGHAT Modelling does not take into account the screening effects of vegetation, minor topographical changes and structures.*** ***Views to the site are screened by existing vegetation and structures. For these reasons it is unlikely that there will be any solar glare experienced at this location.***

7.7 Residential Observation Point 4 *Zone 55k - 709757.00 m E, 7392784.00 m S*	**Glare Occurrence Plot**	**Assessment Discussion**
		*RO4 is a residential dwelling on the Bluff-Jellinbah Road approximately 3.2 km to the north of the nearest site boundary. This dwelling is within a area identified as potentially being able to see the site within the Seen Area Analaysis mapping.* ***Even though the dwelling at this location is within an area as being able to see the site and at a higher elevation, No glare was predicted at this location.***

7.8 Residential Observation Point 5 *Zone 55k - 706366.00 m E, 7389639.00 m S*	**Glare Occurrence Plot**	**Assessment Discussion**
		*RO5 is a residential to the west of the Project approximately 1.2 km to the west of the nearest site boundary. This dwelling is within a area identified as potentially being able to see the site within the Seen Area Analaysis mapping.* ***Even though the dwelling at this location is within an area as being able to see the site and at a higher elevation, No glare was predicted at this location.***

8 LANDSCAPE MITIGATION

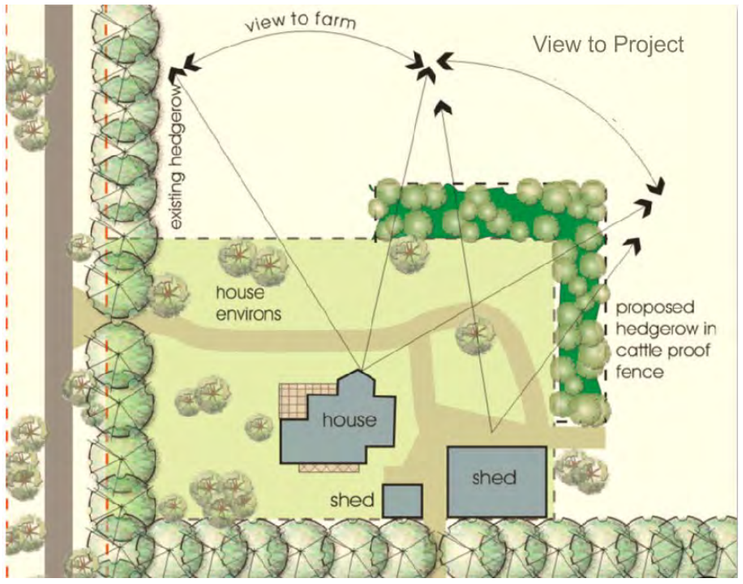
Given that there were no locations identified that may have a solar glare potential for after image impact greater than low, landscape mitigation is unlikely to be required.

Should this condition change or effects be identified following construction of the Project, landscape mitigation measures can be utilised to screen and filter views to the Project.

Landscaping is a mitigation option would be best applied at specific locations where impacts are likely to be of significance safety concern or a nuisance such as recreational facility, at residential dwellings or in close proximity to site boundaries. This due to the viewing locations being static or over s short section along a roadway.

Planting may be designed to either screen the Project from view, or significantly filter direct views through open canopy evergreen or deciduous planting.

Figure 8.1 Indicative residential landscape mitigation



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9 CONCLUSION

The glare assessment of the Project has identified:

- Observation locations were limited to areas to the north of the project. These included views from the Capricorn Highway, Bluff Township and residential dwellings.
- Arthurs Bluff State Forest is to the south of the site. The Seen Area Analysis mapping demonstrated that visibly of the project is limited to the northern slopes and foothill of this area. The Bluff limits visibility further to the south. There were no tracks, walking trails or lookouts identified within the area that can potentially see the project from the Bluff State Forest. Extensive areas of existing vegetation would screen views to the site.
- The potential for glare effects is limited to areas to the east and north-east of the site. Views to the Project from these areas are screened by existing vegetation within the landscape which will reduce the effect of glare.
- This assessment has not identified any locations that have the potential for an after image greater than Low from publicly accessible locations.
- The assessment has shown that the potential for temporary Low level after image from roads or the railway line are to the east to north-east of the Project, which are further filtered by vegetation.
- While backtracking may be used to reduce shadow impacts, the impacts of backtracking will have no additional predicted effects on glare.

Given that there are no locations identified that may have a glare potential for after image impact greater than low, landscape mitigation is unlikely to be required.

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South Melbourne Victoria 3205

ERM

Planning Report

Annex H

SDAP - CODE ASSESSMENT

Response column key:
☑ Achieved
P/S Performance solution
N/A Not applicable

1.1 Managing noise and vibration impacts from transport corridors state code

Table 1.1.1: Building work and material change of use

Performance Outcomes	Acceptable Outcomes	Response	Comment
Residential buildings near a state-controlled road or type 1 multi modal corridor			
PO1 Development involving an accommodation activity achieves acceptable noise levels for residents and visitors by mitigating adverse impacts on the development from noise generated by a state-controlled road or a type 1 multi-modal corridor.	**AO1.1** All facades of an accommodation activity exposed to noise from a state-controlled road or type 1 multi-modal corridor meet the following external noise criteria: (1) ≤60 dB(A) L_{10} (18 hour) facade corrected (measured L_{90} (8 hour) free field between 10 pm and 6 am ≤40 dB(A)) (2) ≤63 dB(A) L_{10} (18 hour) facade corrected (measured L_{90} (8 hour) free field between 10 pm and 6 am >40 dB(A)). AND	N/A	*Proposal does not involve residential buildings near a state-controlled road or type 1 multi modal corridor*
	AO1.2 Every private open space in an accommodation activity exposed to noise from a state-controlled road or type 1 multi-modal corridor meets the following external noise criteria: (1) ≤57 dB(A) L_{10} (18 hour) free field (measured L_{90} (18 hour) free field between 6 am and 12 midnight ≤45 dB(A)) (2) ≤60 dB(A) L_{10} (18 hour) free field (measured L_{90} (18 hour) free field between 6 am and 12 midnight >45 dB(A)). AND	N/A	*Proposal does not involve residential buildings near a state-controlled road or type 1 multi modal corridor*
	AO1.3 Every passive recreation area in an accommodation activity exposed to noise from a state-controlled road or type 1 multi-modal corridor meets the following external noise criteria: (3) 63 dB(A) L_{10} (12 hour) free field (between 6 am and 6 pm).	N/A	*Proposal does not involve residential buildings near a state-controlled road or type 1 multi modal corridor*

Performance Outcomes	Acceptable Outcomes	Response	Comment
	AND		
	AO1.4 Every habitable room in an accommodation activity (other than a residential building), exposed to noise from a state-controlled road or type 1 multi-modal corridor meets the following internal noise criteria: (4) ≤35 dB(A) L_{eq} (1 hour) (maximum hour over 24 hours). Note: Noise levels from a state-controlled road or type 1 multi-modal corridor are to be measured in accordance with *AS1055.1–1997 Acoustics – Description and measurement of environmental noise*. Editor's note: Habitable rooms of residential buildings located within a transport noise corridor must comply with t*he Queensland Development Code MP4.4 Buildings in a transport noise corridor*, Queensland Government, 2010. Transport noise corridors are mapped on the Department of Infrastructure, Local Government and Planning's State Planning Policy Interactive Mapping System.	N/A	*Proposal does not involve residential buildings near a state-controlled road or type 1 multi modal corridor*
Accommodation buildings near a railway (with 15 or more passing trains per day) or a type 2 multi modal corridor			
PO2 Development involving an accommodation activity achieves acceptable noise levels for residents and visitors by mitigating adverse impacts on the development from noise generated by a railway with 15 or more passing trains per day or a type 2 multi-modal corridor.	**AO2.1** All facades of an accommodation activity exposed to noise from a railway with 15 or more passing trains per day or a type 2 multi-modal corridor meet the following external noise criteria: (5) ≤65 dB(A) L_{eq} (24 hour) facade corrected (6) ≤87 dB(A) (single event maximum sound pressure level) facade corrected. AND	N/A	*Proposal does not involve accommodation buildings near a railway with 15 or more passing trains per day, or a type 2 multi modal corridor*

Performance Outcomes	Acceptable Outcomes	Response	Comment
	AO2.2 Every private open space and passive recreation area exposed to noise from a railway with 15 or more passing trains per day or type 2 multi-modal corridor meets the following external noise criteria: (7) ≤62 dB(A) L_{eq} (24 hour) free field (8) ≤84 dB(A) (single event maximum sound pressure level) free field. AND	N/A	*Proposal does not involve accommodation buildings near a railway with 15 or more passing trains per day, or a type 2 multi modal corridor*
	AO2.3 Every habitable room in an accommodation activity (other than a residential building) exposed to noise from a railway with 15 or more passing trains per day or a type 2 multi-modal corridor meets the following internal noise criteria: (9) ≤45 dB(A) single event maximum sound pressure level (railway). Note: Noise levels from railways or type 2 multi-modal corridors are to be measured in accordance with *AS1055.1–1997 Acoustics – Description and measurement of environmental noise.* Editor's note: Habitable rooms of residential buildings located within a transport noise corridor must comply with the *Queensland Development Code MP4.4 Buildings in a transport noise corridor*, Queensland Government, 2010. Transport noise corridors are mapped on the Department of Infrastructure, Local Government and Planning's State Planning Policy Interactive Mapping System.	N/A	*Proposal does not involve accommodation buildings near a railway with 15 or more passing trains per day, or a type 2 multi modal corridor*
Accommodation activities near a busway or light rail			
PO3 Development involving an accommodation activity achieves acceptable noise levels for residents	**AO3.1** All facades of an accommodation activity exposed to noise from a busway or light rail meet the following external noise criteria:	N/A	*Proposal does not include accommodation activities near a busway or light rail*

Performance Outcomes	Acceptable Outcomes	Response	Comment
and visitors by mitigating adverse impacts on the development from noise generated by a busway or light rail.	(10) ≤55 dB(A) L_{eq} (1 hour) facade corrected (maximum hour between 6 am and 10 pm) (11) ≤50 dB(A) L_{eq} (1 hour) facade corrected (maximum hour between 10 pm and 6 am) (12) ≤64 dB(A) L_{max} facade corrected (between 10 pm and 6 am). AND		
	AO3.2 Every private open space and passive recreation area in an accommodation activity exposed to noise from a busway or light rail meets the following external noise criteria: (13) ≤52 dB(A) L_{eq} (1 hour) free field (maximum hour between 6 am and 10 pm) (14) ≤66 dB(A) L_{max} free field. AND	N/A	*Proposal does not include accommodation activities near a busway or light rail*
	AO3.3 Every habitable room of an accommodation activity exposed to noise from a busway or light rail meets the following internal noise criteria: (15) ≤35 dB(A) L_{eq} (1 hour) (maximum hour over 24 hours). *Note: Noise levels from a busway or light rail are to be measured in accordance with AS1055.1–1997 Acoustics – Description and measurement of environmental noise.*	N/A	*Proposal does not include accommodation activities near a busway or light rail*
Particular development near a state-controlled road or type 1 multi modal corridor			
PO4 Development involving a: (1) child care centre, or (2) educational establishment achieves acceptable noise levels for workers and patrons by mitigating	**AO4.1** All facades of buildings for a child care centre or educational establishment exposed to noise from state-controlled roads or type 1 multi-modal corridors meet the following external noise criteria: (16) ≤58 dB(A) L_{10} (1 hour) facade corrected (maximum hour during normal opening hours).	N/A	*Proposal does not involve particular development near a state-controlled road or type 1 multi modal corridor*

Performance Outcomes	Acceptable Outcomes	Response	Comment
adverse impacts on the development from noise generated by a state-controlled road or a type 1 multi-modal corridor.	AND		
	AO4.2 Outdoor education areas and outdoor play areas exposed to noise from a state-controlled road or type 1 multi-modal corridor meet the following external noise criteria: (17) ≤63 dB(A) L_{10} (12 hours) free field (between 6 am and 6 pm). AND	N/A	*Proposal does not involve particular development near a state-controlled road or type 1 multi modal corridor*
	AO4.3 Indoor education areas and indoor play areas in a childcare centre or educational establishment exposed to noise from a state-controlled road or type 1 multi-modal corridor meet the following internal noise criteria: (18) ≤35 dB(A) L_{eq} (1 hour) (maximum hour during opening hours). Note: Noise levels from state-controlled roads or type 1 multi-modal corridors are to be measured in accordance with *AS1055.1–1997 Acoustics – Description and measurement of environmental noise*.	N/A	*Proposal does not involve particular development near a state-controlled road or type 1 multi modal corridor*
PO5 Development involving a hospital achieves acceptable noise levels for workers and patrons by mitigating adverse impacts on the development from noise generated by a state-controlled road or a type 1 multi-modal corridor.	**AO5.1** All facades of buildings for a hospital exposed to noise from state-controlled roads or type 1 multi-modal corridors meet the following external noise criteria: (1) ≤58 dB(A) L_{10} (1 hour) facade corrected (maximum hour during normal opening hours). AND	N/A	*Proposal does not involve particular development near a state-controlled road or type 1 multi modal corridor*
	AO5.2 Patient care areas exposed to noise from a state-controlled road or type 1 multi-modal corridor meet the following internal noise criteria:	N/A	*Proposal does not involve particular development near a state-controlled road or type 1 multi modal corridor*

Performance Outcomes	Acceptable Outcomes	Response	Comment
	(1) ≤35 dB(A) L_{eq} (1 hour) (maximum hour during opening hours). *Note: Noise levels from state-controlled roads or type 1 multi-modal corridors are to be measured in accordance with AS1055.1–1997 Acoustics – Description and measurement of environmental noise.*		
Particular development near a railway (with 15 or more passing trains per day) or a type 2 multi modal corridor			
PO6 Development involving a: (19) child care centre, or (20) educational establishment achieves acceptable noise levels for workers and patrons by mitigating adverse impacts on the development from noise generated by a railway with 15 or more passing trains per day or a type 2 multi-modal corridor.	**AO6.1** All facades of buildings in a child care centre or educational establishment exposed to noise from a railway with 15 or more passing trains per day or a type 2 multi-modal corridor meet the following external noise criteria: (21) ≤65 dB(A) L_{eq} (1 hour) facade corrected (maximum hour during normal opening hours) (22) ≤87 dB(A) (single event maximum sound pressure level) facade corrected. AND	N/A	*Proposal does not involve particular development near a railway with 15 or more passing trains per day, or type 2 multi modal corridor*
	AO6.2 Outdoor education area and outdoor play area exposed to noise from a railway with 15 or more passing trains per day or a type 2 multi-modal corridor meet the following external noise criteria: (23) ≤62 dB(A) L_{eq} (12 hour) free field (between 6 am and 6 pm) (24) ≤84 dB(A) (single event maximum sound pressure level) free field. AND	N/A	*Proposal does not involve particular development near a railway with 15 or more passing trains per day, or type 2 multi modal corridor*
	AO6.3 Sleeping rooms in a child care centre exposed to noise from a railway with 15 or more passing trains per day or a type 2 multi-modal corridor meet the following internal noise criteria: (25) ≤45 dB(A) single event maximum sound pressure level.	N/A	*Proposal does not involve particular development near a railway with 15 or more passing trains per day, or type 2 multi modal corridor*

Performance Outcomes	Acceptable Outcomes	Response	Comment
	AND		
	AO6.4 Indoor education areas and indoor play areas exposed to noise from a railway with 15 or more passing trains per day or a type 2 multi-modal corridor meet the following internal noise criteria: (26) ≤50 dB(A) single event maximum sound pressure level. *Note: Noise levels from railways or type 2 multi-modal corridors are measured in accordance with* AS1055.1–1997 *Acoustics – Description and measurement of environmental noise.*	N/A	*Proposal does not involve particular development near a railway with 15 or more passing trains per day, or type 2 multi modal corridor*
PO7 Development involving a hospital achieves acceptable noise levels for workers and patrons by mitigating adverse impacts on the development from noise generated by a railway with 15 or more passing trains per day or a type 2 multi-modal corridor.	**AO7.1** All facades of buildings for a hospital exposed to noise from a railway with 15 or more passing trains per day or a type 2 multi-modal corridor meet the following external noise criteria: (1) ≤65 dB(A) L_{eq} (1 hour) facade corrected (maximum hour during normal opening hours) (2) ≤87 dB(A) (single event maximum sound pressure level) facade corrected. AND	N/A	*Proposal does not involve particular development near a railway with 15 or more passing trains per day, or type 2 multi modal corridor*
	AO7.2 Ward areas exposed to noise from a railway with 15 or more passing trains per day or a type 2 multi-modal corridor meet the following internal noise criteria: (1) ≤45 dB(A) single event maximum sound pressure level. AND	N/A	*Proposal does not involve particular development near a railway with 15 or more passing trains per day, or type 2 multi modal corridor*
	AO7.3 Patient care areas (other than ward areas) exposed to noise from a railway with 15 or more	N/A	*Proposal does not involve particular development near a railway with 15 or more passing trains per day, or type 2*

Performance Outcomes	Acceptable Outcomes	Response	Comment
	passing trains per day or a type 2 multi-modal corridor meet the following internal noise criteria: (1) ≤50 dB(A) single event maximum sound pressure level. Note: Noise levels from railways or type 2 multi-modal corridors are measured in accordance with *AS1055.1–1997 Acoustics – Description and measurement of environmental noise.*		*multi modal corridor*
Particular development near a busway or light rail			
PO8 Development involving a: (27) child care centre, or (28) educational establishment achieves acceptable noise levels for workers and patrons by mitigating adverse impacts on the development from noise generated by a busway or light rail.	**AO8.1** All facades of buildings for a child care centre or educational establishment exposed to noise from a busway or light rail meet the following external noise criteria: (29) ≤55 dB(A) L_{eq} (1 hour) facade corrected (maximum hour during normal opening hours). AND	N/A	*Proposal does not involve particular development near a busway or light rail*
	AO8.2 Outdoor education areas and outdoor play areas exposed to noise from a busway or light rail meet the following external noise criteria: (30) ≤52 dB(A) L_{eq} (1 hour) free field (maximum hour during normal opening hours) (31) ≤66 dB(A) L_{max} free field (during normal opening hours). AND	N/A	*Proposal does not involve particular development near a busway or light rail*
	AO8.3 Indoor education areas and indoor play areas exposed to noise from a busway or light rail meet the following internal noise criteria: (32) ≤35 dB(A) L_{eq} (1 hour) (maximum hour during opening hours). Note: Areas exposed to noise from a busway or	N/A	*Proposal does not involve particular development near a busway or light rail*

Performance Outcomes	Acceptable Outcomes	Response	Comment
	light rail are measured in accordance with *AS1055.1–1997 Acoustics – Description and measurement of environmental noise.*		
PO9 Development involving a hospital achieves acceptable noise levels for workers and patients by mitigating adverse impacts on the development from noise generated by a busway or light rail.	**AO9.1** All facades of buildings for a hospital exposed to noise from a busway or light rail meet the following external noise criteria: (1) ≤55 dB(A) L_{eq} (1 hour) facade corrected (maximum hour during normal opening hours). AND	N/A	*Proposal does not involve particular development near a busway or light rail*
	AO9.2 Patient care areas exposed to noise from a busway or light rail meet the following internal noise criteria: (1) ≤35 dB(A) L_{eq} (1 hour) (maximum hour during opening hours). Note: Areas exposed to noise from a busway or light rail are measured in accordance with *AS1055.1–1997 Acoustics – Description and measurement of environmental noise.*	N/A	*Proposal does not involve particular development near a busway or light rail*
Noise barriers or earth mounds			
PO10 Noise barriers or earth mounds erected to mitigate noise from transport operations and infrastructure are designed, sited and constructed to: **a)** maintain safe operation and maintenance of state transport infrastructure (2) minimise impacts on surrounding properties (3) complement the surrounding local environment	**AO10.1** Where adjacent to a state-controlled road or type 1 multi-modal corridor, noise barriers and earth mounds are designed, sited and constructed in accordance with Chapter 7 Integrated Noise Barrier Design of the *Transport Noise Management Code of Practice – Volume 1 Road Traffic Noise*, Department of Transport and Main Roads, 2013. OR	N/A	*Given the non-residential nature of the Project, noise barriers and earth mounds are not proposed.*
	AO10.2 Where adjacent to a railway or type 2 multi-modal corridor, noise barriers and earth mounds are designed, sited and constructed in accordance with	P/S	*Given the non-residential nature of the Project, noise barriers and earth mounds are not proposed.*

Performance Outcomes	Acceptable Outcomes	Response	Comment
(4) maintain fauna movement corridors where appropriate	the *Civil Engineering Technical Requirement – CIVIL-SR-014 Design of noise barriers adjacent to railways*, Queensland Rail, 2011. OR		
	AO10.3 No acceptable outcome is prescribed for noise barriers and earth mounds adjacent to a busway or light rail.	N/A	*Proposal not adjacent to a busway or light rail.*
Vibration			
PO11 Development mitigates adverse impacts on the development from vibration generated by transport operations and infrastructure.	No acceptable outcome is prescribed.	P/S	*Given the non-residential nature of the Project, mitigation measures from vibration have not been included in the development.*

Table 1.1.2: Reconfiguring a lot

Performance outcomes	Acceptable outcomes	Response	Comment
Future anticipated accommodation activity near a state controlled road or type 1 multi-modal corridor			
PO1 Development involving land where a future anticipated accommodation activity is made exempt or self-assessable development under a local planning instrument is to achieve acceptable noise levels for residents and visitors by mitigating adverse impacts on the development site from noise generated by a state-controlled road or a type 1 multi-modal corridor.	**AO1.1** Land for a future anticipated accommodation activity exposed to noise from a state-controlled road or type 1 multi-modal corridor meets the following external noise criteria at the building envelope or if the building envelope is unknown, the deemed-to-comply setback distance for buildings stipulated by the local planning instrument or relevant building regulations: (5) ≤57 dB(A) L_{10} (18 hour) free field (measured L_{90} (18 hour) free field between 6 am and 12 midnight ≤45 dB(A)) (6) ≤60 dB(A) L_{10} (18 hour) free field (measured L_{90} (18 hour) free field between 6 am and 12 midnight >45 dB(A)).	N/A	*Proposal does not involve future anticipated accommodation activities near a state controlled road or type 1 multi modal corridor*

Performance outcomes	Acceptable outcomes	Response	Comment
Future anticipated accommodation activity near a railway (with 15 or more passing trains per day) or a type 2 multi-modal corridor			
PO2 Development involving land where a future anticipated accommodation activity is made exempt or self-assessable development under a local planning instrument is to achieve acceptable noise levels for residents and visitors by mitigating adverse impacts on the development site from noise generated by a railway with 15 or more passing trains per day or a type 2 multi-modal corridor.	**AO2.1** Land for a future anticipated accommodation activity exposed to noise from a railway with 15 or more passing trains per day or a type 2 multi-modal corridor meets the following external noise criteria at the building envelope or if the building envelope is unknown, the deemed-to-comply setback distance for buildings stipulated by the local planning instrument or relevant building regulations: (1) ≤62 dB(A) L_{eq} (24 hour) free field (2) ≤84 dB(A) (single event maximum sound pressure level) free field.	N/A	*Proposal does not involve future anticipated accommodation activities near a railway (with 15 or more passing trains per day) or a type 2 multi-modal corridor*
Future anticipated accommodation activity near a busway or light rail			
PO3 Development involving land where a future anticipated accommodation activity is made exempt or self-assessable development under a local planning instrument is to achieve acceptable noise levels by mitigating adverse impacts on the development site from noise generated by a busway or light rail.	**AO3.1** Land for a future anticipated accommodation activity exposed to noise from a busway or light rail meets the following external noise criteria at the building envelope or if the building envelope is unknown, the deemed-to-comply setback distance for buildings stipulated by the local government planning instrument or building regulations: (1) ≤52 dB(A) L_{eq} (1 hour) free field (maximum hour between 6 am and 10 pm) (2) ≤47 dB(A) L_{eq} (1 hour) free field (maximum hour between 10 pm and 6 am) (3) ≤66 dB(A) L_{max} free field.	N/A	*Proposal does not involve future anticipated accommodation activities near a busway or light rail*
Noise barriers or earth mounds			
PO4 Noise barriers or earth mounds erected to mitigate noise from transport operations and infrastructure are designed, sited and constructed to:	**AO4.1** Where adjacent to a state-controlled road or a type 1 multi-modal corridor, noise barriers and earth mounds are designed, sited and constructed in accordance with Chapter 7 Integrated Noise Barrier Design of the *Transport Noise Management Code of*	P/S	*Given the non-residential nature of the Project, noise barriers and earth mounds are not proposed.*

Performance outcomes	Acceptable outcomes	Response	Comment
(1) maintain safe operation and maintenance of state transport infrastructure (2) minimise impacts on surrounding properties (3) complement the surrounding local environment (4) maintain fauna movement corridors where appropriate.	*Practice – Volume 1 Road Traffic Noise*, Department of Transport and Main Roads, 2013. OR		
	AO4.2 Where adjacent to a railway or a type 2 multi-modal corridor, noise barriers and earth mounds are designed, sited and constructed in accordance with the *Civil Engineering Technical Requirement – CIVIL-SR-014 Design of noise barriers adjacent to railways*, Queensland Rail, 2011. OR	P/S	*Given the non-residential nature of the Project, noise barriers and earth mounds are not proposed.*
	AO4.3 No acceptable outcome is prescribed for noise barriers and earth mounds adjacent to a busway or light rail.	N/A	*Proposal not adjacent to a busway or light rail.*

Response column key:
☑ Achieved
P/S Performance solution
N/A Not applicable

1.2 Managing air and lighting impacts from transport corridors state code

Table 1.2.1: Building work, material change of use and reconfiguring a lot

Performance outcomes	Acceptable outcomes	Response	Comment
Air quality			
PO1 Development involving sensitive development achieves acceptable levels of air quality for occupiers or users of the development by mitigating adverse impacts on the development from air emissions generated by state transport infrastructure.	**AO1.1** Every private open space and passive recreation area of an accommodation activity meets the air quality objectives in the *Environmental Protection (Air) Policy 2008* for the following indicators: (7) carbon monoxide (8) nitrogen dioxide (9) sulphur dioxide (10) photochemical oxidants (11) respirable particulate matter (PM10) (12) fine particulate matter (PM2.5) (13) lead (14) toluene (15) formaldehyde (16) xylenes. AND	N/A	*Proposal does not involve accommodation activities*
	AO1.2 Every outdoor education area and passive recreation area of an educational establishment, childcare centre and hospital meets the air quality objectives in the *Environmental Protection (Air) Policy 2008* for the following indicators: (17) carbon monoxide (18) nitrogen dioxide (19) sulphur dioxide (20) photochemical oxidants (21) respirable particulate matter (PM10) (22) fine particulate matter (PM2.5) (23) lead	N/A	*Proposal does not involve an education establishment, childcare centre or hospital*

Performance outcomes	Acceptable outcomes	Response	Comment
	(24) toluene (25) formaldehyde (26) xylenes.		
Lighting impacts			
PO2 Development involving an accommodation activity or hospital achieves acceptable levels of amenity for residents and patients by mitigating lighting impacts from state transport infrastructure.	**AO2.1** Buildings for an accommodation activity or hospital are designed, sited and constructed to incorporate treatments to attenuate ingress of artificial lighting from state transport infrastructure during the hours of 10 pm – 6 am.	N/A	*Proposal does not include accommodation activities or hospital*

Response column key:
☑ Achieved
P/S Performance solution
N/A Not applicable

18.1 Filling, excavation and structures state code

Table 18.1.1: All development

Performance outcomes	Acceptable outcomes	Response	Comment
All development			
PO1 Buildings, services, structures and utilities do not adversely impact on the safety or operation of: (1) state transport corridors (2) future state transport corridors (3) state transport infrastructure Editor's note: For a railway, *Section 2.3 – Structures, setbacks, utilities and maintenance* of the *Guide for Development in a Transport Environment: Rail*, Department of Transport and Main Roads, 2015, provides guidance on how to comply with this performance outcome.	**AO1.1** Buildings, structures, services and utilities are not located in a railway, future railway land or public passenger transport corridor. AND	☑	*Access to the Project Area is proposed via the railway corridor, however no buildings, structures, services or utilities are proposed within the corridor.*
	AO1.2 Buildings and structures are set back horizontally a minimum of three metres from overhead line equipment. AND	☑	*The PV array will be setback a minimum of 3 metres from the overhead transmission lines located in an easement on the eastern side of the Project Area*
	AO1.3 Construction activities do not encroach into a railway or public passenger transport corridor. AND	☑	*The Project will be located on freehold land adjacent to the railway corridor. Access to the Project Area is proposed via an existing access location over the railway line. Consent to use the existing access point has been sought from the Railway Manager.*
	AO1.4 The lowest part of development in or over a railway or future railway land is to be a minimum of: (1) 7.9 metres above the railway track where the proposed development extends along the railway for a distance of less than 40 metres, or (2) 9.0 metres above the railway track where the development extends along the railway for a distance of between 40 and 80 metres. AND	N/A	*The Project will be located on freehold land adjacent to the railway corridor. Access to the Project Area is proposed via an existing access location over the railway line. Consent to use the existing access point has been sought from the Railway Manager.*
	AO1.5 Existing authorised access points and access routes to state transport corridors for maintenance and emergency works are maintained, allowing for uninterrupted access at all times. AND	☑	*The Project will utilise the existing access point location, with the access location maintained, allowing for uninterrupted access at all times.*

Performance outcomes	Acceptable outcomes	Response	Comment
	AO1.6 Pipe work, services and utilities can be maintained without requiring access to the state transport corridor. AND	P/S	*The Project will be located on freehold land adjacent to the railway corridor. Access to the Project Area is proposed via an existing access location over the railway line. Consent to use the existing access point has been sought from the Railway Manager.*
	AO1.7 Pipe work, services and utilities are not attached to rail transport infrastructure: (1) are not attached to rail transport infrastructure or other rail infrastructure, and (2) do not penetrate through the side of any proposed building element or structure where built to boundary in, over or abutting a railway. AND	☑	*Pipe work, services and utilities are not attached to rail transport infrastructure*
	AO1.8 Buildings and structures are set back a minimum of three metres from a railway bridge. AND	N/A	*The Project does not impact any railway bridges*
	AO1.9 Development below or abutting a railway bridge is to be clear of permanent structures or any other activity that may impede emergency access or works and maintenance of rail transport infrastructure. Editor's note: Temporary activities below or abutting a railway bridge could include, for example, car parking or outdoor storage.	N/A	*The Project does not impact any railway bridges*
	AO1.10 Development above a railway is designed to facilitate ventilation as follows: (1) for development extending above a railway for a distance of less than 80 metres, gaps are provided to ensure natural ventilation, or (2) for development extending above a railway for a distance of more than 80 metres, ventilation	N/A	*The Project does not include development above a railway*

Performance outcomes	Acceptable outcomes	Response	Comment
	shafts are provided. Editor's note: For development extending above a railway for a distance of more than 80 metres, it is recommended that modelling of smoke dispersion should be undertaken by a RPEQ to predict the spread of combustion products and inform the ventilation design. *Section 5.1 – Development over a railway of the Guide to Development in a Transport Environment: Rail*, Department of Transport and Main Roads, 2015, provides guidance on how to comply with this acceptable outcome.		
PO2 Development prevents unauthorised access to: (1) state transport corridors, (2) future state transport corridors, (3) state transport infrastructure, by people, vehicles and projectiles. Editor's note: For a railway, *Section 2.4 – Preventing unauthorised access* of the *Guide to Development in a Transport Environment: Rail*, Department of Transport and Main Roads, 2015, provides guidance on how to comply with this performance outcome.	**AO2.1** Fencing is provided along the property boundary with the railway. Editor's note: Where fencing is provided it is to be in accordance with the railway manager's standards. AND	P/S	*The Project Area will be fenced.*
	AO2.2 Accommodation activities with a publicly accessible area located within 10 metres from the boundary of a railway or 20 metres from the centreline of the nearest railway track (whichever is the shorter distance), include throw protection screens for the publicly accessible area as follows: (1) openings of no greater than 25 mm x 25 mm (2) height of 2.4 metres vertically above the highest toe hold if see-through, or 2 metres if non see-through. Editor's note: Expanded metal is considered see-through. AND	N/A	*The Project does not include accommodation activities*
	AO2.3 Development in or over a railway or future railway land includes throw protection screens. Editor's note: Throw protection screens in a railway	N/A	*The Project will be located on freehold land adjacent to the railway corridor. Access to the Project Area is proposed via an existing access location over the railway line. Consent to*

Performance outcomes	Acceptable outcomes	Response	Comment
	or future railway land designed in accordance with the relevant provisions of the *Civil Engineering Technical Requirement CIVIL-SR-005 Design of buildings over or near railways*, Queensland Rail, 2011, and the *Civil Engineering Technical Requirement CIVIL-SR-008 Protection screens*, Queensland Rail, 2011, comply with this acceptable outcome. AND		*use the existing access point has been sought from the Railway Manager.*
	AO2.4 Built to boundary walls and solid fences abutting a railway are protected by an anti-graffiti coating. Editor's note: The *Anti-Graffiti Protection Specification MRTS83*, Department of Transport and Main Roads, 2009, provides guidance on how to comply with this acceptable outcome. AND	N/A	*The Project does not include built to boundary walls or solid fences abutting the railway*
	AO2.5 Road barriers are installed along any proposed roads abutting a railway. Editor's note: Road barriers designed in accordance with Queensland Rail *Civil Engineering Technical Requirement CIVIL-SR-007 Design and selection criteria for road/rail interface barriers* comply with this acceptable outcome. AND	N/A	*The Project does not include any new roads abutting the railway*
	AO2.6 Proposed vehicle manoeuvring areas, driveways, loading areas or carparks abutting a railway include rail interface barriers. Editor's note: A Registered Professional Engineer of Queensland (RPEQ) certified barrier design complies with this acceptable outcome.	N/A	*The Project will be located on freehold land adjacent to the railway corridor. Access to the Project Area is proposed via an existing access location over the railway line. Consent to use the existing access point has been sought from the Railway Manager. If required by the Railway Manager, rail interface barriers will be implemented.*
PO3 Buildings and structures in, over or below a railway or future	**AO3.1** Buildings and structures, including piers or supporting elements, located in, over or below a	N/A	*The Project does not include the construction of building or structures within the railway corridor.*

Performance outcomes	Acceptable outcomes	Response	Comment
railway land are able to sustain impacts to their structural integrity in the event of an impact from a derailed train.	railway or future railway land are designed and constructed in accordance with *AS5100 Bridge design*, *AS 1170 Structural design actions* and *Civil Engineering Technical Requirement CIVIL-SR-012 Collision protection of supporting elements adjacent to railways*, Queensland Rail, 2011.		
PO4 Buildings and structures in, over, below or within 50 metres of a state-controlled transport tunnel or a future state-controlled transport tunnel have no adverse impact on the structural integrity of the state-controlled transport tunnel. Editor's note: For a railway, *Section 2.5 – Tunnels* of the *Guide to Development in a Transport Environment: Rail*, Department of Transport and Main Roads, 2015, provides guidance on how to comply with this performance outcome.	**AO4.1** Development in, over, below or within 50 metres of a state-controlled transport tunnel or future state-controlled transport tunnel ensures that the tunnel is: (1) not vertically overloaded or affected by the addition or removal of lateral loading (2) not adversely affected as a result of directly or indirectly disturbing groundwater or soil. Editor's note: To demonstrate compliance with this acceptable outcome, it is recommended that a Registered Professional Engineer of Queensland (RPEQ) certified geotechnical investigation, earthworks drawings and supporting technical details, and structural engineering drawings and supporting technical details be prepared and submitted with the application.	N/A	*Project Area is not located near a state-controlled transport tunnel or future state-controlled transport tunnel*
PO5 Development involving dangerous goods adjacent to a railway or future railway land does not adversely impact on the safety of a railway. Editor's note: *Section 2.6 – Dangerous goods and fire safety* of the *Guide to Development in a Transport Environment: Rail*, Department of Transport and Main Roads, 2015, provides guidance on how to comply	**AO5.1** Development involving dangerous goods, other than hazardous chemicals below the threshold quantities listed in table 5.2 of the *State Planning Policy guideline: State interest – emissions and hazardous activities, Guidance on development involving hazardous chemicals*, Department of State Development, Infrastructure and Planning, 2013, ensures that impacts on a railway from a fire, explosion, spill, gas emission or dangerous goods incident can be appropriately mitigated. Editor's note: To demonstrate compliance with this	N/A	*The Project does not involve dangerous goods or other hazardous chemicals*

Performance outcomes	Acceptable outcomes	Response	Comment
with this performance outcome.	acceptable outcome, it is recommended that a risk assessment be undertaken in accordance with *Attachment 1: Risk assessment guide* of the *Guide to Development in a Transport Environment: Rail*, Department of Transport and Main Roads, 2015.		
PO6 Any part of the development located within 25 metres of a state-controlled road or future state-controlled road minimises the potential to distract drivers and cause a safety hazard.	**AO6.1** Advertising devices proposed to be located within 25 metres of a state-controlled road or future state-controlled road are designed to meet the relevant standards for advertising outside the boundaries of, but visible from, a state-controlled road, outlined within the *Roadside advertising guide*, Department of Transport and Main Roads, 2013.	N/A	*The Project does not include advertising devices within 25m of the state-controlled road.*
PO7 Filling, excavation and construction does not adversely impact on or compromise the safety or operation of: (1) state transport corridors, (2) future state transport corridors, (3) state transport infrastructure. Editor's note: For a railway, *Section 2.7 – Filling, excavation and ground disturbance* of the *Guide to Development in a Transport Environment: Rail*, Department of Transport and Main Roads, 2015, provides guidance on how to comply with this performance outcome.	**AO7.1** Filling and excavation does not undermine, cause subsidence of, or groundwater seepage onto a state transport corridor or future state transport corridor. Editor's note: To demonstrate compliance with this acceptable outcome for a state-controlled road, it is recommended that a filling and excavation report assessing the proposed filling and excavation be prepared in accordance with the requirements of the *Road planning and design manual*, Department of Transport and Main Roads, 2013. Editor's note: To demonstrate compliance with this acceptable outcome for a state transport corridor, excluding a state-controlled road, it is recommended that the following be submitted with the application: (1) a RPEQ certified geotechnical investigation (2) RPEQ certified earthworks drawings and supporting technical details (3) RPEQ certified structural engineering drawings	☑	*The Project involves minimal filling and excavation with the ground disturbance limited to the footings for the PV tracking system and pads for associated infrastructure including inverters, control building and battery storage.*

Performance outcomes	Acceptable outcomes	Response	Comment
	and supporting technical details. Editor's note: If a development involves filling and excavation within a state-controlled road, an approval issued by the Department of Transport and Main Roads under section 33 of the *Transport Infrastructure Act 1994* may be required. AND		
	AO7.2 Development involving excavation, boring, piling or blasting does not result in vibration impacts during construction or blasting which would compromise the safety and operational integrity of a state transport corridor. Editor's note: To demonstrate compliance with this acceptable outcome it is recommended that an RPEQ certified geotechnical report be prepared and submitted with the application. AND	P/S	*The Project will involve piling for the PV tracking system however it is considered highly unlikely this will result in vibration impacts that would impact the safety or operational integrity of the state transport corridor.*
	AO7.3 Development does not store fill, spoil or any other material in a railway.	☑	*The Project does not include the storage of fill, spoil or any other material in the railway corridor*
PO8 Filling and excavation does not interfere with or impact on existing or future planned services or public utilities on a state-controlled road.	**AO8.1** Any alternative service and public utility alignment must satisfy the standards and design specifications of the service or public utility provider, and any costs of relocation are borne by the developer. Editor's note: An approval issued by the Department of Transport and Main Roads under section 33 of the *Transport Infrastructure Act 1994* may be required.	N/A	*The Project does not include any alternative service or public utility alignment*
PO9 Retaining or reinforced soil structures required to contain fill and excavation: (1) do not encroach on a state transport corridor,	**AO9.1** Retaining or reinforced soil structures (including footings, rock anchors and soil nails) are not located in a state transport corridor or future state transport corridor. AND	N/A	*The Project does not include retaining or reinforced soil structures.*

Performance outcomes	Acceptable outcomes	Response	Comment
(2) are capable of being constructed and maintained without adversely impacting a state transport corridor, (3) do not adversely impact on a state transport corridor through the addition or removal of lateral loads or surcharge loads, (4) are constructed of durable materials which maximise the life of the structure. Editor's note: For a railway, *Section 2.7 – Filling, excavation and ground disturbance* of the *Guide to Development in a Transport Environment: Rail*, Department of Transport and Main Roads, 2015, provides guidance on how to comply with this performance outcome.	**AO9.2** Retaining or reinforced soil structures in excess of an overall height of one metre abutting a state transport corridor are to be designed and certified by a structural RPEQ. Editor's note: To demonstrate compliance with this acceptable outcome, it is recommended that the following be submitted with the application: (1) a RPEQ certified geotechnical investigation (2) RPEQ certified earthworks drawings and supporting technical details (3) RPEQ certified structural engineering drawings and supporting technical details. AND	N/A	*Project Area located 3km from the railway corridor. See above.*
	AO9.3 Retaining or reinforced soil structures that are set back less than 750 millimetres from a common boundary with a state-controlled road are certified by a structural RPEQ and designed to achieve a low maintenance external finish. AND	N/A	*The Project does not include retaining or reinforced soil structures.*
	AO9.4 Retaining or reinforced soil structures adjacent to a state-controlled road, and in excess of an overall height of two metres, incorporate design treatments (such as terracing or planting) to reduce the overall height impact. AND	N/A	*The Project does not include retaining or reinforced soil structures.*
	AO9.5 Construction materials of all retaining or reinforced soil structures have a design life exceeding 40 years, and comply with the specifications approved by a RPEQ. AND	N/A	*The Project does not include retaining or reinforced soil structures.*
	AO9.6 Temporary structures and batters do not	N/A	*The Project does not include temporary structure or batters*

Performance outcomes	Acceptable outcomes	Response	Comment
	encroach into a railway. AND		*within the railway.*
	AO9.7 Surcharge loading from vehicles or the stockpiling of materials or soil on retaining or reinforced soil structures adjacent to a state transport corridor or future state transport corridor meet the requirements of *AS5100.2 Bridge design – Design loads* or a minimum of 10 kPa (whichever is greater). AND	N/A	*The Project will not involve the stockpiling of materials or soil on retaining or reinforced soil structures adjacent to a state transport corridor or future state transport corridor*
	AO9.8 Excavation or any other works do not remove the lateral load of retaining structures associated with, or adjacent to, a state transport corridor. Editor's note: To demonstrate compliance with this acceptable outcome, it is recommended that a RPEQ certified geotechnical and structural assessment be prepared and submitted with the application.	☑	*The Project works will not remove the lateral load of retaining structures associated with, or adjacent to, a state transport corridor.*
PO10 Filling and excavation does not cause siltation and erosion run-off from the property, or wind-blown dust nuisance onto a state-controlled road.	**AO10.1** Compaction of fill is carried out in accordance with the requirements of *AS 1289.0 2000 – Methods of testing soils for engineering purposes*.	N/A	*The Project does not involve the compaction of fill.*
PO11 Where the quantity of fill or excavated spoil material being imported or exported for a development exceeds 10 000 tonnes, and haulage will be on a state-controlled road, any impact on the infrastructure is identified and mitigation measures implemented.	**AO11.1** The impacts on the state-controlled road network are identified, and measures are implemented to avoid, reduce or compensate the effects on the asset life of the state-controlled road. Editor's note: It is recommended that a pavement impact assessment report be prepared to address this acceptable outcome. Guidance for preparing a pavement impact assessment is set out in *Guidelines for assessment of road impacts of development (GARID)*, Department of Transport and Main Roads, 2006.	N/A	*The Project does not involve imported or exported fill material exceeding 10,000 tonnes.*

Performance outcomes	Acceptable outcomes	Response	Comment
PO12 Filling and excavation associated with providing a driveway crossover to a state-controlled road does not compromise the operation or capacity of existing drainage infrastructure.	**AO12.1** Filling and excavation associated with the design of driveway crossovers complies with the relevant Institute of Public Works Engineering Australia Queensland (IPWEAQ) standards. Editor's note: The construction of any crossover requires the applicant to obtain a permit to work in the state-controlled road corridor under section 33 of the *Transport Infrastructure Act 1994* and a section 62 approval under the *Transport Infrastructure Act 1994* for the siting of the access and associated works.	N/A	*The Project does not involve excavation or filling associated with a driveway crossover.*
PO13 Fill material does not cause contamination from the development site onto a state-controlled road.	**AO13.1** Fill material is free of contaminants including acid sulphate content, and achieves compliance with *AS 1289.0 – Methods of testing soils for engineering purposes* and *AS 4133.0-2005 – Methods of testing rocks for engineering purposes*.	N/A	*The Project does not involve the use of fill material*
PO14 Vibration generated through fill compaction does not result in damage or nuisance to a state-controlled road.	**AO14.1** Fill compaction does not result in any vibrations beyond the site boundary, and is in accordance with *AS 2436–2010 – Guide to noise and vibration control on construction, demolition and maintenance sites*.	N/A	*The Project does not involve the use of fill material*

Response column key:
☑ Achieved
P/S Performance solution
N/A Not applicable

18.2 Stormwater and drainage impacts on state transport infrastructure state code

Table 18.2.1: All development

Performance outcomes	Acceptable outcomes	Response	Comment
Stormwater and drainage management			
PO1 Stormwater management for the development must ensure there is no worsening of, and no actionable nuisance in relation to peak discharges, flood levels, frequency or duration of flooding, flow velocities, water quality, ponding, sedimentation and scour effects on an existing or future state transport corridor for all flood and stormwater events that exist prior to development, and up to a 1 per cent annual exceedance probability.	**AO1.1** The development does not result in stormwater or drainage impacts or actionable nuisance within an existing or future state transport corridor. *Editor's note: It is recommended that basic stormwater information is to be prepared to demonstrate compliance with AO1.1.* OR	☑	*The Project involves minimal excavation of filling due to the nature of the use. Therefore, the Project is unlikely to have a significant impact on the existing natural ground water flows.*
	AO1.2 A stormwater management statement certified by an RPEQ demonstrates that the development will achieve a no worsening impact or actionable nuisance on an existing or future state transport corridor. OR	P/S	*A Stormwater Management Plan certified by an RPEQ will be included in the Construction and Environmental Management Plan*
	AO1.3 A stormwater management plan certified by an RPEQ demonstrates that the development will achieve a no worsening impact or actionable nuisance on an existing future state transport corridor. OR	P/S	*A Stormwater Management Plan certified by an RPEQ will be included in the Construction and Environmental Management Plan*
	AO1.4 For development on premises within 25 metres of a railway, a stormwater management plan certified by an RPEQ demonstrates that: (1) the development will achieve a no worsening impact or actionable nuisance on the railway (2) the development does not cause stormwater, roofwater, ponding, floodwater or any other drainage to be directed to, increased or concentrated on the railway (3) the development does not impede any drainage, stormwater or floodwater flows from the	P/S	*A Stormwater Management Plan certified by an RPEQ will be included in the Construction and Environmental Management Plan*

Performance outcomes	Acceptable outcomes	Response	Comment
	railway (4) stormwater or floodwater flows have been designed to: (a) maintain the structural integrity of the light rail transport infrastructure (b) avoid scour or deposition (5) additional railway formation drainage necessitated by the development is located within the premises where the development is carried out (6) retaining structures for excavations abutting the railway corridor provide for drainage.		
Lawful point of discharge			
PO2 Stormwater run-off and drainage are directed to a lawful point of discharge to avoid adverse impacts on a future or existing state transport corridor.	**AO2.1** Where stormwater run-off is discharged to a state transport corridor, the discharge is to a lawful point of discharge in accordance with section 1.4.3 of the *Road drainage manual*, Department of Transport and Main Roads, 2010 and section 3.02 of *Queensland urban drainage manual*, Department of Energy and Water Supply, 2013. OR	☑	*The Project does not include stormwater run-off discharging to a state transport corridor.*
	AO2.2 For development on premises within 25 metres of a railway, approval from the relevant railway manager for the railway, as defined in the *Transport Infrastructure Act 1994*, schedule 6 has been gained to verify the lawful point of discharge for stormwater onto the railway. AND	N/A	
	AO2.3 Development does not cause a net increase in or concentration of stormwater or floodwater flows discharging onto the state transport corridor during construction or thereafter. AND	☑	
	AO2.4 Development does not create any additional points of discharge or changes to the condition of an	☑	

Performance outcomes	Acceptable outcomes	Response	Comment
	existing lawful point of discharge to the state transport corridor.		
Sediment and erosion management			
PO3 Run-off from upstream development is managed to ensure that sedimentation and erosion do not cause siltation of stormwater infrastructure in the state transport corridor.	**AO3.1** Development with a moderate to high risk of erosion incorporates erosion and sediment control measures. Editor's note: For a state-controlled road where a development has a moderate to high risk of erosion as per section 13.5 of the *Road drainage manual*, Department of Transport and Main Roads, 2010, an erosion and sedimentation control plan should be provided to support a stormwater management plan.	☑	

19.1 Access to state-controlled roads state code

Response column key:
☑ Achieved
P/S Performance solution
N/A Not applicable

Table 19.1.1: All development

Performance outcomes	Acceptable outcomes	Response	Comment
Location of the direct vehicular access to the state-controlled road			
PO1 Any road access location to the state-controlled road from adjacent land does not compromise the safety and efficiency of the state-controlled road.	**AO1.1** Any road access location to the state-controlled road complies with a decision under section 62 of the TIA. **Or**	☑	*The Project will utilise an existing access location.*
	AO1.2 Development does not propose a new or temporary road access location, or a change to the use or operation of an existing permitted road access location to a state-controlled road. **Or**	☑	*The Project will utilise an existing access location*
	AO1.3 Any proposed road access location for the development is provided from a lower order road where an alternative to the state-controlled road exists. Or All of the following acceptable outcomes apply:	N/A	*The Project will utilise an existing access location*
	AO1.4 Any new or temporary road access location, or a change to the use or operation of an existing permitted road access location, demonstrates that the development: (1) does not exceed the acceptable level of service of a state-controlled road (2) meets the sight distance requirements outlined in Volume 3, parts 3, 4, 4A, 4B and 4C of the Road planning and design manual, 2nd edition, Department of Transport and Main Roads, 2013 (3) does not exceed the acceptable operation of an intersection with a state-controlled road,	☑	*The Project will utilise an existing access location*

Performance outcomes	Acceptable outcomes	Response	Comment
	including the degree of saturation, delay, queuing lengths and intersection layout (4) is not located within and/or adjacent to an existing or planned intersection in accordance with Volume 3, parts 4, 4A, 4B and 4C of the Road planning and design manual, 2nd edition, Department of Transport and Main Roads, 2013 (5) does not conflict with another property's road access location and operation. *Editor's note: To demonstrate compliance with this acceptable outcome, it is recommended a traffic impact assessment be developed in accordance with Chapters 1, 4, 6, 7, 8 and 9 of the Guidelines for assessment of road impacts of development (GARID), Department of Main Roads, 2006, and the requirements of Volume 3, parts 4, 4A, 4B and 4C of the Road planning and design manual, 2nd edition, Department of Transport and Main Roads, 2013, SIDRA analysis or traffic modelling.* **And**		
	AO1.5 Development does not propose a new road access location to a limited access road. *Editor's note: Limited access roads are declared by the chief executive under section 54 of the TIA. Details can be accessed by contacting the appropriate DTMR regional office.*	☑	*The Project will utilise an existing access location*
Number of road accesses to the state-controlled road			
PO2 The number of road accesses to the state-controlled road maintains the safety and efficiency of the state-controlled road.	**AO2.1** Development does not increase the number of and accesses to the state-controlled road. AND	P/S	*During the construction phase of the Project, an increase in vehicle numbers accessing the site via the Capricorn Highway will increase by approximately 6% over the peak construction period of 6-8 months. A Traffic Management Plan will be implemented during the construction phase. Refer to Section 3.8.1 of the Planning Report.*
	AO2.2 Where multiple road accesses to the premises	☑	*The State-controlled road provides the only access location*

Performance outcomes	Acceptable outcomes	Response	Comment
	exist, access is rationalised to reduce the overall number of road accesses to the state-controlled road. **And**		*for the Project.*
	AO2.3 Shared or combined road accesses are provided for adjoining land having similar uses to rationalise the overall number of direct accesses to the state-controlled road. *Editor's note: Shared road accesses may require easements to provide a legal point of access for adjacent lots. If this is required, then the applicant must register reciprocal access easements on the titles of any lots for the shared access.*	☑	*The Project will utilise an existing access location which is shared between adjoining land owners via easements burdening the subject lot.*
Design vehicle and traffic volume			
PO3 The design of any road access maintains the safety and efficiency of the state-controlled road.	**AO3.1** Any road access meets the minimum standards associated with the design vehicle. *Editor's note: The design vehicle to be considered is the same as the design vehicle set under the relevant local government planning scheme.* **And**		*The Project will utilise an existing access location which is considered suitable given the temporary construction period of 10-16 months. During operation, minimal impact will be experienced, with between 4-6 staff required on-site.*
	AO3.2 Any road access is designed to accommodate the forecast volume of vehicle movements in the peak periods of operation or conducting the proposed use of the premises. **And**	☑	*The Project will utilise an existing access location which provides adequate access for operational purposes.*
	AO3.3 Any road access is designed to accommodate 10 year traffic growth past completion of the final stage of development in accordance with GARID. **And**		*The Project will utilise an existing access location which provides adequate access for operational purposes over the 30 year life of the Project.*
	AO3.4 Any road access in an urban location is designed in accordance with the relevant local	N/A	*The Project is not located in an urban area.*

Performance outcomes	Acceptable outcomes	Response	Comment
	government standards or IPWEAQ R-050, R-051, R-052 and R-053 drawings. **And**		
	AO3.5 Any road access not in an urban location is designed in accordance with Volume 3, parts 3, 4 and 4A of the Road planning and design manual, 2nd edition, Department of Transport and Main Roads, 2013.		*The Project will utilise an existing access location which is considered sufficient to meet the needs of the Project, while maintaining access to adjoining properties*
Internal and external manoeuvring associated with direct vehicular access to the state-controlled road			
PO4 Turning movements for vehicles entering and exiting the premises via the road access maintain the safety and efficiency of the state-controlled road.	**AO4.1** The road access provides for left in and left out turning movements only. **And**	P/S	*The existing road access location is adjacent to single land carriageway with dashed white lines allowing right-turn access into the site. Ongoing operations of the facility once constructed will require minimal traffic volumes. However, high volumes of traffic are expected during the construction period and will be managed through a Traffic Management Plan.*
	AO4.2 Internal manoeuvring areas on the premises are designed so the design vehicle can enter and leave the premises in a forward gear at all times. *Editor's note: The design vehicle to be considered is the same as the design vehicle set under the relevant local government planning scheme.*	☑	*The Project Area includes sufficient area for vehicles to enter and exit in a forward gear.*
PO5 On-site circulation is suitably designed to accommodate the design vehicle associated with the proposed land use, in order to ensure that there is no impact on the safety and efficiency of the state-controlled road**.**	**AO5.1** Provision of on-site vehicular manoeuvring space is provided to ensure the flow of traffic on the state-controlled road is not compromised by an overflow of traffic queuing to access the site in accordance with AS2890 – Parking facilities. **And**	P/S	*The Project Area includes sufficient area for vehicles to enter and exit in a forward gear.*
	AO5.2 Mitigation measures are provided to ensure that the flow of traffic on the state-controlled road is not disturbed by traffic queuing to access the site.		*A Traffic Management Plan form part of the Construction and Environmental Management Plan which will provide mitigation measures for access during the construction period.*

Performance outcomes	Acceptable outcomes	Response	Comment
Vehicular access to local roads within 100 metres of an intersection with a state-controlled road			
PO6 Development having road access to a local road within 100 metres of an intersection with a state-controlled road maintains the safety and efficiency of the state-controlled road.	**AO6.1** The road access location to the local road is located as far as possible from where the road intersects with the state-controlled road and accommodates existing operations and planned upgrades to the intersection or state-controlled road. **And**	N/A	*The Project does not involve access to a local road*
	AO6.2 The road access to the local road network is in accordance with Volume 3, parts 3, 4 and 4A of the Road planning and design manual, 2nd edition, Department of Transport and Main Roads, 2013, and is based on the volume of traffic and speed design of both the local road and intersecting state-controlled road for a period of 10 years past completion of the final stage of development. **And**	N/A	*The Project does not involve access to a local road*
	AO6.3 Vehicular access to the local road and internal vehicle circulation is designed to remove or minimise the potential for vehicles entering the site to queue in the intersection with the state-controlled road or along the state-controlled road itself.	N/A	*The Project does not involve access to a local road*

Response column key:
☑ Achieved
P/S Performance solution
N/A Not applicable

19.2 Transport infrastructure and network design state code

Table 19.2.1: All development

Performance outcomes	Acceptable outcomes	Response	Comment
All state transport infrastructure – except state-controlled roads			
PO1 Development does not compromise the safe and efficient management or operation of state transport infrastructure or transport networks. *Editor's note: To demonstrate compliance with this performance outcome, it is recommended that a traffic impact assessment be prepared. A traffic impact assessment should identify any upgrade works required to mitigate impacts on the safety and operational integrity of the state transport corridor.*	No acceptable outcome is prescribed.	P/S	*A Traffic Management Plan will be implemented during the construction period to ensure the Project does not compromise the safe and efficient management and operation of the railway corridor.*
PO2 Development does not compromise planned upgrades to state transport infrastructure or the development of future state transport infrastructure in future state transport corridors. *Editor's note: Written advice from DTMR advising that there are no planned upgrades of state transport infrastructure or future state transport corridors that will be compromised by the development will assist in addressing this performance outcome.*	**AO2.1** The layout and design of the proposed development accommodates planned upgrades to state transport infrastructure. AND	☑	*The Project will not impact any planned upgrades to state transport infrastructure.*
	AO2.2 The layout and design of the development accommodates the delivery of state transport infrastructure in future state transport corridors. *Editor's note: To demonstrate compliance with this acceptable outcome, it is recommended that a traffic impact assessment be prepared.*	N/A	*Future state transport infrastructure corridors are not identified near the Project.*
PO3 Development does not adversely impact on the safety of a railway crossing.	**AO3.1** Development does not require a new railway crossing. OR	☑	*The Project will utilise the existing railway crossing.*
	AO3.2 A new railway crossing is grade separated. OR	N/A	*The Project will utilise the existing railway crossing.*
	AO3.3 Impacts to level crossing safety are	P/S	*The Project will utilise the existing railway crossing. A*

Performance outcomes	Acceptable outcomes	Response	Comment
	mitigated. *Editor's note: To demonstrate compliance with this acceptable outcome, it is recommended that a traffic impact assessment be prepared. An impact on a level crossing may require an Australian Level Crossing Assessment Model (ALCAM) assessment to be undertaken. Section 2.2 – Railway crossing safety of the Guide to Development in a Transport Environment: Rail, Department of Transport and Main Roads, 2015, provides guidance on how to comply with this acceptable outcome.* AND		*Traffic Management Plan will be implemented during construction to ensure safety issues are mitigated.*
	AO3.4 Upgrades to a level crossing are designed and constructed in accordance with *AS1742.7 – Manual of uniform traffic control devices, Part 7: Railway crossings* and applicable rail manager standard drawings. AND	☑	*Should upgrades be required to the existing level crossing as a result of the development, this will be constructed in accordance with AS1742.7 in consultation with QR and Aurizon.*
	AO3.5 Access points achieve sufficient clearance from a level crossing in accordance with *AS1742.7 – Manual of uniform traffic control devices, Part 7: Railway crossings* by providing a minimum clearance of 5 metres from the edge running rail (outer rail) plus the length of the largest vehicle anticipated on-site. AND	☑	*The Project will utilise the existing railway crossing which has been designed in accordance with the standards.*
	AO3.6 On-site vehicle circulation is designed to give priority to entering vehicles at all times.	N/A	*Sufficient area is available within the site to ensure vehicles can enter and exit the site safely. A Traffic Management Plan will be implemented which will include provisions for the control of vehicles entering and exiting the site during the construction phase.*
State-controlled roads			
PO4 Development does not compromise the safe and efficient management or operation of state-	No acceptable outcome is prescribed.	N/A	*A Traffic Management Plan will be implemented during the construction period to ensure the Project does not compromise the safe and efficient management and operation of the Stat-controlled road.*

Performance outcomes	Acceptable outcomes	Response	Comment
controlled roads. *Editor's note: A traffic impact assessment will assist in addressing this performance outcome.*			
PO5 Development does not compromise planned upgrades of the state-controlled road network or delivery of future state-controlled roads. *Editor's note: Written advice from DTMR that there are no planned upgrades of state-controlled roads or future state-controlled roads which will be compromised by the development will assist in addressing this performance outcome.*	**AO5.1** The layout and design of the development accommodates planned upgrades of the state-controlled road. AND	☑	*The Project does not compromise the delivery of future state-controlled roads*
	AO5.2 The layout and design of the development accommodates the delivery of future state-controlled roads. *Editor's note: To demonstrate compliance with this acceptable outcome, it is recommended that a traffic impact assessment be prepared.*	☑	*The Project does not compromise the delivery of future state-controlled roads*
PO6 Upgrade works on, or associated with, the state-controlled road network are undertaken in accordance with applicable standards.	**AO6.1** Upgrade works for the development are consistent with the requirements of the *Road planning and design manual*, 2nd edition, Department of Transport and Main Roads, 2013. AND	N/A	*The Project does not include any upgrades to the state-controlled road network*
	AO6.2 The design and staging of upgrade works on or associated with the state-controlled road network are consistent with planned upgrades.	N/A	*The Project does not include any upgrades to the state-controlled road network*
PO7 Development does not impose traffic loadings on the state-controlled road network which could be accommodated on the local road network.	**AO7.1** New lower order roads do not connect directly to a state-controlled road. AND	N/A	*The Project does not include the construction of new lower order roads*
	AO7.2 The layout and design of the development directs traffic generated by the development to use lower order roads.	P/S	*The Project has one access point via the State-controlled road*

Planning Report

Annex I

CENTRAL HIGHLANDS REGION PLANNING SCHEME 2016 - CODE ASSESSMENT

9.3.1 Reconfiguring a lot code

9.3.1.1 Application

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

9.3.1.2 Purpose and overall outcomes

(1) The purpose of the Reconfiguring a lot code is to ensure that new lots are configured in a manner which:-

(a) is appropriate for their intended use;

(b) is responsive to site constraints;

(c) provides appropriate access; and

(d) supports high quality urban design outcomes.

(2) The overall outcomes sought for the Reconfiguring a lot code are the following:-

(a) development provides for lots that are of a size and have dimensions that:-

(i) are appropriate for their intended use;
(ii) promote a range of housing types in the case of residential development;
(iii) are compatible with the prevailing character and density of development; and
(iv) sensitively respond to site constraints;

(b) development provides for lots that have a suitable and safe means of access to a public road;

(c) the rearrangement of lot boundaries maintains or improves the usability of the land and access to all lots;

(d) development provides for subdivisions that result in the creation of safe and healthy communities by:-

(i) incorporating a well-designed and efficient lot layout that promotes walking and cycling;

(ii) incorporating a road and transport network with a grid or modified grid street pattern that is responsive to and integrated with the natural topography of the site, is integrated with existing or planned adjoining development, and facilitates the provision of public transport;
(iii) avoiding adverse impacts on native vegetation, waterways, wetlands and other ecologically important areas present on, or adjoining the site;
(iv) avoiding, or if avoidance is not practicable, mitigating the risk to people and property of natural hazards, including hazards posed by bushfire, flooding, landslide and steep slopes;
(v) incorporating a lot layout that is responsive to natural climatic influences and allows for new dwellings to reflect the principles of sustainable design; and
(vi) providing the appropriate infrastructure necessary to support the development including reticulated water and sewerage (where available), sealed roads, pedestrian and bicycle paths, and open space and community facilities in urban areas.

9.3.1.3 Assessment criteria

Table 9.4.3.3.1 Criteria for assessable development

PERFORMANCE OUTCOMES		ACCEPTABLE OUTCOMES		PROPOSED DEVELOPMENT OUTCOMES
Lot layout and configuration				
PO1	Development provides for a lot layout and configuration of roads and other infrastructure that: (a) minimises adverse impacts on any natural environmental values present on, or adjoining the site; (b) avoids areas at risk from natural hazards such as flood, landslip or bushfire; (c) protects places of cultural heritage significance or character areas present on, or adjoining the site; (d) retains and protects important landmarks, views, vistas or other areas of high scenic quality	**AO1**	No acceptable outcome provided. Note—the Council may require an applicant to prepare a local area structure plan for a site exceeding two hectares in area or a development involving the creation of 10 or more new lots so as to demonstrate compliance with performance outcome PO1.	***Complies with Performance Outcome*** – *The creation of the new lots and lease areas to facilitate the Project will not adversely impact the environmental values of the land (refer to Annex E - Ecology Assessment), or impact the scenic quality of the area (refer to Annex G – Glare Assessment).*

	present on, or able to be viewed from the site; (e) effectively connects and integrates the site with existing or planned development on adjoining sites; (f) provides for the creation of a diverse range of lot sizes capable of accommodating a mix of housing types			
PO2	Development provides for new lots to maintain the safety of people and property from potential landslip and landslide hazard**.**	**AO2.1**	New lots are not created on land with a slope greater than 15%. **OR** New lots contain a development envelope marked on a plan of development that has a maximum slope of less than 15%.	***Complies*** *– Project Area has a gradient of approximately 2%.*
Size and dimension of lots				
PO3	Development provides for the size, dimensions and orientation of lots to:- (a) be compatible with the preferred character of the streetscape and	**AO3.1**	A lot complies with the minimum lot size specified in Column 2 of **Table 9.4.3.3.2.**	***Alternative Solution*** *– The new lot lots and lease areas are required to facilitate the Project, with the area not adversely affecting the character of the area and provides suitable area for the Project, taking into consideration the*
		AO3.2	A lot has a minimum frontage and a minimum frontage to depth ratio that complies with Columns 3 and 4 respectively of **Table 9.4.3.3.2**.	

	local area; (b) provide a useable building envelope and sufficient area for suitable and useable private open space; (c) where not located in a sewered area, provide for the safe and sustainable on-site treatment and disposal of effluent; and (d) take account of and respond sensitively to site constraints.	**AO3.3**	Lots for residential purposes contain a rectangular developable area with a minimum area and dimension as specified in **Table 9.4.3.2.2**.	*constraints of the site.* ***Not Applicable*** *– No specified dimensions in Table 9.4.3.3.2*
		AO3.4	A lot located on land subject to a constraint or valuable feature identified on an overlay map contains a development envelope marked on a plan of development that: (a) is of sufficient area to accommodate the intended use (including on-site sewerage disposal where required); and **(b)** is not subject to the constraint or valuable feature.	***Not Applicable*** ***Complies*** *– No constraints or valuable features were identified within the Project Area in the overlay mapping. However, 20-30m buffers have been included for the identified waterways within the Project Area.*
		AO3.5	New lots provide sufficient flood immunity for residential development by:- (a) for greenfield subdivision development, each lot provides for a house pad that is flood free at the DFE; or **(b)** for infill development, interference with the natural ground level of the site is avoided.	
		AO3.6	A lot has a development envelope located a minimum of 300mm above the defined flood level that complies with the minimum rectangular developable area and dimension specified in **Table 9.4.3.3.2.**	***Not Applicable*** ***Complies*** *– The majority of the development footprint is outside the Flood Hazard Area, with the small area identified in the north-eastern corner not considered to be a risk to the Project.*

PO4	Development may provide for small residential lots (of less than 600m²) to be created where:- (a) they are part of an integrated development; (b) the development will be consistent with the preferred character for the zone in which the land is located; and (c) the land is fit for purpose and not subject to significant topographic constraints.	**AO4.1**	Small residential lots are located on land:- (a) included within the Emerging community zone; or (b) included in the Medium Density Precinct only where the parent lot has a minimum area of 2,000m²;	***Not Applicable***
		AO4.2	Small residential lots comply with: (a) the minimum lot sizes specified in **Table 9.4.3.3.2**.; (b) the minimum frontage to depth ratios specified in **Table 9.4.3.3.2**.; and (c) the minimum rectangular developable area and dimension specified in **Table 9.4.3.3.2**.	
		AO4.3	Small residential lots are not created on a slope greater than 10%.	
PO5	Small residential lots (of less than 600m²) are distributed across a development in a proportion that avoids an area being dominated by a particular lot type whilst providing for the development of a diverse range of housing products.	**AO5**	No acceptable outcome provided.	***Not Applicable***
PO6	Small residential lots (of less than 600m²) are developed in accordance with a plan of development which demonstrates that:- (a) the majority of lots are provided with a north-south outlook to optimise opportunities for passive solar design; (b) an appropriate development envelope can be	**AO6**	A plan of development for a proposal incorporating a lot under 600m2 identifies:- (a) the building footprint; (b) the indicative development envelope of the proposed house or dwelling to be constructed on the lot; and (c) lots where a zero lot line is incorporated. Note—the *Residential 30 PDA guideline no.1 March 2014* provides guidance in preparing a plan of development for a mixed residential development	***Not Applicable***

	accommodated; and (c) any building contained within the development envelope is unlikely to impact adversely upon the amenity of adjoining premises as a result of overshadowing, privacy and access to sunlight.		incorporating small lots that demonstrates compliance with Performance Outcome PO5.	
Irregular shaped lots				
PO7	Development provides for irregular shaped lots to be created only where:- (a) the creation of regular shaped lots is impractical such as at a curve in the road; (b) safe access to and from the site can be provided whilst maintaining the safe and efficient functioning of the surrounding road network; and (c) the lot is suitable for its intended purpose.	**AO7.1**	Irregular lots:- (a) accommodate a rectangular developable area with minimum area and dimension as specified in **Table 9.4.3.3.2**.; and (b) comply with the dimensions specified in **Table 9.4.3.3.3 (Minimum width for irregular shaped lots)**.	***Alternative Solution*** *– The Project does result in the creation of new lots and lease areas under the minimum lot size of 2,000ha, with no minimum dimensions specified in Table 9.4.3.3.2. The creation of these new tenures is required to facilitate the development of the Project, with the area suitable for the intended purpose and safe access provided off the Capricorn Highway.*
		AO7.2	Rear lots or battle-axe lots are not created.	
Rearrangement of lot boundaries				
PO8	Development provides that the rearrangement of lot boundaries:- (a) does not result in the creation, or in the potential creation of, additional lots; and (b) is an improvement on the existing situation	**AO8**	The rearrangement of lot boundaries results in an improvement to the existing situation whereby the size and dimensions of proposed lots comply more fully with **Table 9.4.3.3.2** and at least one of the following is achieved:- (a) the rearrangement of lots remedies an existing boundary encroachment by a building, structure or other use areas; (b) the rearranged lots will be made more regular in shape; (c) access is provided to a lot that previously had no access or an unsuitable access;	***Not Applicable*** *– The Project does not result in the rearrangement of existing lot boundaries.*

			(d) the rearranged lots better meet the overall outcomes for the zone in which the site is situated; (e) in the Rural zone the rearrangement of lots maintains or enhances the viability of new lots for ongoing rural production; and (f) the rearrangement of lots remedies a situation where an existing lot has multiple zonings.	
Reconfiguring lots containing existing buildings				
PO9	Reconfigured lots containing an existing building: (a) do not give rise to boundary encroachments though or across the building; (b) maintain appropriate setbacks, site cover and open space; (c) maintain safe and efficient access; and (d) retain any necessary building services on the same lot.	**AO9**	Reconfiguring a lot containing an existing building: (a) does not provide for the alignment of boundaries through an existing building, unless the boundary aligns with the common wall between attached but independently constructed buildings; and (b) ensures the created lots and existing building complies with the relevant sections of the planning scheme and building legislation regarding:- (i) minimum lot size and dimensions; (ii) setbacks; (iii) site cover; and (iv) open space requirements; and (c) does not compromise, restrict or prevent access between the existing building and a constructed public road; and (d) does not excise the building from the car parking or other building services that are required to be within the same lot.	***Complies*** *– The proposed new lots and leases does not result non-compliance with the planning scheme or building legislation, and does not compromise access to the lot.*
Buffers to agricultural land, incompatible uses and infrastructure				

PO10	Development provides for lots to be created in locations that:- (a) are adequately buffered to prevent potential adverse impacts on future users of the lots; (b) do not compromise the ongoing viability of rural production activities on adjoining land; (c) separate the lots from incompatible uses and infrastructure; and (d) do not create "reverse amenity" situations where the continued operation of existing uses is compromised by the proposed development.	**AO10.1**	Setbacks for any part of a lot included in a residential zone, the Emerging community zone or the Rural residential zone are designed in accordance with Part E of the *State Planning Policy – State interest guideline – Agriculture*.	***Complies*** *– The Project complies with the State Planning Policy – State interest guideline – Agriculture and will not compromise the ongoing viability of the rural production activities of the subject lot or adjoining properties.*
		AO10.2	Any part of any lot included in a residential zone, the Emerging community zone or the Rural residential zone:- (a) achieves the minimum lot size specified in Column 1 of **Table 9.4.3.3.2** clear of any electricity transmission line easement; (b) is not located within 50m of an existing or planned high voltage transmission grid substation site; (c) is not located within 10m of any other existing or planned substation site; and (d) is not located within any area subject to unacceptable noise, vibration, lighting or odour nuisance from the operation of an existing lawful, adjoining or nearby use.	
		AO10.3	Any reconfiguring a lot involving land in a residential zone, the Emerging community zone or the Rural residential zone provides for the number of lots burdened by electrical transmission line easements to be reduced to one.	
Public parks and open space infrastructure				
PO11	Development provides for public parks and open space infrastructure that:- (a) provides for a range of passive and active recreation settings and can accommodate adequate facilities to meet the needs of the community; (b) is well distributed and contributes to the legibility,	**AO11**	No acceptable outcome provided. Note—Part 4 Priority Infrastructure Plan of the Planning Scheme and Central Highlands Regional Council Open Space and Recreation Plan March 2014 provide guidance on the rate of provision, layout and design, and embellishments for public parks and open space to demonstrate compliance with performance outcome PO9.	***Not Applicable*** *– The Project does not require the provision of public parks or open space infrastructure.*

	accessibility and character of the locality; (c) creates attractive settings and focal points for the community; (d) benefits the amenity of adjoining land uses; (e) incorporates appropriate measures for stormwater and flood management; (f) facilitates the retention of native vegetation, waterways, wetlands and other ecologically important areas and natural and cultural features; (g) is cost effective to maintain; and (h) is dedicated as public land in the early stages of the subdivision.			
Infrastructure and services				
PO12	Development provides that each lot is provided with appropriate development infrastructure and services commensurate with the nature and location of the subdivision.	**AO12.1**	In urban areas, new lots are connected to:- (a) the reticulated water supply infrastructure network; (b) the reticulated sewerage infrastructure networks; (c) the reticulated electricity infrastructure network (undergrounded where creating five (5) lots and above); and (d) where available, a telecommunications infrastructure network.	***Not Applicable***

		AO12.2	In non-urban areas, new lots:- (a) are provided with potable water from an on-site water storage sufficient to meet demand for potable water and fire-fighting purposes; (b) have sufficient site area and suitable soil characteristics for a sustainable on-site effluent treatment and disposal system; (c) have access to the reticulated electricity infrastructure network and telecommunications network. Note—the ability of a site to sustainably accommodate on-site effluent treatment and disposal is supported by a site based investigation and report prepared by a suitably qualified person.	***Complies*** *– The Project will include provision for water storage for potable use and fire-fighting purposes. If required, provision will be made for on-site effluent disposal, with sufficient area available to accommodate the necessary infrastructure. The Project will be connected to the electricity and telecommunications network via the existing transmission infrastructure.*

9.3.2 Transport, parking and access code

9.3.2.1 Application

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

9.3.2.2 Purpose and overall outcomes

(1) The purpose of the Transport, parking and access code is to ensure that transport infrastructure is provided in a manner which meets the needs of the development whilst preserving the character and amenity of the Central Highlands.

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

(a) development is consistent with the objectives of the strategic transport network, which are to:-

(i) provide for a highly permeable and integrated movement network;
(ii) improve coordination between land use and transport so as to maximise the potential for walking, cycling and public transport use and reduce reliance on private motor vehicle travel within urban areas;
(iii) achieve acceptable levels of access, convenience, efficiency and legibility for all transport users;
(iv) limit road construction to the minimum necessary to meet the endorsed levels of service for ultimate development of the Central Highlands; and
(v) provide for staging of council's limited trunk road construction program to maximise sustainability;

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

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

9.3.2.3 Assessment criteria

Table 9.4.4.3.1 Criteria for self-assessable and assessable development

PERFORMANCE OUTCOMES		ACCEPTABLE OUTCOMES		PROPOSED DEVELOPMENT OUTCOMES
Location, layout and design of on-site parking and access				
PO1	(g) Development ensures that the location, layout and design of vehicle access, on-site circulation systems and parking areas is safe, convenient and legible for all users including people with disabilities, pedestrians, cyclists and public transport services, where relevant.	**AO1.1**	Development provides access driveways, internal circulation and maneuvering areas, service areas and parking areas in accordance with the standards specified in the **Planning scheme policy for development works.**	***Complies*** *– The Project includes the provision of access off the existing access location to the Capricorn Highway. Adequate car parking will be provided on-site adjacent to the control building to accommodate the demand.*
		AO1.2	Development provides clearly defined pedestrian paths within and around on- site vehicle parking areas that:- (a) are located in areas where people will choose to walk; and (b) ensure pedestrian movement through vehicle parking areas is along aisles rather than across them.	
		AO1.3	Parking provided as part of a development is located on the same site as the development or on another site within 200m of the development.	
Site access				
PO2	Development provides for the size, Development ensures that the location and design of any new, or upgrades to existing, site access does not interfere with the planned function, safety, capacity and operation of the transport network.	**AO3.1**	The location and design of any new site access is in accordance with the standards specified in the **Planning scheme policy for development works.**	***Not Applicable*** *– Existing site access will be used for the Project*
		AO3.2	The location, design and construction of property accesses are in accordance with the relevant standard drawings of the **Planning**	

			scheme policy for development works.	
		AO3.3	For assessable development, the number of site access driveways is minimised (usually one), with access to the lowest order transport corridor to which the site has frontage, consistent with amenity impact constraints.	
Irregular shaped lots				
PO7	Development provides for irregular shaped lots to be created only where:- (d) the creation of regular shaped lots is impractical such as at a curve in the road; (e) safe access to and from the site can be provided whilst maintaining the safe and efficient functioning of the surrounding road network; and (f) the lot is suitable for its intended purpose.	**AO7.1**	Irregular lots:- (c) accommodate a rectangular developable area with minimum area and dimension as specified in **Table 9.4.3.3.2**.; and (d) comply with the dimensions specified in **Table 9.4.3.3.3 (Minimum width for irregular shaped lots)**.	***Complies*** *– no specific minimum developable area or dimension specified in Table 9.4.3.3.2.*
		AO7.2	Rear lots or battle-axe lots are not created.	***Not Applicable***
On-site car parking				

PO3	Development provides on-site car parking for the demand and type of vehicles anticipated to be generated by the development.	**AO3.1**	Development provides on-site car parking spaces at the minimum rate specified in Table 9.4.4.3.3. Note—where the calculated number of spaces in not a whole number, the required number of parking spaces is the nearest whole number. **OR**	***Complies with Performance Outcome*** *– There is no specified rate for the proposed use in Table 9.4.4.3.3. However, the Project will be provided with sufficient car parking to accommodate the demand generated by the use.*
		AO3.2	For self-assessable development, other than a call centre, located in premises that were lawfully established prior to the commencement of the planning scheme, the number of on-site car parking spaces provided is equal to the number of spaces required at the time the premises were lawfully established.	
PO4	Development provides for a reasonable portion of the total number of on-site car parking spaces to be wheelchair accessible spaces and to be identified and reserved for such purposes.	**AO4.1**	Development provides the number of parking spaces for people with disabilities, required by the *Building Code of Australia* and in any case provides a minimum of one space.	***Alternative Solution*** *– Sufficient car parking spaces will be provided on-site to accommodate the demand generated by the use.*
		AO4.2	Parking spaces for people with disabilities and access to them complies with *AS 1428 – General Requirements for Access: Buildings* and *AS 2890.6 – Parking facilities (Part 6: Off-street Parking for People with Disabilities).*	
Service vehicle requirements				

PO5	Development provides sufficient parking and access for service vehicles to meet the needs of the development.	**AO5.1**	Development provides on-site service vehicle parking bays at the minimum rates outlined in **Table 9.4.4.3.3.**	***Complies with Performance Outcome*** *– There is no specified rate for the proposed use in Table 9.4.4.3.3. However, the Project will be provided with sufficient car parking to accommodate the demand generated by the use.*
		AO5.2	Service vehicle access, maneuvering and parking is designed in accordance with the standards specified in *Australian Standard AS2890.2 – 1989 – Off Street Parking – Commercial Vehicle Facilities* and *Australian Standard AS2890.5 – 1993 parking facilities – Part 5 – On Street Parking*.	
PO6	Development provides for driveways, internal circulation areas and service areas to be designed to:- (a) ensure that proposed loading, unloading, waste collection and fuel delivery facilities (if required) can satisfactorily accommodate the number and type of service vehicles expected on-site; and (b) the movement of service vehicles on-site and loading and unloading operations do not interfere with on- site amenity and the safe and convenient movement of other vehicles and pedestrians on the site.	**AO6.1**	Driveways, internal circulation areas, and service areas are provided to accommodate the nominated design vehicles for each development type.	***Complies*** *– The Project will be provided with appropriate access and internal circulation to accommodate the nominated design vehicle and will be designed and constructed in the manner appropriate for the use.*
		AO6.2	Driveways, internal circulation areas, maneuvering areas, loading and unloading areas and refuse collection facilities are designed and constructed in accordance with the standards specified in *Australian Standard AS2890.2 – 1989 – Off Street Parking – Commercial Vehicle Facilities* and *Australian Standard AS2890.5 – 1993 parking facilities – Part 5 – On Street Parking*.	

Table 9.4.4.3.2 Criteria for self-assessable and assessable development

PERFORMANCE OUTCOMES		ACCEPTABLE OUTCOMES		PROPOSED DEVELOPMENT OUTCOMES
Road and transport network				
PO1	Development that involves the creation of new roads ensures that the road network: (a) maintains the safe and existing functioning of the existing road transport network; (b) is integrated and functionally compatible with the existing and planned road network and hierarchy as identified in Map 9.4.4a, Map 9.4.4b, and Map 9.4.4c contained in the Transport, parking and access code; (c) provides convenient, safe and efficient movement for all transport modes including pedestrian and bicycle networks; and (d) provides for the dedication and construction of roads where required to provide access to adjoining vacant land that is intended for future development.	**AO1**	No acceptable outcome provided. Note—the **Planning Scheme policy for development works** specifies standards and provides guidance for the design and construction of roads. Editor's note—the future trunk road network is identified in the Priority Infrastructure Plan mapping in Schedule 3.	***Not Applicable*** *– No new roads proposed.*
PO2	Development involving high trip generating land uses (such as higher density residential development or employment generators) minimises adverse impacts on surrounding land uses and the external transport	**AO2**	No acceptable outcome provided. Editor's note—to demonstrate compliance with PO2, an applicant may prepare a Traffic Impact Assessment and/or Integrated Transport Plan in accordance with	***Complies with Performance Outcome*** *– The Project will not generate high volumes of traffic during operation. However, vehicle traffic will be managed during construction through the Construction and Environmental Management Plan.*

	network, including by the provision of infrastructure and services to increase opportunities for the use of public and active transport.		the **Planning scheme policy for information that Council may require.**	

9.3.3 Works, services and infrastructure (development design) code

9.3.3.1 Application

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

9.3.3.2 Purpose and overall outcomes

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

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

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

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

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

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

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

(f) infrastructure is integrated with surrounding networks;

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

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

9.3.3.3 Assessment criteria

Table 9.4.5.3.1 Criteria for assessable development

PERFORMANCE OUTCOMES		ACCEPTABLE OUTCOMES		PROPOSED DEVELOPMENT OUTCOMES
Construction management				
PO1	Air emissions, noise or lighting arising from construction activities and works do not adversely impact on surrounding areas.	**AO1.1**	Dust emissions do not extend beyond the boundary of the site.	***Complies*** *– A Construction and Environmental Management Plan will be prepared prior to construction which will address mitigation measures relating to dust, noise and lighting emissions.*
		AO1.2	Air emissions, including odours, are not detectable at the boundary of the site.	
		AO1.3	Noise generating equipment is enclosed, shielded or acoustically treated in a manner which ensures the equipment does not create environmental harm.	
		AO1.4	Outdoor lighting complies with *AS4282- 1997 Control of the Obtrusive Effects of Outdoor Lighting*.	
Site access				
PO2	Development provides for the size, Development ensures that the location and design of any new, or upgrades to existing, site access does not interfere with the planned function, safety, capacity and operation of the transport network.	**AO2.1**	The health and stability of retained vegetation is maintained during construction activities by:- (a) clearly marking vegetation to be retained with temporary fencing and flagging tape; (b) installing secure barrier fencing around the outer drip line and critical root zone of the vegetation; (c) preventing any filling, excavation, stockpiling, storage of chemicals, fuel or machinery within the fenced protection area; (d) using low impact construction techniques in the vicinity of vegetation to	***Complies*** *– A Construction and Environmental Management Plan will be prepared prior to construction which outlines how vegetation to be retained will be protected during construction activities*

			minimise interference with the vegetation; and (e) removing all declared noxious weeds and environmental weeds from the site.	
		AO2.2	All works carried out in the vicinity of retained vegetation comply with *AS4970 Protection of Trees on Development Sites and AS4687 Temporary Fencing and Hoarding.* Where construction activities will result in adverse impacts upon fauna and/or the clearing and/or removal of fauna habitat:- (a) all vacant hollows and nests are relocated or rendered unusable to prohibit fauna return during clearing works; and 1. all fauna is suitably relocated or humanely dealt with during the pre- clearing inspections or during clearing.	
PO3	Construction activities and works are managed such that all reasonable and practicable measures are taken to avoid or minimise adverse impacts on stormwater quality and the functionality of stormwater infrastructure from the impacts of erosion, turbidity and sedimentation, both on and	**AO3.1**	Construction is undertaken in accordance with an erosion and sediment control plan (ESCP) that demonstrates the release of sediment-laden stormwater is avoided for the nominated design storm, and minimised where the design storm is exceeded, such that target contaminants are treated to the design objective s specified in **Table 9.4.5.3.2**	***Complies*** *– A Sediment and Erosion Control Plan will be prepared as part of the Construction and Environmental Management Plan prior to construction.*

	downstream of the development site.		**(Construction phase – stormwater management design objectives).**	
		AO3.2	Erosion and Sediment control measures are designed and constructed in accordance with the document *Best Practice Soil and Erosion Control (IECA 2008).*	
PO4	Construction activities and works are undertaken such that existing utilities and road and drainage infrastructure:- (a) continue to function efficiently; and (b) can be accessed by the relevant authority for maintenance purposes.	**AO4.1**	Existing utilities and road and drainage infrastructure are protected or relocated in accordance with the standards specified in the **Planning scheme policy for development works.**	***Complies*** *– The Project will not impact on existing utilities or road infrastructure to the point that protection or relocation is required.*
		AO4.2	The costs of any alterations or repairs to utilities and road and drainage infrastructure are met by the developer.	
PO5	Traffic and parking generated during construction activities and works is managed to minimise impacts on the amenity of the surrounding area.	**AO5**	No acceptable outcome provided.	***Complies*** *– A Construction and Environmental Management Plan will be prepared prior to construction which outlines how car parking will be managed during construction activities.*
Infrastructure services and utilities				
PO6	Development is provided with infrastructure, services and utilities appropriate to its setting and commensurate with its needs.	**AO6.1**	Where development is located in an urban zone, appropriate connection is provided to reticulated sewerage, water supply, stormwater drainage, electricity, gas (where available in the street) and telecommunications services at no cost to the Council,	***Not Applicable***

			including provision by way of dedicated road, public reserve or as a minimum by way of easements to ensure continued access is available to these services.	
		AO6.2	Where development is located in a non- urban zone and reticulated sewerage is not available, an on-site treatment and disposal system is provided that complies with the requirements of the *Plumbing and Drainage Act 2003.*	***Alternative Solution*** *– Temporary facilities will be provided during construction, with permanent infrastructure to be provided in accordance with the Plumbing and Drainage Act 2003, if required.*
		AO6.3	Where development is located in a non- urban zone and reticulated water supply is not available, development is provided with appropriate on-site rainwater collection to service the needs of the use.	***Complies*** *– The Project includes provision for on-site collection and storage of rainwater to service the needs of the Project.*
PO7	Development provides for infrastructure, services and utilities that are planned, designed and constructed in a manner which:- (a) ensures appropriate capacity to meet the current and planned future needs of the development; (b) is integrated with and efficiently extends existing networks; (c) minimises risk to life and property;	**AO7.1**	Infrastructure is planned, and appropriate contributions made, in accordance with the Priority Infrastructure Plan or any other applicable infrastructure charging instrument.	***Not Applicable*** *– In accordance with Central Highlands Regional Council Charges Resolution (No. 11) 2016, no charge is applied to 'Renewable Energy Facility'. However, Infrastructure charges are applicable for the new lots.*
		AO7.2	Infrastructure is planned, designed and constructed in accordance with the Council's Priority Infrastructure Plan, and the Planning scheme policy for development works, or where applicable, the requirements of the service provider.	***Not Applicable***

	(d) avoids ecologically important areas; (e) minimises risk of environmental harm; (f) achieves acceptable maintenance, renewal and adaptation costs; (g) can be easily and efficiently maintained; (h) minimises potable water demand and wastewater production; and (i) ensures the ongoing construction or operation of the development is not disrupted; (j) where development is staged, each stage is fully serviced before a new stage is released; and (k) ensures adequate clearance zones are maintained between utilities and dwellings to protect residential amenity and health.	**AO7.3**	Compatible public utility services are co- located in common trenching in order to minimise the land required and the costs for underground services.	***Not Applicable***
		AO7.4	Stormwater drainage, sewerage and sullage systems are designed so that overflows do not enter residences.	***Complies*** *– The nature of the development is such that stormwater will continue to be as per the existing groundwater flow. Should amenities be proposed, disposal will be in accordance with the Plumbing and Drainage Act.*
		AO7.5	Infrastructure, services and utilities are located and aligned so as to:- (a) avoid disturbance of ecologically important areas; (b) minimise earthworks; and (c) avoid crossing waterways or wetlands.	***Complies*** *– The Project has been designed to avoid the clearance of remnant vegetation with environmental values.*
		AO7.6	Where the crossing of a waterway or wetland cannot be avoided tunnel boring techniques are used to minimise disturbance and disturbed areas are reinstated and revegetated on completion of works.	***Not Applicable***
		AO7.7	The selection of materials used in the construction of infrastructure is suitable, durable, easy to maintain and cost effective, taking into account the whole of life cycle cost, and achieves best practice environmental management and energy savings.	***Complies*** *– Technology relating to the solar PV panels is constantly evolving and becoming more efficient and cost effective. The latest technology will be used in the construction of the facility.*
		AO7.8	In urban areas, electrical and telecommunications reticulation infrastructure is provided underground.	***Not Applicable***
Works over or near sewerage, water and stormwater drainage infrastructure				

PO8	Building or operational work near or over the Council's stormwater infrastructure and/or sewerage and water infrastructure:- (a) protects the infrastructure from physical damage; and (b) allows ongoing necessary access for maintenance purposes.	**AO8**	Building or operational work near or over the Council's stormwater infrastructure and/or sewerage and water infrastructure complies with the **Planning scheme policy for development works**.	***Not Applicable***
Works over or near major electricity infrastructure or substations				
PO9	Earthworks ensure access to major electricity infrastructure and substations is maintained.	**AO9**	Earthworks do not restrict access to substations or to and along major electricity infrastructure by utility providers using their normal vehicles and equipment.	***Complies***
PO10	Any earthworks are undertaken in a way which: (a) ensures stability of the land on or adjoining substations and major electricity infrastructure (b) does not otherwise impact on the safety and reliability of the electricity infrastructure; and (c) does not restrict the placement or use of the electricity provider's equipment.	**AO10**	No earthworks are undertaken: (a) for overhead transmission infrastructure, within 20 m of a transmission tower or pole; or (b) for overhead distribution infrastructure, within 10 m of a tower, pole or stay.	***Complies***
Excavation and filling				
PO11	Filling and excavation works are structurally sound and are designed to support the	**AO11.1**	Excavation and filling activities are carried out in accordance with *AS3798 Guidelines on Earthworks for*	***Complies*** – *Subject to a future Operational Works application*

	geotechnical requirements of existing and future development.		*Residential and Commercial Developments.*	
		AO11.2	All filling or excavation works are designed by a Registered Professional Engineer of Queensland or certified by a statement from a Registered Professional Engineer of Queensland that the works are structurally sound.	***Complies*** *– As above.*
PO12	Excavation and filling:- (a) does not impact adversely on visual amenity or privacy; (b) maintains natural landforms as far as reasonably practicable; and (c) ensures the stability and longevity of retaining walls and batter faces to protect the safety of people and properties.	**AO12.1**	Batters have a maximum slope of 25% and are terraced at every rise of 1.5m in height with each terrace having a minimum depth of 750mm.	***Not Applicable***
		AO12.2	Retaining walls are setback a minimum of half the height of the retaining wall from the boundary of the site and the setback area is landscaped or screened.	***Not Applicable***
PO13	Filling or excavation does not cause significant impacts through truck movements, dust or noise, on the amenity of the locality in which the works are undertaken or along routes taken to transport the material.	**AO13.1**	Excavation and filling activities are conducted between the hours of 7am and 6pm Monday to Saturday, excluding public holidays, and for a total duration not exceeding 4 weeks.	***Complies*** *– Subject to a future Operational Works application*
		AO13.2	Dust from excavation and filling is managed by the: (a) covering of unearthed material in windy conditions; (b) covering of vehicles hauling material to or from the site; and (c) the wetting of unearthed material or exposed earth in	

			windy conditions.	
		AO13.3	Areas of fill and excavation are graded, compacted and planted and/or mulched immediately after the dumping operation is compete.	
		AO13.4	Where an area of more than 1,000m3 of fill and excavation is involved, the filling and excavation is staged, with previous stages being progressively finished and rehabilitated (e.g graded, compacted and planted and/or mulched) to reduce visual impacts, dust generation, erosion and sedimentation.	
PO14	Filling and excavating does not adversely impact on the structural integrity or operational performance of existing infrastructure or engineering works.	**AO14**	No acceptable outcome provided.	***Complies with Performance Outcome*** *– Subject to a future Operational Works application*
PO15	Excavation and filling is undertaken in a manner that minimises erosion and sedimentation of the site and adjoining properties.	**AO15.31**	Sediment fences, earth berms and temporary drainage are provided and located to prevent sediment being transported to adjoining properties, roads, waterways, and/or drainage systems.	***Complies*** *– A Sediment and Erosion Control Plan will be prepared as part of the Construction and Environmental Management Plan prior to construction.*
		AO15.2	Erosion and Sediment control measures are designed and constructed in accordance with the document *Soil Erosion & Sediment Control – Engineering Guidelines for Queensland Construction Sites 1995*.	
PO16	Filling or excavation does not result in any contamination of land or water, or pose a health or safety	**AO16**	Development provides that:- (a) no contaminated material is used as fill;	***Complies*** *– Subject to a future Operational Works application*

	risk to users and neighbours of the site.		(b) for excavation, no contaminated material is excavated or contaminant disturbed; and (c) waste materials are not used as fill, including:- (i) commercial waste; (ii) construction/demolition waste; (iii) domestic waste; (iv) garden/vegetation waste; and (v) industrial waste.	
PO17	Filling and excavation:- (a) provides a finished surface level that is free draining and flood free; (b) does not interfere with or change the overland flowpath of water across the site; (c) does not direct or discharge water onto an adjoining site; and (d) does not result in a reduction of flood conveyance or storage capacity either upstream or downstream of the site	**AO17.1**	The excavation or filling does not concentrate or divert stormwater onto adjoining land to a degree which is worse than that which existed prior to the works.	***Complies*** *– Subject to a future Operational Works application*
		AO17.2	Excavation or filling does not result in the ponding or permanent retention of surface water either on the site or on adjoining land.	
		AO17.3	No filling is carried out in a waterway.	
Water quality				
PO18	Development is planned and designed to achieve stormwater design objectives taking into account the site based constraints.	**AO18**	A site stormwater quality management plan (SQMP) is prepared, and: (a) is consistent with any local area stormwater management planning; and	***Complies*** *– A Stormwater Quality Management Plan will be prepared at part of the Constructions and Environmental Management Plan.*

			(b) provides for achievable stormwater quality treatment measures meeting design objectives listed in Table 9.4.5.3.2 (construction phase – stormwater management design objectives) and Table 9.4.5.3.3 (post construction phase – stormwater management design objectives), or current best practice environmental managements, reflecting land use constraints, such as: (i) erosive, dispersive, sodic and/or saline soil types; (ii) landscape features (including landform);	
PO19	Operational activities for the development avoid or minimises changes to waterway hydrology from adverse impacts of altered stormwater quality and flow.	**AO19**	Development incorporates stormwater flow control measure to achieve the design objectives listed in Table 9.4.5.3.3 (post construction phase – stormwater management design objectives). The operational phases for the development comply with design objectives in Table 9.4.5.3.3 (post construction phase – stormwater management design objectives), or current best practice environmental management, including management of frequent flows, and peak flows.	***Complies*** *– A Sediment and Erosion Control Plan will be prepared as part of the Construction and Environmental Management Plan prior to construction.*

PO20	Development does not discharge wastewater to a waterway or off site unless demonstrated to be best practice environmental management for that site.	**AO20.1**	Any off-site discharge of wastewater is undertaken in accordance with a wastewater management plan (WWMP) prepared by a suitably qualified person that addresses: (a) wastewater type; (b) climatic conditions; (c) water quality objectives (WQOs); and (d) best practice management practice	***Not Applicable*** *– The Project does not involve the discharge of any wastewater off-site.*
		AO20.2	The WWMP provides that wastewater is managed in accordance with a waste management hierarchy that: (a) avoids wastewater discharges to waterways; or (a) (b) if wastewater discharge to waterways cannot practicably be avoided, minimises wastewater discharge to waterways by re-use, recycling, recovery and treatment for disposal to sewer, surface water and groundwater.	
PO21	Wastewater discharge to a waterway is managed in a way that maintains ecological processes, riparian vegetation, waterway integrity, and downstream ecosystem health.	**AO21**	No acceptable outcome provided.	***Not Applicable*** *– The Project does not involve wastewater discharging to a waterway.*
Slope stability				

PO22	Development maintains the stability of steep slopes and does not increase the risk of harm to people by: (a) avoiding development on land with a slope greater than 15%; or (b) undertaking development on land with a slope greater than 15% in accordance with best practice geotechnical design principles.	**AO22**	Development is not located on land with a slope that exceeds 15%. OR Where development is located on land that exceeds 15% slope, it is carried out in accordance with a site-specific geotechnical assessment prepared by a suitably qualifies person that demonstrates: (a) that the stability of the site (including buildings and infrastructure) will be maintained during construction and operation of the development; (b) the site is not at risk of landslip activity from surrounding land; and (c) site works (including earthworks) will not destabilise surrounding land or cumulatively weaken the geotechnical stability of the surrounding premises.	***Complies*** *– The Project area has a gradient of approximately 2% across the lease area.*
Fire services in developments accessed by common private title				
PO23	Hydrants are located in positions that will enable fire services to access water safely, effectively and efficiently. *Editor's note- For further information on how to address this performance outcome please see Queensland Fire*	**AO23.1**	Residential streets and common access ways within a common private title should have hydrants placed at intervals of no more than 120 metres and at each intersection. Hydrants may have a single outlet and be situated above or below ground.	***Not Applicable***

	and Emergency Service: Fire hydrant and vehicle access guidelines for residential, commercial and industrial lots.	**AO23.2**	Commercial and industrial streets and access ways within streets serving commercial properties such as factories, warehouses and offices should be provided with above or below ground fire hydrants at not more than 90 metre intervals and at each street intersection. Above ground fire hydrants should have dual valved outlets.	***Not Applicable***
PO24	Road widths and construction within the development are adequate for fire emergency vehicles to gain access to a safe working area close to dwellings and near water supplies whether or not onstreet parking spaces are occupied. *Editor's note- For further information on how to address this performance outcome please see Queensland Fire and Emergency Service: Fire hydrant and vehicle access guidelines for residential, commercial and industrial lots.*	**AO24**	Road access minimum clearances of 3.5 metres wide and 4.8 metres high are provided for safe passage of emergency vehicles.	***Complies*** *– The proposed access provides the minimum clearances*
PO25	Hydrants are suitably identified so that fire services can locate them at all hours. *Editor's note: For further information on how to address this performance outcome please see Queensland Fire and Emergency Service: Fire hydrant and vehicle access guidelines for*	**AO25**	Hydrants are identified as specified in 'Identification of street hydrants for fire-fighting purposes' available under 'Publications' on the Department of Transport and Main Roads website.	***Not Applicable***

	residential, commercial and industrial lots.			

9.3.4 Landscaping code

9.3.4.1 Application

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

9.3.4.2 Purpose and overall outcomes

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

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

(a) development provides landscaping that complements the natural landscapes and traditional built form of the Central Highlands;

(b) development in urban areas provides landscaping that integrates the built form of development with the surrounding streetscape and contributes to the identity, character, and amenity of towns and villages;

(c) development provides landscaping that contributes to a legible and comfortable public realm and enhances personal safety and security;

(d) development provides landscaping that encourages the use of locally endemic plant species and landscape materials;

(e) development provides landscaping that is functional, durable, and easily maintained.

9.3.4.3 Assessment criteria

Table 9.4.2.3.1 Criteria for assessable development

PERFORMANCE OUTCOMES		ACCEPTABLE OUTCOMES		PROPOSED DEVELOPMENT OUTCOMES
Landscape design generally				
PO1	Development provides for landscaping that contributes to and creates a high quality landscape character for the site and surrounding area through:- (a) a sensitive response to site conditions, natural landforms and landscape characteristics; (b) protecting and enhancing native vegetation, wildlife habitat and ecological values; (c) protecting and framing significant views, vistas and areas of high scenic quality; and being of an appropriate scale to integrate successfully with development.	**AO1**	No acceptable outcome provided. Note – Compliance with the landscaping code generally may be demonstrated by the preparation of a Landscaping Plan prepared in accordance with the **Planning scheme policy for information that Council may require**.	***Alternative Solution*** *– The Project will provide for significant setbacks from the road corridor and be partial screened from view by the existing substation and vegetation. Refer to Annex G – Glare Assessment.*
Retention of vegetation and topographic features in layout and design of landscaping				
PO2	Development provides landscaping that, as far as practicable, retains, protects and enhances existing trees, vegetation and topographic features of ecological, recreational, aesthetic and cultural value.	**AO2**	Existing significant trees, vegetation and topographic features are retained and integrated within the landscaping concept for the development. **OR** Where significant trees and vegetation cannot practicably be retained, mature vegetation of the same or similar species is provided elsewhere on the development site.	***Complies*** *– Existing significant trees, vegetation and topographic features will be retained.*

Character, amenity and screening				
PO3	Development provides for landscaping that protects and enhances the character and amenity of the site, streetscape and surrounding locality	**AO3.1**	Elements of built form are softened and integrated within a broader landscape that incorporates structured landscape planting.	***Alternative Solution*** *– Existing vegetation provides sufficient screening of the Project from surrounding areas. Fencing is proposed around the Project for security and screening purposes.*
		AO3.2	Unless otherwise specified in an applicable use code, driveways and car parking areas are screened by:- (a) a landscaping strip at least 1.5m wide where adjacent to a residential use; or (b) a landscaping strip at least 2.5m wide where adjacent to a street frontage or public open space.	
		AO3.3	Car parking areas are provided with a minimum of 1 shade tree for every 6 car parking spaces.	
		AO3.4	Trees within car parking areas are planted within a deep natural ground/structured soil garden bed, and are protected by raised kerbs, wheel stops or bollards as required.	
		AO3.5	Storage and utility areas are screened by vegetation and/or built screens	
		AO3.6	Fences and screens to street frontages:- (a) achieve a minimum of 50% visual permeability; and (b) do not extend further than 6 linear metres without articulation and landscape	

			screening.	
Streetscape landscaping				
PO4	Development provides for streetscape landscaping that:- (a) incorporates shade trees; (b) contributes to the continuity and character of existing and proposed streetscapes; and (c) incorporates landscape designs (including planting, pavements, street furniture, structures, etc.) that reflect and enhance the character and comfort of the streetscape.	**AO4**	No acceptable outcome provided.	***Alternative Solution*** *– Existing vegetation provides sufficient screening of the Project from surrounding areas.*
Species selection				
PO5	Development provides for landscaping which incorporates plant species that are:- (a) fit for the intended purpose; (b) suited to local environmental conditions; (c) non-toxic; and (d) not declared environmental weeds.	**AO5.1** **AO5.2**	Landscape planting utilises a minimum of 60% of locally endemic and/or other native species as specified in the **Planning scheme policy for information that Council may require.** Species that have the potential to become an environmental weed or are known to be toxic to people or animals are not used in landscaping.	***Complies*** *– Existing native vegetation is proposed to be retained where possible*
PO6	Development provides for landscaping that:- (a) promotes passive surveillance of public and semi-public spaces; (b) enhances personal safety and security; and (c) provides universal and equitable access.	**AO6**	Development provides landscaping which:- (a) allows passive surveillance into, and visibility within, communal recreational spaces, children's play areas/playgrounds, pathways and car parks; (b) incorporates trees with a	***Alternative Solution*** *– Existing vegetation provides sufficient screening of the Project from surrounding areas.*

		minimum of 1.8m clear trunk and understorey planting that is a maximum of 0.3m in height where located immediately adjacent to pathways, entries, parking areas, street corners, street lighting and driveways; (c) minimises the use of dense shrubby vegetation over 1.5m in height along open street frontages and adjacent to open space areas; (d) incorporates pedestrian surfaces that are slip-resistant, stable and trafficable in all weather conditions; (e) provides security and pathway level lighting to site entries, driveways, parking areas, building entries and pedestrian pathways; and (f) provides universal access in accordance with *Australian Standard AS 1428: Design for Access and Mobility*.	
Climate control and energy efficiency			
PO7 Development provides landscaping that assists in passive solar access, the provision of shade, microclimate management and energy conservation.	**AO7.1**	Landscaping elements are positioned to shade walls, windows and outdoor areas from summer sun.	***Not Applicable***
	AO7.2	Landscaping allows winter sun access to living areas, north facing windows and public spaces.	
	AO7.3	Landscaping, fences and walls allow exposure of living and public areas to prevailing summer breezes and	

			protection against winter winds.	
Water sensitive urban design and environmental management				
PO8	Development provides for landscaping that promotes the efficient and sensitive use of water through appropriate plant selection and layout and by maximising opportunities for water infiltration.	**AO8**	Landscaping maximises the infiltration and conservation of water by:- (a) selecting locally endemic and/or other native plant species and appropriate turf species that require minimal irrigation after establishment; (b) minimising impervious surfaces; (c) incorporating semi-porous pavement surfaces as an alternative to impervious surfaces; and (d) draining hard surface areas to landscaped areas and water sensitive urban design devices.	***Not Applicable***
Landscape buffers for acoustic attenuation, land use separation and environmental purposes				
PO9	Development provides for landscape buffers that:- (a) effectively protect the edges of existing native vegetation or another ecologically important area; (b) achieve visual screening of acoustic attenuation devices; and (c) provide separation between incompatible land uses or between major infrastructure elements (such as State-controlled roads) and land	**AO9**	Where a landscape buffer is required by an applicable planning scheme code, it is designed, constructed and maintained in accordance with the following:- (a) earth mounding is provided where necessary to achieve satisfactory acoustic attenuation, visual screening or land use separation; (b) selected plant species are appropriate to meet the buffer's functional requirements; and	***Not Applicable*** – *Landscape buffer not required by applicable planning scheme codes*

	uses.		(c) plant selection includes a range of species to provide variation in form, height, colour and texture to contribute to the natural appearance of the buffer.	
Roads, services and utilities				
PO10	Development ensures that landscaping does not impede traffic visibility at access points, speed control devices and intersections.	**AO10**	Landscaping adjacent to an intersection has a maximum mature height of 1.0m to ensure vehicle sight lines are not obscured.	***Not Applicable***
PO11	Development ensures that landscaping does not adversely impact upon the provision, operation and maintenance of infrastructure.	**AO11.1** **AO11.2**	Trees and large shrubs are located a minimum of:- 6m from electricity poles and pillars; 4m from street lights and landscape pole top lights; 2m from stormwater catchment pits; and 1m from underground services and utilities. Planting in areas adjacent to electricity substations or high voltage transmission line easements complies with:- (a) for Ergon Energy's assets, the Ergon Energy Vegetation Management Standard; and (b) for Powerlink's assets, Powerlink's Easement Co-use	***Complies*** *– No landscaping is proposed within proximity to the existing electricity infrastructure.*

		Guideline and Screening Your Home from Powerlines Guideline.	

8.1.1.1 Biodiversity areas, waterways and wetlands overlay code

8.1.1.1 Application

This code applies to assessable development:-

(a) subject to the Biodiversity areas, waterways and wetlands overlay shown on the overlay maps contained within **Schedule 2 (Mapping);** and

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

8.1.1.2 Purpose and overall outcomes

(1) The purpose of the Biodiversity areas, waterways and wetlands overlay code is to ensure that:-

(a) Matters of State Environmental Significance are protected;

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

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

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

(a) development conserves and enhances the Central Highland's biodiversity values and associated ecosystem services;

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

(c) development protects known populations and supporting habitat of:-

(i) endangered, vulnerable and near threatened flora and fauna species, as listed in the (State) *Nature Conservation Act 1992*, *Nature Conservation (Wildlife) Regulation 2006;*

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

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

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

8.1.1.3 Assessment criteria

Table 8.2.2.3.1 ***Criteria for assessable development – MSES Regulated vegetation, MSES Regulated vegetation (intersecting a watercourse), MSES Protected Area and MSES Wildlife habitat***

PERFORMANCE OUTCOMES		ACCEPTABLE OUTCOMES		PROPOSED DEVELOPMENT OUTCOMES
Regulated vegetation and Protected areas				
PO1	Development is located outside of, and does not impact on, areas containing regulated vegetation or Protected areas, except where for one of the following:- development for an urban or rural residential purpose within an urban or rural-residential area; development for essential services or community infrastructure; development for an extractive industry within an identified extractive resource processing area or transport route identified on Overlay Map OM004a.	**AO1.1**	Development:- (a) is located outside of an area containing regulated vegetation or a protected area; (b) is setback 20m or 1.5 times the height of the vegetation, whichever is the greater, to avoid adverse impacts on the values of the area; (c) avoids interrupting, interfering or otherwise adversely impacting on underlying natural ecosystem components or processes and interactions that affect or maintain the identified ecological values within an area of regulated vegetation or a protected area such as water quality, hydrology, geomorphology and biological processes.	***Complies*** *– The Project includes the retention of identified waterways within the Project area with the inclusion of a 20-30m buffer to protect riparian vegetation, with no regulated vegetation being cleared to accommodate the Project. Refer to Annex E – Ecology Assessment.*
PO2	Development for:- (a) an urban or rural residential purpose within an urban or rural residential area; (b) development for essential services or community	**AO2**	Development incorporates siting and design measures to protect and retain identified ecological values and underlying ecosystem processes within and adjacent to the development site to the greatest	***Complies*** *– Appropriate setbacks and buffer areas have been incorporated into the concept design to ensure the retention of the ecological values of the area. Refer to Annex E – Ecology Assessment.*

	infrastructure; or (c) development for an extractive industry within an identified extractive resource processing area or transport route identified on Overlay Map OM004a; (d) avoids as far as practicable, or if avoidance is not feasible, minimises impacts on, an area containing regulated vegetation.		extent practicable.	
Wildlife Habitat				
PO4	Development protects the habitat of endangered, vulnerable and near threatened (EVNT) species and local species of significance.	**AO4.1**	Development incorporates siting and design measures to protect and retain identified ecological values and underlying ecosystem processes within or adjacent to the development site.	***Complies*** *– Appropriate setbacks and buffer areas have been incorporated into the concept design to ensure the retention of the ecological values of the area. Refer to Annex E – Ecology Assessment.*
		AO2.2	Other forms of potential human disturbance to these areas, such as presence of vehicles, pedestrian use, increased exposure to domestic animals, noise and lighting impacts, are avoided or adverse impacts sufficiently mitigated to retain critical life stage ecological processes (such as feeding, breeding or roosting). Note—development applications must identify any EVNT species or their habitats that may be affected by the proposal. In particular, applications are to identify and describe how the development	***Complies*** *– The Ecology Assessment (Annex E) provides an assessment of the ecological values of the site including EVNT species.*

			avoids adverse impacts on ecological processes within or adjacent to the development area. EVNT species are declared under the *Nature Conservation Act 1992.*	

8.1.2 Bushfire hazard overlay code

8.1.2.1 Application

This code applies to self-assessable and assessable development:-

(a) subject to the bushfire hazard overlay shown on the overlay maps contained within Schedule 2 (Mapping); and

(b) identified as requiring assessment against the Bushfire hazard overlay code by the tables of assessment in Part 5 (Tables of assessment).

Note – the Building Code of Australia (BCA) contains provisions applying to building in bushfire prone areas. "Designated bushfire prone areas" for the purposes of the Building Regulation 2006 (section 12) and the BCA are identified as medium hazard, high hazard or very high hazard areas on the Bushfire hazard overlay maps in ***Schedule 2 (Mapping)****.*

8.1.2.2 Purpose and overall outcomes

(1) The purpose of the Bushfire hazard overlay code is to ensure that development avoids or mitigates the potential adverse impacts of bushfire on people, property, economic activity and the environment.

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

(a) development in areas at risk from bushfire hazard is compatible with the nature of the hazard;

(b) the risk to people, property and the natural environment from bushfire hazard is minimised to an acceptable or tolerable level;

(c) development does not result in a material increase in the extent or severity of bushfire hazard;

(d) the loss of vegetation through inappropriately located development is minimised;

(e) development is sited and designed to assist emergency services in responding to any bushfire threat.

8.1.2.3 Assessment criteria

Table 8.2.3.3.1 Criteria for self-assessable and assessable development

PERFORMANCE OUTCOMES		ACCEPTABLE OUTCOMES		PROPOSED DEVELOPMENT OUTCOMES
Water supply for firefighting purposes				
PO1	The development is provided with an adequate static water supply for firefighting purposes which is reliable, safely located and freely accessible by firefighting appliances.	**AO1.1**	Premises are connected to a reticulated water supply infrastructure network where available. **OR**	***Not Applicable*** ***Complies with Performance Outcome*** - *The overlay mapping indicates there is a Moderate Bushfire Risk within parts of the Project Area, with a High to Very Bushfire Risk at the southern end of the lot, outside the Project Area. Given the nature of the Project, all vegetation within the Project Area will be removed, with the exception of identified waterways and buffer areas, thereby significantly reducing the bushfire risk associated with the Project. Water will be provided where required for the Project; however water will not be stored on-site permanently.*
		AO1.2	Where there is no reticulated water supply: (a) the premises has the following minimum water supply capacity dedicated for firefighting purposes:- (i) 10,000L for residential activities; (ii) 45,000L for industrial activities; and (iii) 20,000L for other uses. (b) the water supply dedicated for firefighting purposes can be sourced from:- (i) a separate tank; or (ii) a dedicated reserve section of the main water supply tank. The water supply tank and outlet for firefighting purposes is:- (a) located remote from any potential fire hazards such as venting gas bottles; (b) not constructed of flammable	

			materials or is located below ground level; (c) provided with an outlet pipe:- (i) 50mm in diameter and fitted with a 50mm ball valve and male camlock (standard rural fire brigade fitting) where above ground; or (ii) an access hole of 200mm width (minimum) to accommodate suction lines; (d) connected to a pump that is independent of mains electricity supply; (e) clearly identified by directional signage provided at the street frontage or entrance; and (f) provided with a hardstand area for fire vehicles which is located within 6m of the outlet.	

Table 8.2.3.3.2 Criteria for self-assessable and assessable development

PERFORMANCE OUTCOMES		ACCEPTABLE OUTCOMES		PROPOSED DEVELOPMENT OUTCOMES
Bushfire hazard assessment and management				
PO1	Bushfire mitigation measures are adequate for the potential bushfire hazard level of the site, having regard to the following:- (a) vegetation type; (b) slope; (c) aspect; (d) on-site and off-site bushfire hazard implications of the particular development; (e) bushfire history; (f) conservation values of the site; (g) ongoing maintenance. Note—where a bushfire hazard assessment and management plan has previously been approved for the development proposed on the site (e.g. as part of a prior approval), design of the proposed development in accordance with that plan shall be taken as achieving compliance with this performance outcome of the code.	**AO1.1**	The level of bushfire hazard shown on a Bushfire hazard overlay map is confirmed via the preparation of a site-specific bushfire hazard assessment and management plan, prepared in accordance with the **Planning scheme policy for information that Council may require.**	***Alternative Solution*** *– The Project area identified as a Potential Impact Buffer and is mostly clear of vegetation. A 10 metre setback is proposed around the perimeter of the development which provides sufficient bushfire protection.*
		AO1.2	Development is located, designed and operated in accordance with a Council- approved bushfire hazard assessment and management plan prepared in accordance with the **Planning scheme policy for information that Council may require.**	
Safety of people and property				

PO2	Development maintains the safety of people and property from the adverse impacts of bushfire by avoiding a higher concentration of people living or congregating in bushfire hazard areas.	**AO2.1**	Development involving one or more of the following uses is not located or intensified within a medium, high or very high bushfire hazard area as shown on a Bushfire hazard overlay map:- (a) child care centre; (b) community care centre; (c) community residence; (d) community use; (e) correctional facility; (f) educational establishment; (g) emergency services; (h) hospital; (i) indoor sport, recreation and entertainment; (j) outdoorsport, recreation and entertainment; (k) relocatable home park; (l) residential care facility; (m) retirement facility; (n) tourist attraction; and tourist park. **OR** Development involving one or more of the above uses is located on land that is determined by a site-specific bushfire hazard assessment and management plan as a low bushfire hazard area. Note—a site-specific bushfire hazard assessment and management plan is necessary to demonstrate that although the site is identified on a	***Complies***

			Bushfire hazard overlay map as a medium, high or very high bushfire hazard area, the bushfire hazard level on the site is actually low. The Planning scheme policy for information that Council may require provides guidance for preparing a bushfire hazard assessment and management plan.	***Complies*** *– The Project will materially increase the number of people congregating on the premises during construction. However, given the majority of the Project area will be cleared, the risk is considered very low.*
		AO2.1	Other development which will materially increase the number of people living or congregating on premises, including reconfiguring a lot:- (a) is not located or intensified in a confirmed medium, high or very high bushfire hazard area; or Note—the level of bushfire hazard shown on a Bushfire hazard overlay map is to be confirmed via the preparation of a site-specific bushfire hazard assessment and management plan, prepared in accordance with the **Planning scheme policy for information that Council may require.** (b) where located in a confirmed medium bushfire hazard area, is sited, designed and constructed in accordance with a Council approved bushfire hazard assessment and management plan	

			prepared in accordance with the **Planning scheme policy for information that Council may require.**	
Community infrastructure				
PO3	Community infrastructure is able to function effectively during and immediately after bushfire events.	**AO3**	Community infrastructure is located on land that is not subject to medium, high or very high bushfire hazard as shown on Bushfire hazard overlay map. **OR** Community infrastructure is located on land that is determined by a site-specific bushfire hazard assessment and management plan as a low bushfire hazard area. Note—a site-specific bushfire hazard assessment and management plan is necessary to demonstrate that although the site is shown on a Bushfire Hazard Overlay Map as a medium, high or very high bushfire hazard area, the bushfire hazard level on the site is actually low. The **Planning scheme policy for information that Council may require** provides guidance for preparing a bushfire hazard assessment and management plan. **OR** Where located in a confirmed	***Not Applicable***

			medium, high or very high bushfire hazard area, development involving community infrastructure is designed to function effectively during and immediately after bushfire events in accordance with a Council-approved bushfire hazard assessment and management plan prepared in accordance with the **Planning scheme policy for the bushfire hazard overlay code.**	
Hazardous materials				
PO4	Public safety and the environment are not adversely affected by the detrimental impacts of bushfire on hazardous materials or hazardous chemicals manufactured or stored in bulk.	**AO4**	Development involving the manufacture or storage of hazardous materials or hazardous chemicals in bulk is not located within a confirmed medium or high bushfire hazard area.	***Not Applicable***
Access and evacuation routes				
PO5	Where development (including reconfiguring a lot) involves opening a new road, the road layout:- (a) allows easy and safe movement away from any encroaching fire; and (c) (b) provides for alternative safe access routes should access in one direction be blocked in the event of a fire.	**AO5.1**	The road layout provides for "through roads" and avoids culs-de-sac and "dead end" roads (except where a perimeter road isolates the development from hazardous vegetation or the cul-de-sacs are provided with an alternative access linking the cul-de- sac to other through roads). The road layout provides for "through roads" and avoids culs-de-sac and "dead end" roads (except where a perimeter road isolates the development from hazardous vegetation or the cul-de-sacs are	***Not Applicable*** – *The Project will utilize the existing access location and track along the western side of the site*

			provided with an alternative access linking the cul-de- sac to other through roads). **OR**	
		AO5.2	Where the use of a single entry road is unavoidable because of topographical constraints, a fire breaking trail is incorporated to allow for safe access to a "through-road" in an alternative direction to the road and is to:- (a) be provided along a minimum 20m of cleared road reserve; (b) have a maximum gradient of 12.5%; (c) provide continuous access for fire fighting vehicles; (d) allow for vehicle access every 200m; (e) provide passing bays and turning areas every 200m. Roads have a maximum gradient of 12.5%.	***Complies*** *– The Project is provided with one access point only however this location is clear of vegetation and therefore does not present a risk in case of a bushfire.*
PO6	Vehicular access is designed to mitigate bushfire hazard by:- (a) ensuring adequate access for fire fighting and other emergency vehicles; (b) ensuring adequate access for the evacuation of residents and emergency personnel in an emergency situation, including alternative safe access routes	**AO6**	Where development involves the creation of a new road, fire breaking trails are:- (a) provided along a minimum 20m of cleared road reserve; (b) a maximum gradient of 12.5%; (c) located between the development site and hazardous vegetation.	***Not Applicable***

	should access in one direction be blocked in the event of a fire; (c) (c) providing for the separation of developed areas and adjacent hazardous vegetation.		**OR** Where development does not involve the creation of a new road, fire breaking trails are provided between the development site and hazardous vegetation and such trails:- (a) have a cleared minimum width of 6m; (b) have a maximum gradient of 12.5%; (c) provide continuous access for fire fighting vehicles; (d) allow for vehicle access every 200m; (e) provide passing bays and turning areas every 200m.	***Complies*** *– Appropriate fire breaks will be provided to ensure access can be maintained to the Project area in the event of a bushfire.*
Lot layout				
PO7	The lot layout of new development is designed to:- (a) mitigate a defined bushfire hazard to an acceptable or tolerable level of risk.	**AO7.1**	Lots are designed so their size and shape allow for efficient emergency access to buildings for firefighting appliances (e.g. by avoiding battle-axe/hatchet lots and long narrow lots with long access drives to buildings).	***Complies*** *– suitable access will be provided to the Project area to assist with firefighting purposes.*

		AO7.2	Lots are designed so that their size and shape ensure buildings and structures:- (a) are sited in locations of lowest hazard within the lot; (b) achieve setbacks from hazardous vegetation of 1.5 times the predominant mature canopy tree height or 10m, whichever is the greater; (c) achieve a setback of 10m from any retained vegetation strips or small areas of vegetation; are sited so that elements of the development least susceptible to fire are sited closest to the bushfire hazard.	***Complies*** *– Refer to Annex A – Proposal Plans.* *If required a setback of 1.5 times the canopy height can be provided from hazardous vegetation.*

8.1.3 Regional infrastructure overlay code

8.1.3.1 Application

This code applies to assessable development:-

(a) subject to the Regional infrastructure overlay shown on the overlay maps contained within **Schedule 2 (Mapping)**; and

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

8.1.3.2 Purpose and overall outcomes

(1) The purpose of the Regional infrastructure overlay code is to ensure that development is compatible with, and does not adversely affect the viability, integrity, operation and maintenance of the following existing and planned infrastructure within the Central Highlands:-

(a) high voltage electricity transmission lines;

(b) wastewater treatment plants;

(c) waste management facilities;

(d) major roads and railways;

(e) gas pipelines and buffer; and

(f) stock routes.

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

(a) existing and planned infrastructure facilities, networks and corridors are protected from incompatible development; and

(b) development in proximity to existing and planned infrastructure facilities, networks and corridors is appropriately located, designed, constructed and operated to:-

(i) avoid compromising the integrity, operational efficiency and maintenance of infrastructure;
(ii) protect the amenity, health and safety of people and property.

8.1.3.3 Assessment criteria

Table 8.2.8.3.1 Criteria for assessable development only

PERFORMANCE OUTCOMES		ACCEPTABLE OUTCOMES		PROPOSED DEVELOPMENT OUTCOMES
High voltage electricity transmission lines				
PO1	Development does not adversely impact on existing and planned high voltage electricity transmission infrastructure.	**AO1.1**	Residential lots and buildings and structures are not located within the corridor of a high voltage electricity transmission line as identified on a Regional infrastructure overlay map.	***Not Applicable*** *– The Project does not involve residential land uses.*
PO2	Sensitive land uses are not located in close proximity to high voltage electricity transmission lines.	**AO2**	Buildings and outdoor use areas associated with a sensitive land use are setback from the closest boundary of an easement for, or an area otherwise affected by, a high voltage electricity transmission line as identified on a Regional infrastructure overlay map in accordance with the following:- (a) 20m for transmission lines up to 132kV; (b) 30m for transmissionlines between133kV and 275kV; and (c) 40m for transmission lines exceeding 275kV.	***Not Applicable*** *– The Project does not involve sensitive land uses*
Wildlife Habitat				
PO3	Residential activities and other sensitive land uses are not adversely affected by odour emissions from existing or planned wastewater treatment plants.	**AO3.1**	A sensitive land use involving a residential activity is not located or intensified within a wastewater treatment plant buffer as identified on a Regional infrastructure overlay map.	***Not Applicable*** *– The Project does not involve residential activities.*

		AO3.2	A sensitive land use (other than a residential activity) located within a wastewater treatment plant buffer as identified on a Regional infrastructure overlay map demonstrates that occupants and users will not be adversely affected by odour emissions from activities associated with the wastewater treatment plant.	***Not Applicable*** *– The Project does not include sensitive land uses.*
			Reconfiguring a lot within a wastewater treatment plant buffer as identified on a infrastructure overlay map:- (a) does not result in the creation of additional lots used or capable of being used for residential purposes; (b) where rearranging boundaries, does not worsen the existing situation with respect to the distance between available house sites and the wastewater treatment plant.	***Not Applicable*** *– Project area not located within wastewater treatment plant buffer area.*
Waste management facilities				
PO4	Residential activities and other sensitive land uses are not adversely affected by noise emissions from existing or planned waste management facilities.	**AO4.1**	A sensitive land use involving a residential activity is not located or intensified within a waste management facility buffer as identified on a Regional infrastructure overlay map. A sensitive land use (other than a residential activity) located within a	***Not Applicable*** *– The Project does not involve sensitive land uses or residential activities.* ***Not Applicable*** *– The Project does not involve sensitive*

			waste management facility buffer as identified on a Regional infrastructure overlay map:- (a) incorporates appropriate measures to minimise noise impacts; and (b) demonstrates that occupants and users will not be adversely affected by noise emissions from activities associated with the waste management facility.	*land uses.*
		AO4.2	Reconfiguring a lot within a waste management facility buffer as identified on a Regional infrastructure overlay map:- (a) does not result in the creation of (b) additional lots used or capable of being used for residential purposes; (c) where rearranging boundaries, does not worsen the existing situation with respect to the distance between available house sites and the waste management facility.	***Not Applicable*** *– The Project Area is not within a waste management facility buffer.*
PO5	Sensitive land uses are located, designed and constructed to ensure that noise emissions from major road corridors and railway corridors do not adversely affect: (a) the development's primary function;	**AO5**	A sensitive land use is separated by a minimum of 40m from the property boundary adjoining a major road or railway corridor as identified on a Regional Infrastructure overlay map.	***Not Applicable*** *– The Project does not involve sensitive land uses.*

	(b) the wellbeing of occupants including their ability to sleep, work or otherwise undertake quiet enjoyment without unreasonable interference from road traffic or rail noise.		Note—The major road corridor and buffer shown on the Regional infrastructure overlay maps incorporates the designated Transport Noise Corridors identified for the purposes of the Building Act 1975. Part 4.4 of the Queensland Development Code provides requirements for residential buildings in designated transport corridors.	
PO6	Development within a major road or railway corridor buffer as identified on an Infrastructure overlay map maintains and, where practicable, enhances the safety, efficiency and effectiveness of the corridor.	**AO6**	No acceptable outcome provided.	***Complies*** *– The Project will utilize the existing access location off the Capricorn Highway. The impact on the corridor will need to be managed through a Construction and Environmental Management Plan during construction as this will involve high volumes of traffic during the construction period. However minimal ongoing impacts are associated with the operation of the facility.*
Gas pipeline corridor and buffer				
PO7	Development provides and maintains adequate separation between the use or works and the gas pipeline corridor to minimise the risk of harm to people or property.	**AO7**	Buildings and structures are set back a minimum of 40m from a gas pipeline as identified on the Regional infrastructure overlay map. Editor's Note—should a lesser setback be proposed the applicant should consult with the relevant pipeline manager or operator prior to the lodgement of a development application to determine how compliance with	***Not Applicable*** *– There are no gas pipelines identified in the Project area.*

			the performance outcome can be achieved.	
PO8	Development and works are constructed and operated to avoid:- (a) damaging or negatively impacting on the ability of the existing or future gas pipeline to operate; or (b) compromising the ongoing safe and efficient use of the gas pipeline corridor.	**AO8**	No acceptable outcome provided. Editor's Note—the applicant should consult with the relevant pipeline manager or operator prior to the lodgment of a development application to determine how compliance with the performance outcome can be achieved.	***Not Applicable*** *– There are no gas pipelines identified in the Project area.*
Stock routes				
PO9	Development maintains the operational efficiency and ongoing integrity and useability of stock routes.	**AO9.1**	Development is not located on a stock route identified on a Regional Infrastructure Overlay Map.	***Complies*** *– The Project utilizes the existing access location and will not impact on the stock route identified as the Capricorn Highway.*
		AO9.2	All new access points from a road servicing a stock route incorporate a grid or effective gate to prevent stock entry into adjoining premises.	
		AO9.3	Boundary fencing is maintained to the road boundary adjoining a stock route.	

8.1.1 Flood hazard overlay code

8.1.1.1 Application

This code applies to assessable development:-

(a) subject to the flood hazard overlay shown on the overlay maps contained within

Schedule 2 (Mapping)*; and*

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

Note – the Building Regulation 2006 contains provisions applying to building work in a natural hazard management area (flood) and the Queensland Development Code (QDC) MP3.5 is triggered by a flood hazard area. "Natural hazard management area (flood)" for the purposes of the Building Regulation 2006 (Part 2A and Part 3) and "flood hazard area" for the purposes of QDC MP3.5 – Construction of Building in Flood Hazard Areas are identified as the flood hazard area on the flood hazard area overlay maps in ***Schedule 2 (Mapping)****.*

8.1.1.2 Purpose and overall outcomes

(1) The purpose of the Flood hazard overlay code is to ensure that development protects people and avoids or mitigates the potential adverse impacts of flood on property, economic activity and the environment, taking into account the predicted effects of climate change.

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

(a) floodplains and the flood conveyance capacity of waterways are protected;

(b) development in areas at risk from flood is compatible with the nature of the flood event;

(c) the safety of people is protected and the risk of harm to property and the natural environment from flood is minimised to an acceptable or tolerable level;

(d) wherever practical, infrastructure essential to the health, safety and wellbeing of the community is located and designed to function effectively during and immediately after a flood event; and

(e) development does not result in a material increase in the extent or severity of flood.

8.1.1.3 Assessment criteria

Table 8.2.5.3.1 Criteria for assessable development

PERFORMANCE OUTCOMES		ACCEPTABLE OUTCOMES		PROPOSED DEVELOPMENT OUTCOMES
Development siting and layout				
PO1	For all flood events up to and including the defined flood event (DFE):- (a) the safety of people on the site is protected at all times; (b) potential damage to property on the site is prevented.	**AO1.1**	Development is located on the highest part of the site practicable.	***Complies*** *– A small portion in the north-east corner of the Project area is identified as Flood Hazard Area. It is likely that PV panels will be constructed within this area, however no associated infrastructure is proposed and the ground disturbance will be limited to foots for the tracking system, therefore not impacting the natural flow of groundwater.*
		AO1.2	Finished surface levels for reconfiguring a lot and finished floor levels for habitable rooms are a minimum of 300mm above the defined flood event (DFE).	
		AO1.3	Where involving an extension to an existing dwelling house that is situated below the DFE:- (a) the extension has a gross floor area not exceeding 50m²; and (b) the finished floor level of all habitable rooms is not less than the floor level of existing habitable rooms. *Note – the* ***Reconfiguring a lot*** *code provides further detail about finished surface levels for lots.*	
		AO1.4	Non-habitable floor areas are designed and constructed to be resilient to the effects of flood, up to and including the DFE.	
		AO1.5	A safe evacuation route that remains passable with sufficient flood warning time to enable	

			people to progressively evacuate to a gathering point above the DFE in the face of advancing flood waters is available.	
		AO1.6	For reconfiguring a lot, roads provide safe, clear and direct evacuation routes that are trafficable by both vehicles and pedestrians in the DFE.	
		AO1.7	For reconfiguring a lot the following signage is provided on-site:- (a) signage indicating the position and path of all safe evacuation routes off the site; (b) if the site contains or is within 100m of a floodable waterway, hazard warning signage indicating depth at key hazard points, such as floodway crossings or entrances to low-lying reserves.	
Building design and built form				
P O 2	Building design and built form is resilient to flood events by appropriately responding to the potential risks of flooding		***For material change of use – Residential uses***	***Not Applicable***
		AO2.1	Residential dwellings are not designed as single-storey slab on ground construction.	
		AO2.2	Residential buildings:- (a) provide parking and other low intensity, non-habitable	

		AO2.3	uses at ground level; (b) have ground storeys that allow for the flow through of flood water. ***For material change of use – Non-residential uses*** Non-residential buildings:- (a) are orientated to the street by activating the street frontage through ground storey business activities or urban design treatments such as recess wall treatments, screening and/or landscaping; (b) have ground storeys that allow for the flow through of flood water. *Notes –* *(a) Businesses should ensure that the necessary continuity plans are in place to account for the potential need to relocate property prior to a flood event (e.g. allow enough time to transfer stock to the upper-storey of a building or off-site).* *(b) Resilient building materials should be determined in consultation with Council, in accordance with the relevant building assessment provisions.*	
Flood impacts				
P O	Development does not directly, indirectly or cumulatively	AO**3.1**	Development within the flood hazard area does not result in a	***Complies*** *– The Project will not alter the existing natural drainage function of the property.*

3	change flood characteristics which may cause adverse impacts external to the development site.	**AO3.2** **AO3.3** **AO3.4**	reduction in flood storage. Development does not change flows, velocities or levels external to the development site for flood events up to the DFE. Development and associated works do not involve any physical modifications to a waterway or flood conveyance channel, including vegetation clearing. Stormwater peak discharges and levels and flood flows external to the site are equivalent to the pre-developed condition.	
Essential network infrastructure				
P O 4	Development involving the provision of essential network infrastructure (e.g. on-site electricity, water supply, sewerage and telecommunications) is maintained during and immediately after flood events.	**AO4.1** **AO4.2**	Any components of essential network infrastructure that are likely to fail to function or may result in contamination when inundated by flood water (e.g. electrical switchgear and motors, water supply pipeline air valves and the like) are:- (a) located above the DFE; or (b) designed and constructed to exclude floodwater intrusion or infiltration. Essential network infrastructure is designed and constructed to resist hydrostatic and hydrodynamic forces as a result of inundation in the DFE.	***Complies** – no infrastructure associated with the Project will be impacted by the Flood Hazard Area.*
Community infrastructure				

P 0 5	Community infrastructure is able to function effectively during and immediately after flood events.	**AO5**	Community infrastructure is located in accordance with the recommended flood level (RFL) for that infrastructure specified in ***Table 8.2.5.3.2 (Recommended flood levels for community infrastructure)***.	
Hazardous materials				
P O 6	Public safety and the environment are not adversely affected by the detrimental impacts of floodwater on hazardous materials or hazardous chemicals manufactured or stored in bulk during the DFE.	AO6.1	The manufacture or storage in bulk of hazardous materials or hazardous chemicals occurs above the DFE. **OR** Structures used for the manufacture or storage of hazardous materials or hazardous chemicals in bulk are designed and constructed to prevent the intrusion of flood waters up to and including the DFE.	***Not Applicable*** *– The Project does not involve the storage of chemicals.*
		AO6.2	Tanks used for the storage of hazardous chemicals or hazardous material are (a) anchored to prevent off-site transport of the structure during a flood event; and any tank openings not provided with a liquid tight seal (i.e. an atmospheric vent) are extended so the opening is above the DFE	
Extreme flood hazard area				
P O	Development within the Extreme flood hazard area is appropriate	**AO7.1**	Uses within the following activity groups are not located within an	***Not Applicable***

7	for the level of risk having regard to:- (a) the likelihood and frequency of flooding; (b) the vulnerability of persons associated with the use; and (c) associated consequences of flooding in regard to impacts on proposed buildings, structures and supporting infrastructure.	**AO7.2**	Extreme flood hazard area: (a) Residential activities; (b) Business activities; (c) Community activities; (d) Entertainment activities; (e) Industry activities; (f) Rural activities, except where involving animal husbandry, cropping, or permanent plantation. Recreation activities are not located within an Extreme flood hazard area except where for: (a) Environment facility; (b) Park; Outdoor sport and recreation (excluding the provision of ancillary facilities or amenities conducted within a building)	
P O 8	Development does not increase the number of people or properties at risk from flooding.	**AO8**	Development does not increase the number of lots in an area identified as an Extreme flood hazard area except for the purposes of public open space.	***Not Applicable***
High flood hazard area				
P O 9	Development within a High flood hazard area is appropriate for the level of risk having regard to:- (a) the likelihood and frequency of flooding; (b) the flood risk acceptability of development; (c) the vulnerability of persons associated with the use; and associated consequences of flooding in regard to	**AO9.1**	Uses within the following activity groups are not located within a High flood hazard area: (a) Residential activities except where for a Dwelling house on an existing lot on land within a Residential zone or Centre zone; (b) Community activities; (c) Entertainment activities; (d) Industry activities; (e) Rural activities, except where involving animal husbandry,	***Not Applicable***

	impacts on proposed buildings, structures and supporting infrastructure.	**AO9.2** **AO9.3**	cropping, or permanent plantation. Recreation activities are not located within a High flood hazard area except where for: (a) Environment facility; (b) Park; (c) Outdoor sport and recreation (excluding the provision of ancillary facilities or amenities conducted within a building) There is no intensification of residential uses on premises within the High flood hazard area, including the development of dual occupancy and multiple residential uses.	
Significant flood hazard area				
P O 1 0	Development within a Significant flood hazard area is appropriate for the level of risk having regard to:- (a) the likelihood and frequency of flooding; (b) the flood risk acceptability of development; (c) the vulnerability of persons associated with the use; and associated consequences of flooding in regard to impacts on proposed buildings, structures and supporting infrastructure.	**AO10**	No acceptable outcome provided. *Note-The following uses are not located within a Significant flood hazard area:* *(a) Residential care facility;* *(b) Retirement facility;* *(c) Child care centre;* *(d) Hospital; or* *Community use.*	***Not Applicable***

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13 April 2017

Chief Executive Officer
Central Highlands Regional Council
PO Box 21
EMERALD QLD 4720

E: tplanning@chrc.qld.gov.au

Our Reference: *0387539_Bluff Solar Project*

Dear Sir/Madam,

RE: DEVELOPMENT APPLICATION FOR MATERIAL CHANGE OF USE FOR RENEWABLE ENERGY FACILITY AND RECONFIGURING A LOT (2 LOTS INTO 4 LOTS, SUBDIVISION BY LEASE AGREEMENT (2 LOTS) AND ACCESS EASMENT OVER LOT 79 ON SP238443 AND LOT 723 ON SP129824, CAPRICORN HIGHWAY, BLUFF, QUEENSLAND

Environmental Resources Management Australia Pty Ltd (ERM) writes on behalf of Bluff Solar Farm Pty Ltd (the Applicant) in relation to the making of a Development Application for Material Change of Use for a 'Renewable Energy Facility' and Reconfiguring a Lot involving the subdivision Lot 79 to create two (2) new freehold lots and two (2) new lease areas, as well as an access easement. The Development Application relates to land described as Lot 79 on SP238443 and Lot 723 on SP129834 (for access purposes only), Capricorn Highway, Bluff, Queensland, 4702.

1. APPLICATION DETAIL

The purpose of this planning report is to support a Development Application for **Material Change of Use– Development Permit for a 'Renewable Energy Facility' and Reconfiguring a Lot (2 lots into 4 lots), Subdivision by Lease Agreement (2 lots) and Access Easement**, to facilitate the development of the Bluff Solar Farm 'the Project' within Lot 79 on SP238443. We note the adjoining Lot 723 on SP129824 (railway corridor) has been included in the Development Application as the Project relies on achieving vehicle access to the Capricorn Highway via an existing occupational crossing of the Central Line over rail corridor land.

Environmental Resources Management Australia Pty Ltd
A.C.N. 002 773 248
A.B.N. 12 002 773 248

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The application includes the subdivision by Lease Agreement of Lot 79 on SP238443 to create two (2) lease areas of 165ha (Stage 1) and 167ha (Stage 2). The Project also requires the subdivision of two (2) 3,000m² lots and associated access easement to facilitate the construction of a substation/ switch yard for each stage of the development, to be owned and maintained by Ergon Energy. Once complete, the Project will have a maximum capacity of 250MW.

Under the Central Highlands Regional Council Planning Scheme ('the planning scheme'), Lot 79 is zoned Rural, and Lot 723 Community Facility, with the level of assessment attributed to the proposed use identified in Part 5 of the Planning Scheme as **'Impact Assessable'** for the Material Change of Use, and **'Impact Assessable'** for the Reconfiguring a Lot component, as a result of the creation of two (2) new lots and lease agreements of more than 10 years under the minimum prescribed lot size for the Rural Zone. It should be noted that a Renewable Energy Facility is 'Code Assessable' in Rural Zones, however due to access across Lot 723, triggers Impact Assessment.

The Development Application will require referral to the State Assessment Referral Agency (SARA) under *Schedule 7, Table 3, Item 1* and *15A* of the *Sustainable Planning Regulation 2009* as the proposal includes the use of the railway corridor (Central Line) and is located adjacent to a state-controlled road (Capricorn Highway). Referral to Ergon Energy/Powerlink is also required in accordance with *Schedule 7, Table 2, Item 21* and *Table 3, Item 7* of the regulation as the Project Area is burdened by a number of electricity easements.

2. ATTACHED DOCUMENTATION

Please find attached the following documentation that comprises the Material Change of Use Development Application:

- IDAS Forms (refer to *Attachment A*)
    - IDAS Form 1 – Application Details;
    - IDAS Form 5 – Material Change of Use Assessable Against a Planning Scheme; and
    - IDAS Form 7 – Reconfiguring a Lot Assessable Against the Planning Scheme.

- Owner's Consent provided by Col Goodwin for Lot 79 and by way of Technical Approval Letter from Aurizon Network as an authorised representative of Queensland Government Department of Transport and Main Roads for Lot 723 (refer to *Attachment B*).

Please also find enclosed an copy of the Development Application that comprises the Planning Report package prepared by ERM, Ref. 0387539, dated 13 April 2017, including:

- Ecological Assessment prepared by ERM, Reference No. 0387539_03, dated 13 April 2017 (*Annex E)*; and

- Glare Assessment prepared by ERM, Ref. 0387539_02, dated 13 April 2017 (*Annex G*);

We further note a deposit of **$9,945** will be forthcoming by the Applicant for the development application fee, in accordance with the Fees and Charges Schedule 2016-17.

3. CONCLUDING COMMENTS

If you have any queries regarding the application or require any further information during the course of the assessment, please contact Michael Rookwood on telephone (07) 3007 8478 or via email at michael.rookwood@erm.com.

Yours sincerely,
for Environmental Resources Management Australia Pty Ltd

Michael Rookwood
Town Planner

Alan Simonic
Partner

Attachment A

IDAS FORMS

IDAS form 1—Application details

(*Sustainable Planning Act 2009* version 4.3 effective 5 December 2016)

This form must be used for **ALL** development applications.

You **MUST** complete **ALL** questions that are stated to be a mandatory requirement unless otherwise identified on this form.

For all development applications, you must:

- complete this form (*IDAS form 1—Application details)*
- complete any other forms relevant to your application
- provide any mandatory supporting information identified on the forms as being required to accompany your application.

Attach extra pages if there is insufficient space on this form.

All terms used on this form have the meaning given in the *Sustainable Planning Act 2009* (SPA) or the Sustainable Planning Regulation 2009.

This form and any other IDAS form relevant to your application must be used for development applications relating to strategic port land and Brisbane core port land under the *Transport Infrastructure Act 1994* and airport land under the *Airport Assets (Restructuring and Disposal) Act 2008*. Whenever a planning scheme is mentioned, take it to mean land use plan for the strategic port land, Brisbane core port land or airport land.

PLEASE NOTE: This form is not required to accompany requests for compliance assessment.

Mandatory requirements

Applicant details (Note: the applicant is the person responsible for making the application and need not be the owner of the land. The applicant is responsible for ensuring the information provided on all IDAS application forms is correct. Any development permit or preliminary approval that may be issued as a consequence of this application will be issued to the applicant.)

Name/s (individual or company name in full)	**Bluff Solar Farm Pty Ltd**			
For companies, contact name	**C/- Environmental Resources Management Australia Pty Ltd**			
Postal address	PO Box 1400			
	Suburb	Spring Hill		
	State	QLD	Postcode	4004
	Country	Australia		
Contact phone number	(07) 3007 8478			
Mobile number (non-mandatory requirement)				
Fax number (non-mandatory requirement)	+617 3839 8381			

Email address (non-mandatory requirement)	Michael.Rookwood @ erm.com
Applicant's reference number (non-mandatory requirement)	0387539_Bluff Solar Farm

1. What is the nature of the development proposed and what type of approval is being sought?

Table A—Aspect 1 of the application (If there are additional aspects to the application please list in Table B—Aspect 2.)

a) What is the nature of the development? (Please only tick one box.)

☒ Material change of use ☐ Reconfiguring a lot ☐ Building work ☐ Operational work

b) What is the approval type? (Please only tick one box.)

☐ Preliminary approval under s241 of SPA ☐ Preliminary approval under s241 and s242 of SPA ☒ Development permit

c) Provide a brief description of the proposal, including use definition and number of buildings or structures where applicable (e.g. six unit apartment building defined as a *multi-unit dwelling*, 30 lot residential subdivision etc.)

Renewable Energy Facility (Solar Farm)

d) What is the level of assessment? (Please only tick one box.)

☒ Impact assessment ☐ Code assessment

Table B—Aspect 2 of the application (If there are additional aspects to the application please list in Table C—Additional aspects of the application.)

a) What is the nature of development? (Please only tick one box.)

☐ Material change of use ☒ Reconfiguring a lot ☐ Building work ☐ Operational work

b) What is the approval type? (Please only tick one box.)

☐ Preliminary approval under s241 of SPA ☐ Preliminary approval under s241 and s242 of SPA ☒ Development permit

c) Provide a brief description of the proposal, including use definition and number of buildings or structures where applicable (e.g. six unit apartment building defined as a *multi-unit dwelling*, 30 lot residential subdivision etc.)

Reconfiguring a Lot (2 lots into 4 lots), Subdivision by Lease Agreement (2 lots) and Access Easement

d) What is the level of assessment?

☒ Impact assessment ☐ Code assessment

Table C—Additional aspects of the application (If there are additional aspects to the application please list in a separate table on an extra page and attach to this form.)

☐ Refer attached schedule ☒ Not required

2. Location of the premises (Complete Table D and/or Table E as applicable. Identify each lot in a separate row.)

Table D—Street address and lot on plan for the premises or street address and lot on plan for the land adjoining or adjacent to the premises (Note: this table is to be used for applications involving taking or interfering with water.) (Attach a separate schedule if there is insufficient space in this table.)

☒ Street address **and** lot on plan (All lots must be listed.)

☐ Street address **and** lot on plan for the land adjoining or adjacent to the premises (Appropriate for development in water but adjoining or adjacent to land, e.g. jetty, pontoon. All lots must be listed.)

Street address					**Lot on plan description**		**Local government area** (e.g. Logan, Cairns)
Lot	Unit no.	Street no.	Street name and official suburb/ locality name	Post-code	Lot no.	Plan type and plan no.	
i)			Capricorn Highway	4702	79	SP238443	Central Highlands Regional Council
ii)			Capricorn Highway	4702	723	SP129824	Central Highlands Regional Council
iii)							

Planning scheme details (If the premises involves multiple zones, clearly identify the relevant zone/s for each lot in a separate row in the below table. Non-mandatory)

Lot	Applicable zone / precinct	Applicable local plan / precinct	Applicable overlay/s
i)	Rural		Biodiversity
ii)	Community Facility		Bushfire Hazard
iii)			Regional Infrastructure
			Flood Hazard

Table E—Premises coordinates (Appropriate for development in remote areas, over part of a lot or in water not adjoining or adjacent to land e.g. channel dredging in Moreton Bay.) (Attach a separate schedule if there is insufficient space in this table.)

Coordinates (Note: place each set of coordinates in a separate row)				**Zone reference**	**Datum**	**Local government area (if applicable)**
Easting	Northing	Latitude	Longitude			
					☐ GDA94 ☐ WGS84 ☐ other	

3. Total area of land on which the development is proposed (indicate square metres)

455.4ha (Lot 79) and 18.9 (Lot 723)

4. Current use/s of the premises (e.g. vacant land, house, apartment building, cane farm etc.)

Central Line Railway (Lot 723) and Grazing (Lot 79)

5. Are there any current approvals (e.g. a preliminary approval) associated with this application? (Non-mandatory requirement)

☒ No ☐ Yes—provide details below

List of approval reference/s	Date approved (dd/mm/yy)	Date approval lapses (dd/mm/yy)

6. Is owner's consent required for this application? (Refer to notes at the end of this form for more information.)

☐ No

☒ Yes—complete either Table F, Table G or Table H as applicable

Table F	
Name of owner/s of the land	
I/We, the above-mentioned owner/s of the land, consent to the making of this application.	
Signature of owner/s of the land	
Date	

Table G	
Name of owner/s of the land	**Col Goodwin (Lot 79) and Aurizon Network as authorised representative of DTMR (lot 723)**
☒ The owner's written consent is attached or will be provided separately to the assessment manager.	

Table H	
Name of owner/s of the land	
☐ By making this application, I, the applicant, declare that the owner has given written consent to the making of the application.	

7. Identify if any of the following apply to the premises (Tick applicable box/es.)

☒ Adjacent to a water body, watercourse or aquifer (e.g. creek, river, lake, canal)—complete Table I

☐ On strategic port land under the *Transport Infrastructure Act 1994*—complete Table J

☐ In a tidal water area—complete Table K

☐ On Brisbane core port land under the *Transport Infrastructure Act 1994* (No table requires completion.)

☐ On airport land under the *Airport Assets (Restructuring and Disposal) Act 2008* (no table requires completion)

☐ Listed on either the Contaminated Land Register (CLR) or the Environmental Management Register (EMR) under the *Environmental Protection Act 1994* (no table requires completion)

Table I
Name of water body, watercourse or aquifer
Bluff Creek

Table J

Lot on plan description for strategic port land	Port authority for the lot

Table K	
Name of local government for the tidal area (if applicable)	Port authority for the tidal area (if applicable)

8. Are there any existing easements on the premises? (e.g. for vehicular access, electricity, overland flow, water etc)

☐ No ☒ Yes—ensure the type, location and dimension of each easement is included in the plans submitted

9. Does the proposal include new building work or operational work on the premises? (Including any services)

☐ No ☒ Yes—ensure the nature, location and dimension of proposed works are included in plans submitted

10. Is the payment of a portable long service leave levy applicable to this application? (Refer to notes at the end of this form for more information.)

☒ No—go to question 11 ☐ Yes

10a. Has the portable long service leave levy been paid? (Refer to notes at the end of this form for more information.)

☒ No

☐ Yes—complete Table L and submit, with this application, the local government/private certifier's copy of the accepted QLeave form

Table L		
Amount paid	Date paid (dd/mm/yy)	QLeave project number (6 digit number starting with A, B, E, L, P or S)

11. Has the local government agreed to apply a superseded planning scheme to this application under section 96 of the *Sustainable Planning Act 2009*?

☒ No

☐ Yes—please provide details below

Name of local government	Date of written notice given by local government (dd/mm/yy)	Reference number of written notice given by local government (if applicable)

12. List below all of the forms and supporting information that accompany this application (Include all IDAS forms, checklists, mandatory supporting information etc. that will be submitted as part of this application)

Description of attachment or title of attachment	Method of lodgement to assessment manager
Cover Letter	Electronic
IDAS Forms	Electronic
Owners Consent	Electronic
Planning Report	Electronic
Glare Report	Electronic
Ecology Report	Electronic
Response to the applicable SDAP and CHRC codes	Electronic

13. Applicant's declaration

☒ By making this application, I declare that all information in this application is true and correct (Note: it is unlawful to provide false or misleading information)

Notes for completing this form

- Section 261 of the *Sustainable Planning Act 2009* prescribes when an application is a properly-made application. Note, the assessment manager has discretion to accept an application as properly made despite any non-compliance with the requirement to provide mandatory supporting information under section 260(1)(c) of the *Sustainable Planning Act 2009*

Applicant details

- Where the applicant is not a natural person, ensure the applicant entity is a real legal entity.

Question 1

- Schedule 3 of the Sustainable Planning Regulation 2009 identifies assessable development and the type of assessment. Where schedule 3 identifies assessable development as "various aspects of development" the applicant must identify each aspect of the development on Tables A, B and C respectively and as required.

Question 6

- Section 263 of the *Sustainable Planning Act 2009* sets out when the consent of the owner of the land is required for an application. Section 260(1)(e) of the *Sustainable Planning Act 2009* provides that if the owner's consent is required under section 263, then an application must contain, or be accompanied by, the written consent of the owner, or include a declaration by the applicant that the owner has given written consent to the making of the application. If a development application relates to a state resource, the application is not required to be supported by evidence of an allocation or entitlement to a state resource. However, where the state is the owner of the subject land, the written consent of the state, as landowner, may be required. Allocation or entitlement to the state resource is a separate process and will need to be obtained before development commences.

Question 7

- If the premises is listed on either the Contaminated Land Register (CLR) or the Environmental Management Register (EMR) under the *Environmental Protection Act 1994* it may be necessary to seek compliance assessment. Schedule 18 of the Sustainable Planning Regulation 2009 identifies where compliance assessment is required.

Question 10

- The *Building and Construction Industry (Portable Long Service Leave) Act 1991* prescribes when the portable long service leave levy is payable.
- The portable long service leave levy amount and other prescribed percentages and rates for calculating the levy are prescribed in the Building and Construction Industry (Portable Long Service Leave) Regulation 2013.

Question 10a

- The portable long service leave levy need not be paid when the application is made, but the *Building and Construction Industry (Portable Long Service Leave) Act 1991* requires the levy to be paid before a development permit is issued.
- Building and construction industry notification and payment forms can be completed on the QLeave website at www.qleave.qld.gov.au. For further information contact QLeave on 1800 803 481.

Privacy—The information collected in this form will be used by the Department of Infrastructure, Local Government and Planning (DILGP), assessment manager, referral agency and/or building certifier in accordance with the processing and assessment of your application. Your personal details should not be disclosed for a purpose outside of the IDAS process or the provisions about public access to planning and development information in the *Sustainable Planning Act 2009*, except where required by legislation (including the *Right to Information Act 2009*) or as required by Parliament. This information may be stored in relevant databases. The information collected will be retained as required by the *Public Records Act 2002*.

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Date received		Reference numbers	

NOTIFICATION OF ENGAGEMENT OF A PRIVATE CERTIFIER

To [ ] Council. I have been engaged as the private certifier for the building work referred to in this application

Date of engagement	Name	BSA Certification license number	Building classification/s

QLEAVE NOTIFICATION AND PAYMENT (For completion by assessment manager or private certifier if applicable.)

Description of the work	QLeave project number	Amount paid ($)	Date paid	Date receipted form sighted by assessment manager	Name of officer who sighted the form

The *Sustainable Planning Act 2009* is administered by the Department of Infrastructure, Local Government and Planning. This form and all other required application materials should be sent to your assessment manager and any referral agency.

IDAS form 5—Material change of use assessable against a planning scheme

(*Sustainable Planning Act 2009* version 3.1 effective 3 August 2015)

This form must be used for development applications for a material change of use assessable against a planning scheme.

You **MUST** complete **ALL** questions that are stated to be a mandatory requirement unless otherwise identified on this form.

For all development applications, you must:

- complete *IDAS form 1—Application details*
- complete any other forms relevant to your application
- provide any mandatory supporting information identified on the forms as being required to accompany your application.

Attach extra pages if there is insufficient space on this form.

All terms used on this form have the meaning given in the *Sustainable Planning Act 2009* (SPA) or the Sustainable Planning Regulation 2009.

This form must also be used for material change of use on strategic port land and Brisbane core port land under the *Transport Infrastructure Act 1994* and airport land under the *Airport Assets (Restructuring and Disposal) Act 2008* that requires assessment against the land use plan for that land. Whenever a planning scheme is mentioned, take it to mean land use plan for the strategic port land, Brisbane core port land or airport land.

Mandatory requirements

1. Describe the proposed use. (Note: this is to provide additional detail to the information provided in question 1 of *IDAS form 1—Application details*. Attach a separate schedule if there is insufficient space in this table.)

General explanation of the proposed use	Planning scheme definition (include each definition in a new row) (non-mandatory)	No. of dwelling units (if applicable) or gross floor area (if applicable)	Days and hours of operation (if applicable)	No. of employees (if applicable)
Solar Farm	Renewable Energy Facility		24/7	4-6

2. Are there any current approvals associated with the proposed material change of use? (e.g. a preliminary approval.)

☒ No ☐ Yes—provide details below

List of approval reference/s	Date approved (dd/mm/yy)	Date approval lapses (dd/mm/yy)

3. Does the proposed use involve the following? (Tick all applicable boxes.)

The reuse of existing buildings on the premises	☒ No	☐ Yes
New building work on the premises	☐ No	☒ Yes
The reuse of existing operational work on the premises	☒ No	☐ Yes
New operational work on the premises	☐ No	☒ Yes

Mandatory supporting information

4. Confirm that the following mandatory supporting information accompanies this application

Mandatory supporting information	Confirmation of lodgement	Method of lodgement
All applications		
A site plan drawn to an appropriate scale (1:100, 1:200 or 1:500 are **recommended** scales) which shows the following: • the location and site area of the land to which the application relates (*relevant land*) • the north point • the boundaries of the relevant land • any road frontages of the relevant land, including the name of the road • the location and use of any existing or proposed buildings or structures on the relevant land (note: where extensive demolition or new buildings are proposed, two separate plans [an existing site plan and proposed site plan] may be appropriate) • any existing or proposed easements on the relevant land and their function • the location and use of buildings on land adjoining the relevant land • all vehicle access points and any existing or proposed car parking areas on the relevant land. Car parking spaces for persons with disabilities and any service vehicle access and parking should be clearly marked • for any new building on the relevant land, the location of refuse storage • the location of any proposed retaining walls on the relevant land and their height • the location of any proposed landscaping on the relevant land • the location of any stormwater detention on the relevant land.	☒ Confirmed	
A statement about how the proposed development addresses the local government's planning scheme and any other planning instruments or documents relevant to the application.	☒ Confirmed	
A statement about the intensity and scale of the proposed use (e.g. number of visitors, number of seats, capacity of storage area etc.).	☒ Confirmed	
Information that states: • the existing or proposed floor area, site cover, maximum number of storeys and maximum height above natural ground level for existing or new buildings (e.g. information regarding existing buildings but not being reused) • the existing or proposed number of on-site car parking bays, type of vehicle cross-over (for non-residential uses) and vehicular servicing arrangement (for non-residential uses).	☐ Confirmed ☒ Not applicable	

A statement addressing the relevant part(s) of the State Development Assessment Provisions (SDAP).	☒ Confirmed ☐ Not applicable	
When the application involves the reuse of existing buildings		
Plans showing the size, location, existing floor area, existing site cover, existing maximum number of storeys and existing maximum height above natural ground level of the buildings to be reused.	☐ Confirmed ☒ Not applicable	
When the application involves new building work (including extensions)		
Floor plans drawn to an appropriate scale (1:50, 1:100 or 1:200 are **recommended** scales) which show the following: • the north point • the intended use of each area on the floor plan (for commercial, industrial or mixed use developments only) • the room layout (for residential development only) with all rooms clearly labelled • the existing and the proposed built form (for extensions only) • the gross floor area of each proposed floor area.	☒ Confirmed	
Elevations drawn to an appropriate scale (1:100, 1:200 or 1:500 are **recommended** scales) which show plans of all building elevations and facades, clearly labelled to identify orientation (e.g. north elevation)	☒ Confirmed	
Plans showing the size, location, proposed site cover, proposed maximum number of storeys, and proposed maximum height above natural ground level of the proposed new building work.	☒ Confirmed ☐ Not applicable	
When the application involves reuse of other existing work		
Plans showing the nature, location, number of on-site car parking bays, existing area of landscaping, existing type of vehicular cross-over (non-residential uses), and existing type of vehicular servicing arrangement (non-residential uses) of the work to be reused.	☐ Confirmed ☒ Not applicable	
When the application involves new operational work		
Plans showing the nature, location, number of new on-site car parking bays, proposed area of new landscaping, proposed type of new vehicle cross-over (non-residential uses), proposed maximum new vehicular servicing arrangement (non-residential uses) of the proposed new operational work.	☒ Confirmed ☐ Not applicable	

Privacy—Please refer to your assessment manager, referral agency and/or building certifier for further details on the use of information recorded in this form.

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The *Sustainable Planning Act 2009* is administered by the Department of Infrastructure, Local Government and Planning. This form and all other required application materials should be sent to your assessment manager and any referral agency.

IDAS form 7—Reconfiguring a lot

(*Sustainable Planning Act 2009* version 3.2 effective3 August 2015)

This form must be used for development applications or requests for compliance assessment for reconfiguring a lot.

You **MUST** complete **ALL** questions that are stated to be a mandatory requirement unless otherwise identified on this form.

For all development applications, you must:

- complete *IDAS form 1—Application details*
- complete any other forms relevant to your application
- provide any mandatory supporting information identified on the forms as being required to accompany your application.

For requests for compliance assessment, you must:

- complete IDAS form 32—Compliance assessment
- Provide any mandatory supporting information identified on the forms as being required to accompany your request

Attach extra pages if there is insufficient space on this form.

All terms used on this form have the meaning given in the *Sustainable Planning Act 2009* (SPA) or the Sustainable Planning Regulation 2009.

Mandatory requirements

1. What is the total number of existing lots making up the premises?	**2**

2. What is the nature of the lot reconfiguration? (Tick all applicable boxes.)

- ☒ subdivision—complete questions 3–6 and 11
- ☐ boundary realignment—complete questions 8, 9 and 11
- ☒ creating an easement giving access to a lot from a constructed road—complete questions 10 and 11
- ☒ dividing land into parts by agreement—please provide details below and complete questions 7 and 11

3. Within the subdivision, what is the number of additional lots being created and their intended final use?

Intended final use of new lots	Residential	Commercial	Industrial	Other—specify
Number of additional lots created				2

4. What type of approval is being sought for the subdivision?

- ☒ Development permit
- ☐ Preliminary approval
- ☐ Compliance permit

5. Are there any current approvals associated with this subdivision application or request?
(E.g. material change of use.)

☒ No ☐ Yes—provide details below

List of approval reference/s	Date approved (dd/mm/yy)	Date approval lapses (dd/mm/yy)

6. Does the proposal involve multiple stages?

☐ No—complete Table A ☒ Yes—complete Table B

Table A

a)	What is the total length of any new road to be constructed? (metres)	Nil
b)	What is the total area of land to be contributed for community purposes? (square metres)	Nil

c) Does the proposal involve the construction of a canal or artificial waterway?

☒ No ☐ Yes

d) Does the proposal involve operational work for the building of a retaining wall?

☒ No ☐ Yes

Table B—complete a new Table B for every stage if the application involves more than one stage

a)	What is the proposed estate name? (if known and if applicable)	Nil
b)	What stage in the development does this table refer to?	1
c)	If a development permit is being sought for this stage, will the development permit result in additional residential lots?	
	☒ No ☐ Yes—specify the total number	
d)	What is the total area of land for this stage? (square metres)	180ha
e)	What is the total length of any new road to be constructed at this stage? (metres)	Nil
f)	What is the total area of land to be contributed for community purposes at this stage? (square metres)	Nil

g) Does the proposal involve the construction of a canal or artificial waterway?

☒ No ☐ Yes

h) Does the proposal involve operational work for the building of a retaining wall?

☒ No ☐ Yes

Table B—complete a new Table B for every stage if the application involves more than one stage

a)	What is the proposed estate name? (if known and if applicable)	Nil
b)	What stage in the development does this table refer to?	2
c)	If a development permit is being sought for this stage, will the development permit result in additional residential lots?	
	☒ No ☐ Yes—specify the total number	

d)	What is the total area of land for this stage? (square metres)	152ha
e)	What is the total length of any new road to be constructed at this stage? (metres)	Nil
f)	What is the total area of land to be contributed for community purposes at this stage? (square metres)	Nil

g) Does the proposal involve the construction of a canal or artificial waterway?

☒ No ☐ Yes

h) Does the proposal involve operational work for the building of a retaining wall?

☒ No ☐ Yes

7. Lease/agreement details—how many parts are being created and what is their intended final use?

Intended final use of new parts	Residential	Commercial	Industrial	Other—specify
Number of additional parts created				2

8. What are the current and proposed dimensions following the boundary realignment for each lot forming the premises?

Current lot			**Proposed lot**		
Lot plan description	Area (square metres)	Length of road frontage	Lot number	Area (square metres)	Length of road frontage

9. What is the reason for the boundary realignment?

10. What are the dimensions and nature of the proposed easement? (If there are more than two easements proposed please list in a separate table on an extra page and attach to this form.)

Width (m)	Length (m)	Purpose of the easement (e.g. pedestrian access)?	What land is benefitted by the easement?
10	**1,800**	**Access**	**Proposed Lot 1 and 2**

Mandatory supporting information

11. Confirm that the following mandatory supporting information accompanies this application or request

Mandatory supporting information	**Confirmation of lodgement**	**Method of lodgement**
All applications and requests for reconfiguring a lot		
Site plans drawn to an appropriate scale (1:100, 1:200 or 1:500 are the **recommended** scales) which show the following: • the location and site area of the land to which the application or request relates (***relevant land***) • the north point	☒ Confirmed	

• the boundaries of the relevant land • any road frontages of the relevant land, including the name of the road • the contours and natural ground levels of the relevant land • the location of any existing buildings or structures on the relevant land • the allotment layout showing existing lots, any proposed lots (including the dimensions of those lots), existing or proposed road reserves, building envelopes and existing or proposed open space (note: numbering is required for all lots) • any drainage features over the relevant land, including any watercourse, creek, dam, waterhole or spring and any land subject to a flood with an annual exceedance probability of 1% • any existing or proposed easements on the relevant land and their function • all existing and proposed roads and access points on the relevant land • any existing or proposed car parking areas on the relevant land • the location of any proposed retaining walls on the relevant land and their height • the location of any stormwater detention on the relevant land • the location and dimension of any land dedicated for community purposes • the final intended use of any new lots.		
For a development application – A statement about how the proposed development addresses the local government's planning scheme and any other planning documents relevant to the application. For a request for compliance assessment – A statement about how the proposed development addresses the matters or things against which the request must be assessed.	☒ Confirmed	
A statement addressing the relevant part(s) of the State Development Assessment Provisions (SDAP).	☒ Confirmed ☐ Not applicable	

Notes for completing this form

- For supporting information requirements for requests for compliance assessment, please refer to the relevant matters for which compliance assessment will be carried out against. To avoid an action notice, it is recommended that you provide as much of the mandatory information listed in this form as possible.

Privacy—Please refer to your assessment manager, referral agency and/or building certifier for further details on the use of information recorded in this form.

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Date received		Reference numbers	

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Attachment B

OWNER'S CONSENT

Individual owner's consent to the making of a development application under the *Sustainable Planning Act 2009*

I, Col Goodwin *[insert name in full]*

as owner of premises identified as Lot 79 on SP238443 consent to the making of a development application under the *Sustainable Planning Act 2009* by *Bluff Solar Farm Pty Limited (Infigen Energy Pty Lty) C/- Environmental Resources Management Australia Pty Ltd* on the premises described above for the purposes of making a **Development Application for Material Change of Use – Renewable Energy Facility and Reconfiguring a Lot (subdivision by lease agreement)**.

C.W. Goodwin *[signature of owner]*

signed on the 28th day of Feb 20 17

Bluff Solar Farm Pty Limited
Level 22, 56 Pitt Street
Sydney QLD 2000

Sent via email: jang.kim@infigenenergy.com

6 April 2017

W234 INFIGEN ENERGY USE OF PRIVATE CROSSING ID 5612 TECHNICAL APPROVAL

Dear Sir/Madam,

Aurizon Network Pty Ltd (**Aurizon Network**) has completed the technical due diligence review of Bluff Solar Farm Pty Limited's (**the Applicant**) request to use private level crossing ID 5612 located at 173.258KM on the Central Line on Lot 723 on Plan SP129824 for the purpose of accessing their proposed solar farm (**the Use**).

DOCUMENTATION

The technical review is based on the information provided by Infigen as summarised below:

Project Phase	Average number of vehicles per day	Percentage of heavy vehicles
Construction (12 months)	60	50%
Operational (ongoing)	2	0%

	Height	Length	Width	Axle load
Maximum vehicle specifications	3.94m	19m	2.5m	105T (total)

NO OBJECTION — CONDITIONAL

Aurizon Network has no technical objection to the Use based on the information provided by the Applicant and subject to compliance with the conditions stated below.

CONDITIONS

Confirm Infigen has permission to enter/use the land on the other side of the crossing for the duration of the Crossing Deed.

The Crossing Deed between the Applicant and Aurizon Network must be executed by both parties prior to the commencement of the Use. This can be arranged through Corridor Enquiries.

Jointly participate and sign an Interface Risk Management Plan for the safe use of the crossing (requirement of the Crossing Deed). Aurizon Network will work with you to draft and maintain the document.

Engage traffic control to be present at the crossing for the three (3) month construction period of the solar farm. Please note that this is a special permission that has been risk assessed and deemed acceptable based on the data provided and the defined timeframe.

Notify Aurizon Network prior to any increase in traffic data during either construction or operational phases.

Notify Aurizon Network prior to any increase in duration of the construction period of the solar farm.

Ensure no near miss or incident occurs as a result of the Applicant's traffic.

If there is a change, Aurizon Network will need to reassess to identify if an infrastructure change is triggered. Any identified infrastructure change as a result will be at the cost of the Applicant.

CONTACT

Aurizon Network Corridor Enquiries
Victoria Liddell, Governance Analyst, (07) 3019 2220, CorridorEnquiries@aurizon.com.au

Kind regards,

Mariese Murphy
Team Leader Network Assets Integration

Signed for and on behalf of **Aurizon Network Pty Ltd ACN 132 181 116** by an authorised representative in the presence of

Signature of authorised representative

Signature of witness

Name of authorised representative (print)

Name of witness (print)

Position held

Date

Signed for and on behalf of **Bluff Solar Farm Pty Limited** by an authorised representative in the presence of

Signature of authorised representative

Signature of witness

JOHN CHRISTIAN MURRAY BAVEYSTOCK

Name of authorised representative (print)

Name of witness (print)

Position held

Date