Ross River Solar Farm Pty Ltd
22-Feb-2016

Ross River Solar Farm Town Planning Report

Material Change of Use for a Renewable Energy Facility

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Client: Ross River Solar Farm Pty Ltd

ABN: N/A

Prepared by

AECOM Australia Pty Ltd
21 Stokes Street, PO Box 5423, Townsville QLD 4810, Australia
T +61 7 4729 5500 F +61 7 4729 5599 www.aecom.com
ABN 20 093 846 925

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Prepared by Colette Hayes

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Revision	Revision Date	Details	Authorised	
			Name/Position	Signature
A	22-Feb-2016	Final for lodgement	Rouven Lau Project Manager	

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1.0 Introduction

AECOM Australia Pty Ltd has prepared this town planning report on behalf of Ross River Solar Farm Pty Ltd (the Applicant) to provide supporting information for a Development Application to Townsville City Council for a Material Change of Use (Renewable Energy Facility) for the Ross River Solar Farm Development (the Project). The Project is planned over 99 Kelso Drive, Pinnacles, legally described as lot 2 SP195322.

The Applicant seeks to deliver Townsville's first large scale solar development, to provide a sustainable and renewable source of energy for the region. The construction of the solar development will provide economic stimulus and social benefit to the Townsville region and provide employment during the construction, operational and decommissioning stages of the project. This Project is ecologically sustainable and at the forefront of aiding Townsville in achieving a high proportion of solar energy generation and supporting Townsville City Council's goal of being a solar city.

1.1 Scope of Development Application

This report has been prepared to collate, present and evaluate the proposed development against the requirements of the *Sustainable Planning Act 2009* and the Townsville City Council *City Plan 2014* for the consideration of the Assessment Manager and Referral Agency. This report sets out a description for the proposal and its context and provides an evaluation of the proposal against the relevant assessment matters set out in the *City Plan 2014* and other associated assessment criteria pertinent to the application.

The Development Application seeks a Development Permit for a Material Change of Use for a 135MW Solar Farm (Renewable Energy Facility). In accordance with the *Sustainable Planning Act 2009* and Townsville City Council *City Plan 2014*, the application is Impact Assessable.

An overview of the subject site and Development Application is provided in the following table:

Table 1 Summary of the Development Application

Summary	
Site Details	
Lot on Plan	2 SP195322
Site Address	99 Kelso Drive, Pinnacles
Tenure / Easements	Freehold / A/RP725991 Easement in Gross burdening the land to the Queensland Electricity Transmission Corporation Limited (Powerlink)
Registered Owner	Michael John Sacilotto and Angela Ellen Sacilotto
Lease Arrangements	30 year lease
Current Use	Disused mango farm
Zoning / Precinct	Rural Zone / Mixed Farming Precinct
Size	238 ha
Application Details	
Applicant	Ross River Solar Farm Pty Ltd
Proposed Development	Installation of a 135MW solar farm and ancillary infrastructure
Application Type	Development Permit – Material Change of Use (Renewable Energy Facility)
Level of Assessment	Impact Assessment under the *City Plan 2014*
Assessment Manager	Townsville City Council as per Schedule 6, Table 1, Item 1(a)(i) of the *Sustainable Planning Regulation 2009*
Referral Agencies	Powerlink under Schedule 7, Table 3, Item 7 (a)(b) of the *Sustainable Planning Regulation 2009*.

1.2 Supporting Documentation

The following technical reports and documentation has been included in support of this Development Application.

- Development Plans (Appendix A)
- IDAS Forms (Appendix B)
- Current Title Search (Appendix C)
- Connection Strategy (Appendix D)
- Generation Simulation (Appendix E)
- Assessment against the *City Plan 2014* assessment criteria (Appendix F - Appendix L)
- Flood Impact Assessment (Appendix M)
- Engineering Services Report (Appendix N)
- Glint and Glare Assessment (Appendix O)
- Visual Amenity Assessment (Appendix P)
- Landscape Concept Plans (Appendix Q)
- Pre-lodgement Advice (Appendix R).

1.3 Contact

The Applicant contact for this Application is:

Colette Hayes
Planner
AECOM Australia Pty Ltd
PO Box 5423 Townsville QLD 4810
Phone: 4720 1730
Email: colette.hayes@aecom.com

2.0 Existing Site

The site is located on Kelso Drive, Pinnacles, which is wholly contained in the Townsville City Council Local Government Area. It is formally described as Lot 2 SP195322 and has a total area of 239 ha (approx.). The Applicant has a lease over 202.9 ha of the site, which is the subject of this development application.

The subject site is located approximately 20 kilometres from the Townsville Central Business District and one kilometre from the Ross River Dam (Figure 1). The site is adjacent to Kelso Drive which acts as a border between Pinnacles and Kelso, two fringing suburbs of Townsville.

The eastern site boundary is defined by electricity pylons associated with a Powerlink easement. The northern site boundary is defined by the beginning of Round Mountain Road and a triangle of remnant vegetation including tall trees. Beyond this lies Kelso Drive and an area of large acreage properties accessed off Kelso Drive. To the north-east lies Bartlett Park which includes horse-riding facilities. The western boundary is formed by Round Mountain Road. Round Mountain Road is an unsealed road used to access a small rural farmstead lying to the west and south west of the site.

The site is a disused mango farm, currently being used for ad-hoc cattle grazing. There is minimal economic value associated with the current use. Land use in the surrounding area is described in Section 5.1.

The site has a road frontage to Round Mountain Road, Pinnacles (Unsealed, 3 km approx.); Laudham Road, Pinnacles (Unsealed, 1.6 km approx.); Kelso Drive, Kelso (Sealed, 150 m approx.).

The Site is relatively flat, between approximately 30 and 35m AHD and slopes very gently up to the south-west. A small portion of the south west corner of the site is a small tributary of the Bohle River which runs diagonally through the site, however this is excluded from the lease area and does not form part of this application.

The Certificate of Title (Appendix C) states that the registered owner of the site is Michael John Sacilotto and Angela Ellen Sacilotto. IDAS Form 1 has been signed by the landowner consenting to the lodgement of the application by Ross River Solar Farm Pty Ltd and is provided in Appendix B. The Certificate of Title (Ref. No. 50660914) states there are easements on the land (Appendix C). Ross River Solar Pty Ltd has an option for a 30 year lease over the site for the purpose of developing a solar farm.

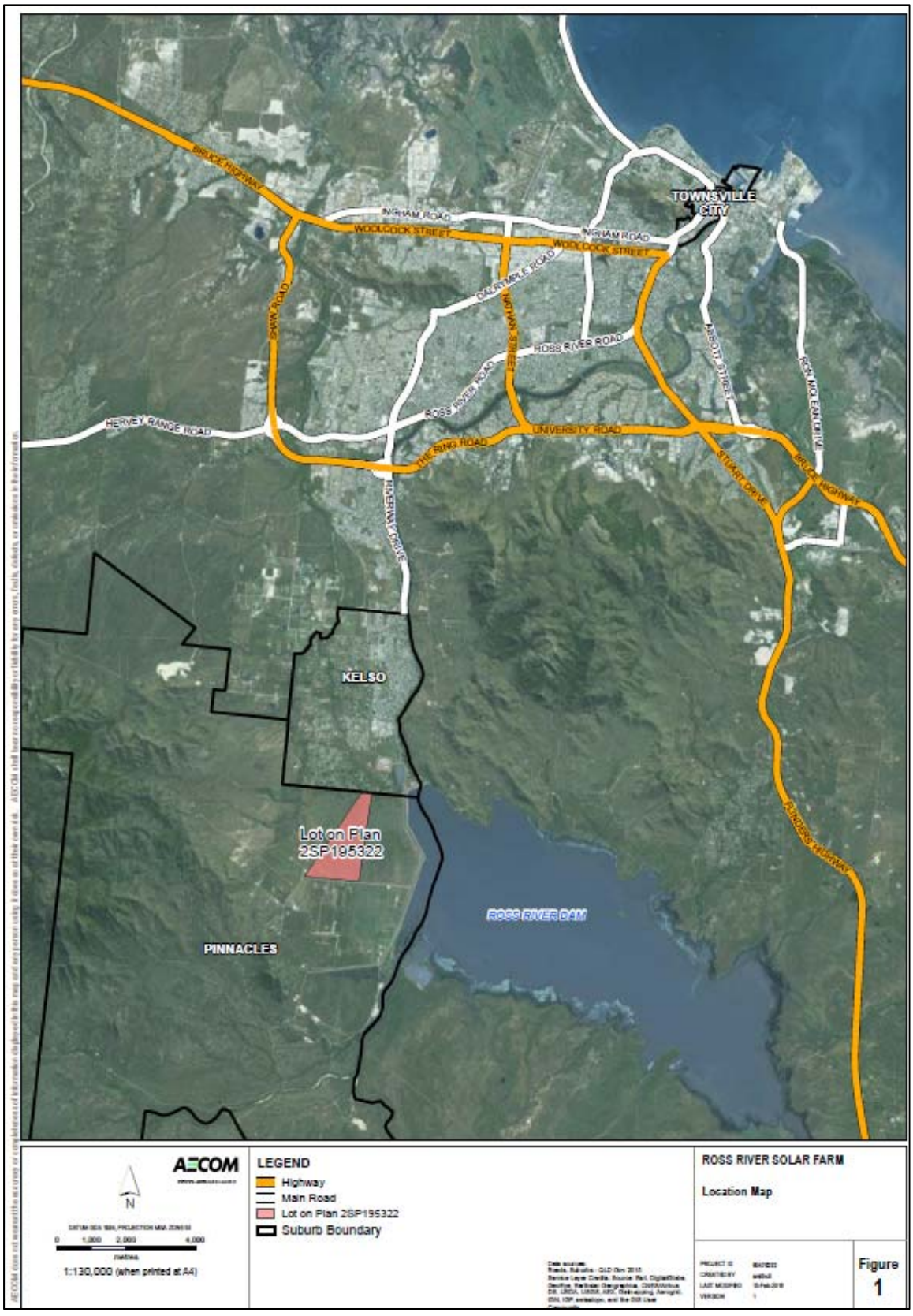

Figure 1 Locality Map

3.0 Development Details

3.1 Background

The Applicant is Ross River Solar Farm Pty Ltd, a subsidiary of ESCO Pacific, a leading Australian developer of utility scale solar farms. The business was incorporated in 2015 to capitalize on a narrow window of opportunity to develop renewable energy assets under the recently revised Australian Renewable Energy Target.

The Ross River Solar Farm development is a 135 MW utility scale renewable energy project that will generate clean and renewable electricity from the power of the sun. The $225 million project will be located at the boarder of Pinnacles and Kelso, on a disused mango plantation. Townsville has been chosen because of the high solar irradiance in the region, and its average 320 days of sunshine annually.

The site offers proximity to the grid connection point at the Ross River Bulk Supply Substation. The substation is a significant 'hub' in north Queensland. It is supplied by three 275kV lines from the south. Two 275kV lines go north from Ross substation to supply approximately 240 MW into Far North Queensland. A number of 132kV lines emanate from the substation and supply approximately 300 MW into the broader Townsville area.

The solar farm will comprise approximately 450,000 crystalline solar photovoltaic modules, known more commonly as 'PV Modules' or 'solar panels'. The solar panels are identical in type but larger in size to those used in residential solar installations located commonly throughout Australia.

The Solar Farm is a large infrastructure project and is expected to create approximately 150 jobs during construction and 5 full time and 10 part time positions when operational.

Ross River Solar Farm Pty Ltd will investigate opportunities to integrate sustainability-focused education platforms targeted at schools and the broader community as part of the project. The Applicant will also endeavour to become part of the existing Townsville Sustainability network and play a part in promoting Townsville as a hub for sustainable enterprise and education.

The solar panels will be installed on ground-mounted frames that will slowly track the daily horizontal movement of the sun. The solar panels will generate direct current ("DC") electricity that will be inverted to alternating current ("AC") via containerized power conversion units. There will be approximately 70 power conversion units located within the site that will feed AC electricity into an onsite power reticulation system before the power is centrally collected and dispatched to the local electricity distribution network via the Ross River Bulk Supply Substation.

3.2 Project Description

Development Plans are provided in Appendix A. The Project is conceived as a utility scale solar PV plant, with the solar panels mounted in rows on horizontal tracking or fixed tilt systems.

The rows of solar panels are electrically connected into arrays before being inverted from DC to AC electricity, which is the standard form of electricity used throughout Australia. Electricity is then fed, via an underground on site high voltage power reticulation system, into the local electricity network.

Key elements of the development include:

- Solar panels, installed in regular arrays.
- Each solar panel would be fixed to a metal mounting structure. The mounting structure would be piled or screwed into the ground without the need for any concrete. The mounting structure will slowly and silently track (in a single axis) the horizontal movement of the sun. There is an alternative option to install a fixed tilt mounting structure. Both mounting structure options would not exceed 3.0m in height.
- Aboveground DC cabling that will connect each module in a string (approximately 425,000 modules) to field combiner boxes mounted underneath the solar panels. The combiner boxes would sit approximately 1.0m off the ground.
- Underground DC cabling from the combiner boxes to the central inverters.
- Central inverters, step up transformers and switchgear in 40ft containers or container skid pads (power conversion unit or PCU) within each array block which convert DC electricity generated by the solar panels into AC electricity for connection to the national electricity grid.
- Underground AC cabling running from the PCUs to the solar substation.

- A main step up transformer and associated equipment in the solar substation to convert on site AC reticulated 33kV electricity to 132kV electricity for connection to the local electricity network.
- A new buried cable 132kV transmission line approximately 800 m long to connect the Project to the Ross River Bulk Supply Substation.
- Internal access tracks from the entrance point to each PCU and to the solar substation to allow for maintenance of the site.
- Perimeter safety fencing around the site and fixed CCTV system within the fence perimeter of the site.
- Supervisory control and data acquisition (SCADA) control system to monitoring performance of the equipment.
- Site office and maintenance building.
- Temporary infrastructure associated with site construction including the site compound and storage areas.

A proposed connection strategy to the electricity network is provided in Appendix D.

3.3 Infrastructure and Services

An Engineering Services Report has been prepared and provided in Appendix N. The purpose of this report is to identify, address and document engineering issues associated with construction of the proposed solar farm.

The reports aims to identify how the proposed development will meet engineering objectives and outcomes outlined in the *City Plan 2014*, planning scheme policies, design standards, guidelines and engineering best practice. The report includes a Traffic Impact Assessment and details on site works, access, parking, stormwater drainage, and water and sewer reticulation.

3.4 Landscaping

A concept landscape design report is included in Appendix Q. Landscaping works will comprise of a 10m deep vegetated buffer along the entire northern and southern boundaries of the site. The proposed landscape design along Kelso Drive, and Laudham Road is used to mitigate any potential adverse aesthetic impacts, of the proposed development and to provide low and mid-level landscape screening to each street frontage.

Species selection for the landscape design consists of both native and endemic screening shrubs and groundcovers. The proposed selection is intended to develop an approximate height of 4m and dense ground coverage within 2 years of planting to provide screening to service elements and enhance the appearance of the development.

4.0 Construction and Operation

4.1 Construction activities

The construction process for the project involves the following activities:

- Site access and establishment.
- Civil works: clearing of the disused mango planation, limited grading, compaction, stormwater drainage and sediment controls and dust suppression.
- Installation of the mounting structures: rows of driven piles will be pneumatically driven into the ground using specialist equipment, steel mounting structures would then be attached to the piles. If required ground screws may replace the need for driven piles.
- Installation of the solar panels onto the mounting structures.
- Installation and connection of the solar panels to the combiner boxes.
- Installation of the power conversion stations.
- Connection of the combiner boxes to the power conversion stations and underground cabling and connection of the power conversion stations to form the onsite power reticulation system to evacuate power from the site.
- Grid connection works taking power from the onsite reticulation system to the local electricity grid.
- Commissioning and testing.

Construction vehicle movements are described in Appendix N. The logistics plan for the development are yet to be determined. It is anticipated that only the main transformer delivery will require an oversized permit. All other heavy vehicles movements are anticipated to be within mass limits (with reference to Heavy Vehicle (Mass, Dimension and Loading) National Regulation) however loading and wheel configurations are not yet known for all equipment deliveries.

4.2 Construction timeline

The project planning, contracting and procurement of the Project has commenced and is expected to continue until December 2016. It is proposed that the Applicant will enter into an Engineering Procurement Construction (EPC) contract with a suitably qualified contractor for the design and construction of the Project.

The physical construction works for the Project is anticipated to begin in January 2017, after further site investigation works, project delivery planning, detailed design and development of construction management plans. The projected timing is subject to the outcome of the planning process, granting of the project approval, grid connections and discussion with stakeholders. Construction of the Project is anticipated to take approximately 9 months.

Construction activities would be undertaken during standard hours for construction works. Any construction or commissioning activities outside of these standard working hours would require approval from relevant authorities. Any affected local residences would be informed of the timing and duration of the proposed activities, prior to the commencement of any works.

4.3 Operation

The project is anticipated to operate for approximately 30 years. A minimal number of personnel would be required for the operation and maintenance of the project. It is expected that the Project would require up to five full time and ten part time personnel to manage day-to-day operations and maintenance activities.

Operational activities involve remote monitoring of equipment on a daily basis, full servicing of inverters and substation equipment on a quarterly basis and cleaning of the solar panels at regular intervals depending on how the system performs benchmarked to weather conditions. There will be no storage of hazardous or dangerous goods or materials on site during the operation of the project.

Generally it is expected that the solar panels would need cleaning on average four times during any calendar year. Any water required for cleaning of the panels will be brought in from offsite. A generation simulation for the solar panel operational capacity is provided in Appendix E.

5.0 Site Characteristics and Potential Impacts

5.1 Land Use

The site is currently a disused mango farm, holding approximately 190 ha of mango trees (Figure 2). A small portion of the south west corner of the site is a small tributary of the Bohle River which runs diagonally through the site.

The surrounding land is predominantly medium sized parcels of grazing land and native vegetation and some smaller sized parcels of cropping and horticulture land. Adjacent the site, across Kelso Drive, is a low density residential estate, with lots averaging approximately 4,000m^2; and open space land. The Ross Bulk Supply Station is also within 1 km to the north of the site.

The previous agricultural use of the site means that the surrounding land uses, the size of the site and adjoining landholdings are all of a nature which is compatible with the proposed solar facility. The operational life of the Project is expected to be approximately 30 years. As such, the solar farm facility will not affect the long term ability for the site to be used for agricultural purposes. Additionally, during the operation of the Project there is potential for sheep to be grazed on site.

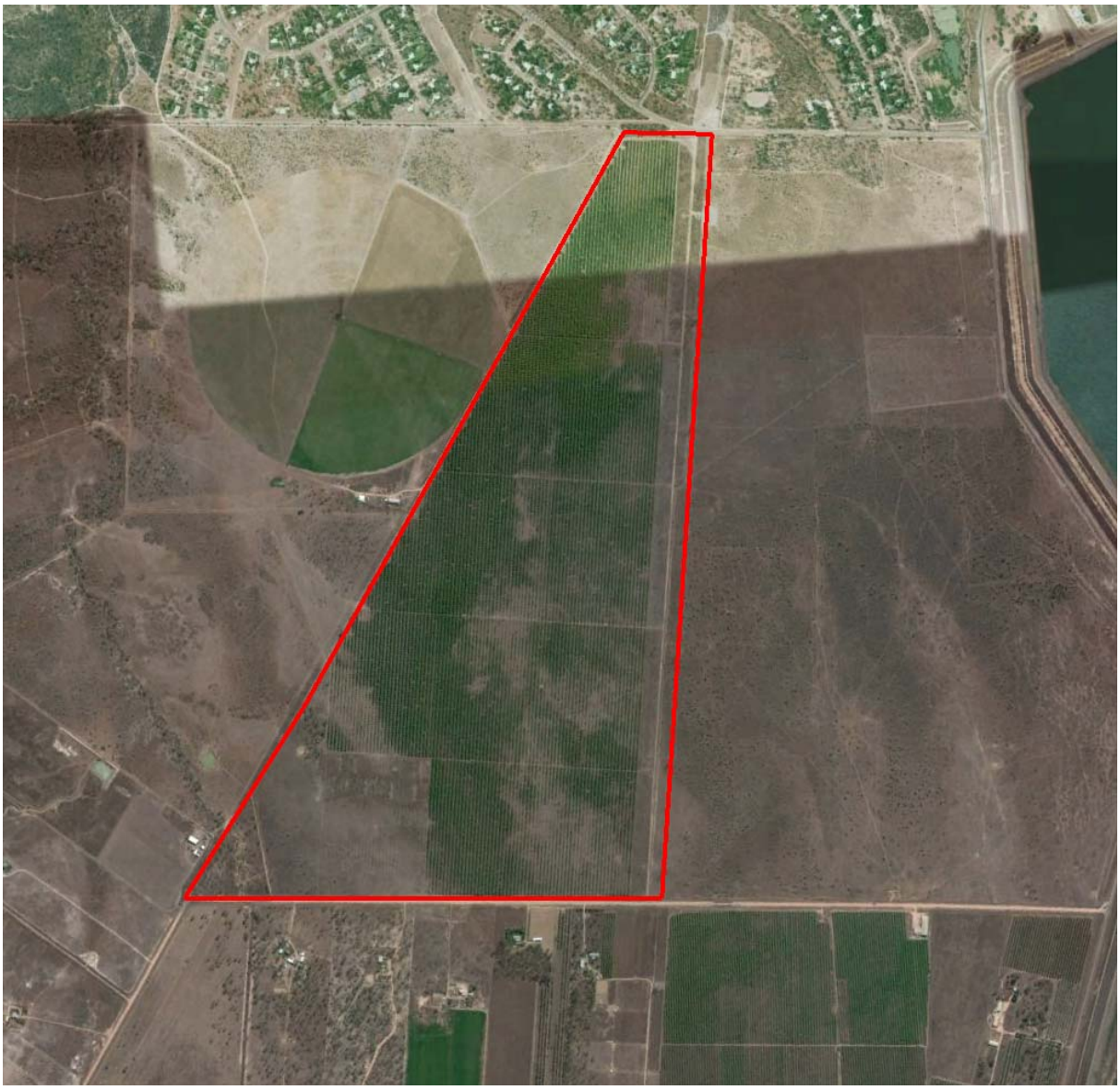

Figure 2 Aerial of Subject Lot, Source: Google Earth Pro, 2015

5.2 Glint and Glare

A Glint and Glare Assessment was undertaken for the proposed project and is provided in Appendix O. The assessment modelled both potential technologies, being the fixed tilt and the single access tracking. The assessment was undertaken to determine if the solar farm would impact on any surrounding sensitive receptors.

Glare is caused by a significant contrast between a light source and ambient/background illuminance. Glare is usually described as direct sunlight or reflected sunlight from a surface for a continuous period. Solar PV panels are designed to absorb as much light as possible to maximise power generation, however because of their glass front and metal frames, it is inevitable that some reflection of sunlight will occur. Glint is usually defined as a brief flash of light that can cause discomfort to the viewer.

The hazards can be defined as low, moderate or high, depending on the potential to cause eye damage. The following definitions are provided for the glare hazards:

- Low Potential Hazard: Indicates there is glare present however only a low potential for a temporary afterimage (a lingering image of the glare in the field of view). This hazard is shown green on the glare potential plots.
- Moderate Potential Hazard: Indicates that there is glare present with the potential to leave a temporary after-image of the glare. This hazard is shown yellow on the glare potential plots.
- High Potential Hazard: Indicates that there is glare present with the potential for permanent eye damage if observed. This hazard is shown red on the glare potential plots.

Five (5) Observation Points (OP) were modelled for both single access and tracking systems, refer Figure 3. Table 2 presents the results of the modelling for each OP. A Visual Impact Assessment has also been produced to assess the visual impact of the development (refer Appendix P) and helps to quantify any potential visual impacts that may arise from the development.

Table 2 Modelling Results

OP#	Single Access Tracking	Fixed Tilt
OP1	No glare	Moderate potential hazard only between the months November – February, prior to 7 am in the mornings for up to 40 minutes each day.
OP2	Low potential hazard[1] from October March which will occur in the morning, prior to 6:30 am, for short durations up to 15 minutes.	Low potential hazard from September- March which will occur in the evening, after 5:45 pm, for up to 30 minutes each day.
OP3	Low potential hazard[2] at intermittent times throughout the year occurring for short durations of up to 15 mins in the mornings prior to 7:00 am.	Low potential hazard from the fixed tilt solar array from September- April which will occur in the evening, after 5:45 pm, for up to 30 minutes each day.
OP4	Low potential hazard which occurs throughout the entire year in the evenings after 5:00 pm. The duration of the glare appears consistent throughout the year for a period of up to 30 minutes.	Low potential hazard[3] in the morning of early October, for up to 5 minutes.
OP5	Low potential hazard all year round. The glare is present after 5:00 pm for up to 30 minutes each day.	Moderate potential hazard only between the months September – April, prior to 7:15 am in the mornings for up to 45 minutes each day.

[1] The results show the hazard is not regular but rather intermittent in nature and there the actual hazard is very low.
[2] The results show the hazard is not regular but rather intermittent in nature and there the actual hazard is very low.
[3] The results show the hazard is not regular but appears as a one off occurrence, possibly indicating the limitations of the modelling. Given the low occurrence glare from this observation point could be interpreted as negligible.

Single Access Tracking

The results show that the single access tracking system has an overall lower impact than that of the fixed tilt system. The low potential hazard expected at OP2 and OP4 may be mitigated by the proposed landscaping (refer Appendix O) along the northern and southern boundaries of the site.

The model does not take into account any existing vegetation, buildings or topographical features that may exist between the solar panels and the OP. It is expected that the low potential hazard expected at OP3 will be at least partly mitigated by the existing native vegetation between OP3 and the site.

Results show that OP5 may incur a low potential hazard all year round for up to 30 minutes each day. Agreements between the Applicant and the landowner of the sensitive receptor at OP5 have been made and a portion of land (including mango trees) has been excluded from the lease adjacent to this sensitive receptor in order to provide a screening and privacy.

Fixed Tilt

The modelling shows that a fixed tilt system exhibits a low potential hazard at OP2, OP3 and OP4. As per the single access tracking system, this may be mitigated by the proposed landscaping and existing natural vegetation between the OP and the site.

Moderate potential hazard is expected at OP1 and OP5. OP1 is located in the northwest corner of the site. Natural vegetated screening exists between this OP and the nearby sensitive receptors being a low density residential estate. As per the single access tracking system, an agreement between the Applicant and the landowner of the sensitive receptor at OP5, a portion of the development site has been excluded from the lease for screening and privacy purposes.

Potential impact to Airport / Flight paths

Given the proximity of the Townsville aerodrome is more than 17 km from the Project, the solar farm is not expected to create glare issues for aircraft or air controllers. In correspondence with AECOM, the Civil Aviation Services Authority (CASA) have indicated that aircraft approaching Townsville aerodrome from the south will not be facing the front of the panels, and aircraft taking off toward the south will have a nose high attitude and pilots are unlikely to see the panels. CASA also noted that the Project site is adjacent to Ross River Dam which is more likely to create a glare hazard than the solar farm particularly given solar panels are designed to absorb light rather than reflect it.

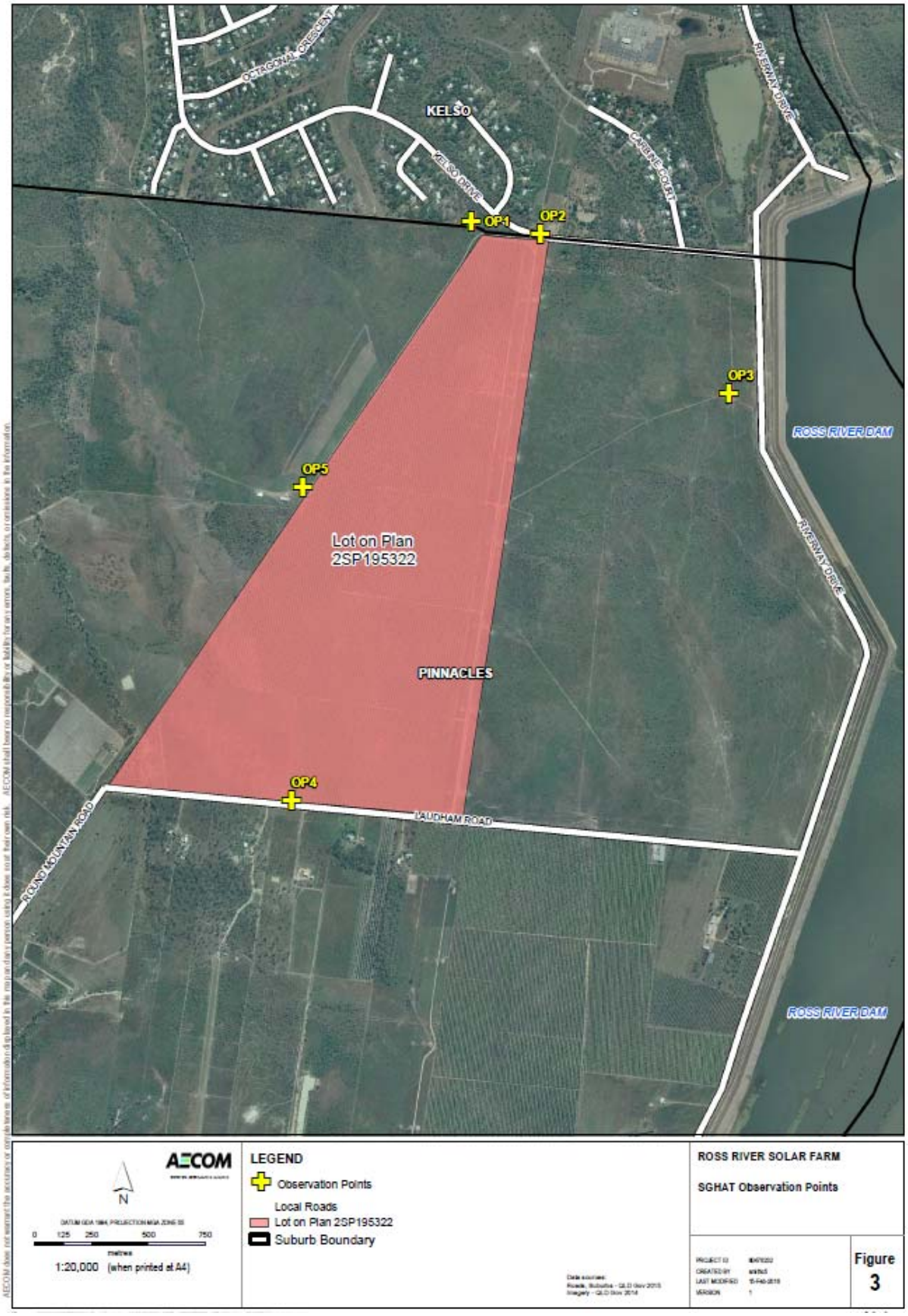

Figure 3 Observation Points

5.3 Stormwater and Flooding

The Flood Hazard Assessment of the proposed development on the subject site was undertaken with an updated flood model for the Upper Bohle area. This assessment is provided in Appendix M. Results of flood modelling showed that the proposed development is not expected to cause any significant adverse flooding impacts on surrounding properties as the estimated afflux is less than 0.01m during 1% AEP event. In addition, the change inflow velocity was also found to be negligible (<0.05 m/s).

This report demonstrates that the proposed development complies with the *City Plan 2014* Flood Hazard Overlay Code requirements (refer Appendix G). The proposed development is expected to maintain the safety of people and minimise the potential damage to property from flood events on the development site.

During the design process the location of the proposed switchgear transformer and control envelope was moved outside of the high hazard area to both minimise the impact of filling in this area and to minimise the filling required. The building floor levels and pad level for the switchgear transformer should be above 1% AEP flood level (29.25 m AHD).

All electrical infrastructure susceptible to impacts from flooding should be constructed above the 1% AEP flood level which has been provided at various locations across the site.

The flood immunity for Round Mountain Road and Laudham Road is estimated to be less than a 5% flood event. Peak water depth for the 1% AEP event is generally less than 0.3 m in the proposed site. For these reasons, construction of the access road at just above the natural surface is considered an appropriate solution to maximise flood storage while providing a reasonable level of flood immunity.

5.4 Visual Amenity

A Landscape and Visual Impact Assessment has been undertaken and provided in Appendix P. The assessment considered the impacts on the Site and surrounding landscape are likely to be of up to moderate significance which is typically considered ‘not significant’. This is largely due to the relatively low scale of the development (3.0m), relatively flat nature of the site and the consequent likely effectiveness of the screening provided by proposed buffer planting.

The proposal is of a scale and appearance that is likely to be compatible with development in adjacent zones and maintain the integrity of significant views and vistas. It is noted that from most locations assessed, once the proposed boundary vegetation has matured (within approximately four or five years), the proposal will be less visually prominent than the existing electricity transmission infrastructure located along the eastern boundary of the site. While the assessment has taken the precautionary principle in assuming that the impacts will be considered ‘negative’, it is likely that some viewers will find solar panels – which are not yet a common sight in Queensland landscape – a point of visual interest.

5.5 Air Quality

Some minor impacts to air quality are likely to occur during the construction period. Dust generated from construction activities, including vehicle movements may be generated, however this will be managed in accordance with a Construction Environmental Management Plan developed prior to construction.

Construction activities will be undertaken with the objective of preventing visible emissions of dust from the site. Should visible dust emissions from the construction period occur, the construction contractor will identify and implement all practicable mitigation measures within the Construction Environmental Management Plan.

The operation of the Project will not impact on the air quality of the area. The solar panels are fixed to the site and will not generate any airborne dust.

5.6 Noise

Noise will be generated during the construction of the Project. Construction activities would be undertaken during standard hours for construction works. Any construction or commissioning activities outside of these standard working hours would require approval from relevant authorities. Any anticipated noise impacts during construction will be managed through a Construction Environmental Management Plan.

Solar farms are typically very silent during the operation phase, with no noise nuisance expected.

5.7 Ecology

The majority of the site is not mapped as assessable native vegetation. The site is made up of old mango plantation trees. A small portion of the southwest corner of the site is mapped are Category R vegetation. This portion of the site includes a small tributary of the Bohle River runs through a small portion of the southwest corner of the site. The waterway is mapped as an area of "high" ecological importance on the Natural Assets Overlay Map. This portion of the site has been excluded from the lease and therefore will be fenced off from the solar farm portion of the site. It is not anticipated that the solar farm development will impact on the waterway.

The site does not include any mapped essential habitat and based on the existing and surrounding land uses is unlikely to provide suitable habitat for any species of conservation significance.

6.0 Planning Assessment

6.1 Strategic Assessment

The following section assesses the development against the local and State government planning frameworks and identifies benefits of the project and its role in achieving renewable energy targets and ambitions for the region.

Townsville enjoys a diverse economic base, with strong projected growth. Townsville is strategically located to service solar-thermal resources in the North Queensland region. The solar industry is expected to expand in Northern Australia in response to forecast national and global demand for technologies and solutions that avoid or reduce impact of urbanisation and impacts to the environment.

For North Queensland, the Ross River Solar Farm would represent an iconic sustainable development that embodies everything the community stands for; a region which is economically, environmentally and socially sustainable. The project will provide economic stimulus, reduce carbon footprints and take Townsville one step closer to achieving the goal of becoming a “solar city”.

The benefits of renewable energy are favourable, by reducing carbon emissions and in the longer term reducing power prices for the communities that are situated nearby to utility scale solar farms, like this project. By generating power close to the demand, it reduces transmission costs that flow downstream to the end user. This development also provides significant economic opportunities to the local area not only during construction but over the 30 year life of the project through increased employment and procurement opportunities.

Economic and Social benefits of this solar development include:

- Supporting Townsville’s “solar city” status and helps to achieve the Federal Government Renewable Energy Target.
- 225 million dollar project which will result in a variety of skilled and unskilled jobs for the region during construction and operation.
- Opportunities for local business to supply building components.
- The Project will generate enough electricity to power the equivalent of approximately 65,000 homes.
- Animal grazing between the rows of installed panels and in the ground under the panels is possible.
- Land can be easily restored back to agricultural / cropping land if the project is decommissioned at the end of the life.

Environmental benefits of this solar developing include:

- During operation solar developments produce zero emissions.
- Localised renewable energy source critical is providing renewable energy production, reduction of greenhouse gas emissions an addressing peak power demands from existing non-renewable sources
- Reduction in Carbon emissions from electricity consumption and exporting surplus renewable energy electricity to the grid
- Reduction in carbon emissions and over the long run reducing power prices for the communities that are situated nearby to solar power plants.
- Solar farms are a silent producer of energy.

The following local and State plans illustrate the regions support for renewable energy facilities.

Townsville Community Plan 2011 – 2012

The Townsville City Council *Community Plan 2011-2012* was developed by the Council in consultation with the local community. The plan outlines the community vision for the future of Townsville and the steps the community as a whole needs to take to achieve this vision.

It was illustrated in the plan that the Townsville community recognises it is fundamental to have strong and balanced economic growth in order to enhance our city’s way of life. It was identified that the Townsville community wants to be a leader in environmental sustainability, including embracing the use of renewable energy.

The key steps to achieving this goal are to increase the use of renewable energy sources including solar and through reductions in greenhouse gases.

The proposed development will align with this vision by not only providing a source of renewable energy to achieve increased environmental sustainability, but will also contribute to economic growth and diversity for the local and regional economy.

Townsville City Economic Development Plan 2013 – 2017

Townsville City Council developed the Economic Development Plan 2013 – 2017 to provide a strategic agenda to support Townsville's growth as one of Queensland more important regional cities. The Plan has been conceived from considered analysis of the city's growth potential and the industry opportunities and challenges that will shape the course of this growth.

Sustainable Technologies was considered as an element to provide the greatest opportunities to help build the services and industry capacity that will sustain Townsville's role as the second capital of Queensland. As Townsville has a high solar yield, this type of Project is ideally located to take advantage of this natural resource and contribute to diversifying the industry capacity of the region.

The Plan also identified growth challenges, two of which were energy and environmental sustainability. The majority of the North Queensland energy supply is generated in Central Queensland and then transmitted to the northern region. It was identified that the region must continue to develop new and price-competitive sources of generation to meet the expanding demand created by industry growth. Cost-effective and less carbon-intensive power sources must also be developed. The environmental sustainability growth challenge identified that ongoing investment in green technology and facilitating renewable energy generation and its uptake by industry and consumers is crucial.

The proposed development will help Townsville work towards combatting the energy growth challenges by providing a renewable energy source within the local area.

Townsville Futures Plan

The Townsville Futures Plan outlines a range of recommendations to determine the way forward for Townsville in a manner which will deliver significant benefits for the region into the future. Once of the recommendation was in regards to energy sources and consumption. The plan states that Townsville is well placed with potential access to solar-thermal and geothermal energy opportunities in the North West region. This could position North Queensland as a leading provider of competitive renewable energy.

The plan identified strategies and action to:

- Attract investment to build on North Queensland expertise in renewable energy.
- Identify and target supply chain needs (skills and capabilities) for renewable energy and energy efficiency industries.
- Research the viable opportunities to incorporate small scale renewable energy generation plants for existing and new developments,

North Queensland Regional Economic Development Plan 2014 – 2031

This plan is an initiative of the Regional Economic Development sub-committee of the North Queensland Regional Organisations of Councils. This high-level committee was instigated to foster a greater level of regional unity and collaboration to drive economic development in North Queensland. Five Key Regional Themes were developed in consultation with key stakeholders to prioritise regional projects, one of which was energy resilience.

Energy is central to the economy of North Queensland. Access to secure, reliable and cost-effective electricity underpins the competitiveness and profitability of businesses both large and small and the wellbeing and lifestyle of communities.

North Queensland is faced with unique challenges in relation to energy. Currently, the delivered price of electricity to Townsville and North Queensland is higher than other industrial centres in Queensland due to transmission losses and charges from generators located in Central Queensland. Regionally based electricity generation, like this project, will help secure North Queensland's energy needs.

6.2 Townsville City Council Planning Scheme

The development is considered a Material Change of Use under the *Sustainable Planning Act 2009*, which triggers assessable development under the Townsville City Council *City Plan 2014* (the Planning Scheme).

Schedule 1 of the Planning Scheme provides definitions for the development. The development of a solar farm and ancillary operations is best defined as a 'renewable energy facility', defined below.

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

The proposed development is located in the Rural Zone and Mixed Farming Precinct of the Planning Scheme.

The following assessment criteria have been identified for the development:

- Rural Zone Code (Appendix F);
- Flood Hazard Overlay Code (Appendix G);
- Natural assets overlay code (Appendix H);
- Healthy Waters Code (Appendix I);
- Landscape Code (Appendix J);
- Transport impact, access and parking code (Appendix K);
- Works code (Appendix L).

The development has been assessed against the provisions of these codes within the identified appendices and has been found to be generally compliant.

6.3 Regional Plan

No applicable regional plan exists for the proposed area at the time of lodgement.

6.4 State Planning Regulatory Provisions

At the time of lodgement, no State Planning Regulatory Provisions were applicable to this development.

6.5 State Planning Policy

The Townsville City Council *City Plan 2014* states that the Minister has identified that the State Planning Policy is appropriately integrated in the planning scheme. No separate assessment has been undertaken.

6.6 Regional Planning Interests Act 2014

Part of the site is mapped as a Strategic Cropping Area. A Strategic Cropping Area is defined under the *Regional Planning Interests Act 2014* as "*strategic cropping land means land that is, or is likely to be, highly suitable for cropping because of a combination of the land's soil, climate and landscape features".*

The *Regional Planning Interests Act 2014* requires a *Regional Interest Development Approval* if the applicant is undertaking a resource activity or a regulated activity in an area of regional interests.

The proposed Project is not considered to be a regulated activity or a resource activity as defined under the Act.

6.7 Pre-lodgement

The following pre-lodgement advice was obtained prior to submission of the development application.

Townsville City Council

A pre-lodgement meeting was held with Townsville City Council on 14 January 2016. Pre-lodgement meeting minutes are provided in Appendix R.

State Assessment and Referral Agency

Pre-lodgement advice was provided by the Department of Infrastructure, Local Government and Planning – Single Assessment and Referral Agency (SARA) on the 24 November 2015. SARA identified that there are no SARA triggers pursuant to this development proposed.

A copy of this advice is provided in Appendix R.

Powerlink

Powerlink provided pre-lodgement advice on 12 January 2016. Powerlink states there was no in-principle objection to the proposed layout.

A copy of pre-lodgement correspondence is provided in Appendix R.

7.0 Conclusion

This application seeks approval for a Material Change of Use for a Renewable Energy Facility (135MW Solar Farm) on Lot 2 SP195322. The proposal is subject to Impact Assessment and will be required to be placed on public notification.

The Applicant seeks to deliver Townsville's first large scale solar development, to provide a sustainable and renewable source of energy for the city. The construction of the solar development will provide economic stimulus and social benefit to the Townsville region and provide employment during the construction, operational and decommissioning stages of the project. This Project is ecologically sustainable and at the forefront of aiding Townsville in achieving a high proportion of solar energy generation and supporting Townsville City Councils goal of being a solar city.

The Ross River Solar Farm is proposed on this site for its flat topography, close proximity to trunk electricity infrastructure and existing capacity of this infrastructure for electricity to be fed into the network. The orientation of the facilities onsite have been positioned to gain the maximum solar exposure with maximum flood immunity taking into account safe access and efficient internal layout to minimise earthworks.

The previous agricultural use of the site means that the surrounding land uses, the size of the site and adjoining landholdings are all of a nature which is compatible with the proposed solar facility. The operational life of the Project is expected to be approximately 30 years. As such, the solar farm facility will not affect the long term ability for the site to be used for agricultural purposes. Additionally, during the operation of the Project there is potential for sheep to be grazed on site.

Following an assessment of the proposed project against the relevant provisions of the Townsville City Council *City Plan 2014,* it is considered that there are sufficient grounds to warrant its approval.

Overall the project will not negatively impact the character, land use values and amenity of the site and the surrounding area. As such it is recommended that Townsville City Council, as Assessment Manager, favourably consider the application and impose reasonable and relevant conditions on the Development Permit.

Appendix A

Development Plans

Appendix A Development Plans

Appendix B

IDAS Forms

Appendix B IDAS Forms

Appendix C

Title Search

Appendix D

Connection Strategy

Appendix E

Generation Simulation

Appendix F

Rural Zone Code

Appendix F Rural Zone Code

Performance outcomes	Acceptable outcomes	Response
General criteria		
PO8 **Development:** **(a) is located on the least productive parts of a site;** **(b) does not restrict the ongoing safe and efficient use of nearby rural uses; and** **(c) is adequately separated or buffered where it is likely to be sensitive to the operational characteristics associated with rural uses, rural industries, extractive industries or other lawful use.**	No acceptable outcome is nominated.	The development will be located across the majority of the site, apart from the areas that have environmental value (which are excised from the lease) and some other areas. The existing disused mango plantation will be removed and replaced with the solar panel arrangement. The solar arrangement is considered to be a productive use for the site, with positive benefits that outweigh the negatives of the loss in agricultural land. The project will result in minimal land disturbance and at the end of the life of the project (30 years), the solar farm will be decommissioned and the land can be easily restored to agricultural land. The surrounding land is predominantly medium sized parcels of grazing land or native vegetation and some smaller sized parcels of cropping and horticulture land. Adjacent the site, across Kelso Drive is a low density residential estate, with lots averaging approximately 4,000m^2; and some open space land. The solar farm will be a positive diversification of the land use in the area. The use of the land will not restrict safe and efficient use of the adjoining land and will be screened by vegetation and fenced to reduce any amenity loss.
PO9 **Tourism-related uses are established only where they are directly associated and compatible with rural production, natural resources or landscape amenity in the immediate vicinity.**	No acceptable outcome is nominated.	N/A
PO10 **Uses that require isolation from urban areas are accommodated only where:** **(a) they cannot be more appropriately located in an industrial or other relevant zone;**	No acceptable outcome is nominated.	The proposed development has gone through a vigorous site selection process. Essential to the development of a solar farm is the proximity to a connection source (i.e. high voltage transmission lines and / or a bulk supply substation); relatively flat topography; size; and access to the land.

Performance outcomes	Acceptable outcomes	Response
(b) they can be adequately separated from sensitive uses (whether or not in the rural zone); **(c) they can be adequately separated from land in the Horticulture precinct; and** **(d) potential impacts can be appropriately managed.**		The potential impacts of the loss in agricultural / cropping land are appropriately managed in this development. Solar farms do not result in adverse ground disturbance and at the end of the life of the project the land can be easily restored to its former use, being agricultural or cropping. The existing use of the site is a disused mango farm which has low economic yield; tin addition the site is occasionally used for cattle grazing. The proposed use is considered to provide a considerable economic benefit to the existing use of the site. Potential impacts to the surrounding agricultural / cropping and residential uses are considered to be minimal. The development will be adequately screened with landscaping buffer and fencing. Visual Impact, Glint and Glare and Flood Hazard Assessment are found in the appendices of this report.
PO11 **Development is designed and managed so that it provides appropriate protection for community health and safety, and avoids unacceptable risk to life and property.**	No acceptable outcome is nominated.	The level of risk to community health and safety, life and property is considered to be minimal. The proposed development will be fenced and include CCTV surveillance. The site will not be open to public access. The proposed development will comply with this provision.
PO12 **Development does not adversely impact on the character, amenity or scenic values of the locality, having regard to:** **(a) the scale, siting and design of buildings;** **(b) the visibility of buildings, structures and infrastructure;** **(c) likely emissions including water-borne contaminants, noise, dust, lighting and odour; and** **(d) the nature or volume of traffic generated.**	No acceptable outcome is nominated.	The development will include an operation and maintenance building and a switch gear, transformer and control building. These buildings are located at the northern extent of the site and are ideally located at the site entrance. The overall height and scale of the buildings will be consistent with the surrounding building forms of the locality. The building will be screened by a vegetated buffer along the extent of the northern boundary. The vegetated buffer and the buildings also act as a screen for the road from the solar panels. Potential air quality and noise impact is addressed in Section 5.5 and Section 5.6 of this Report. The nature and volume of traffic generated is addressed in Section 3.0 of this report.

Performance outcomes	Acceptable outcomes	Response
PO13 **Ecological values, habitat corridors and soil and water quality are protected, having regard to:** **(a) maximisation of vegetation retention and protection of vegetation from the impacts of development;** **(b) avoidance of potential for erosion and minimisation of earthworks;** **(c) retention and protection of natural drainage lines and hydrological regimes; and** **(d) avoidance of leeching by nutrients, pesticides or other contaminants, or potential for salinity.**	No acceptable outcome is nominated.	Ecological values, habitat corridors, soil and water quality of a tributary of the Bohle River that runs through the southwest corner of site will be maintained. This area is excised from the lease, fenced and will not be impacted on by the development.
Mixed farming precinct		
PO18 **Reconfiguration is limited to protect the ongoing viability of existing and potential horticulture uses, water quality and ecological and landscape values.**	AO18 The minimum lot size in the precinct is 40ha, except in the Ross River Dam Catchment area where the minimum lot size is 400ha.	N/A

Appendix G

Flood Hazard Overlay Code

Appendix G Flood Hazard Overlay Code

Performance outcomes	Acceptable outcomes	Response
For assessable development		
PO3 **Development does not intensify use in high hazard areas, in order to avoid risks to people and property.** Editor's note—High hazard areas are those likely to experience deep or fast moving water in a defined flood event.	AO3.1 New buildings are located outside high hazard areas identified on overlay map OM-06.1 or 06.2.	A Flood Hazard Assessment was undertaken for the proposal and is provided in Appendix M. The Applicant has undertaken mitigation for any flood risk through design by moving the location of the site building outside of the high hazard area.
	AO3.2 New lots or roads are not created within high hazard areas identified on overlay map OM-06.1 or 06.2.	The proposed development does not include new lots or public roads. Access tracks will be formed on site for operational and maintenance purposes, however these will not intensify the risk of flooding and impact to people and property. The location of the proposed access tracks are shown in Appendix A (Development Plans) and detailed in Appendix N (Engineering Report).
	AO3.3 Sites for non-permanent accommodation such as tents, cabins or caravans (whether intended for short or long-term accommodation) are located outside the high hazard areas identified on overlaymap OM-06.1 or 06.2.	N/A
PO4 **Siting and layout of development maintains the safety of people and property in medium hazard areas.** Editor's note—The Building Regulation 2006 establishes requirements with which development will need to comply. The defined flood event is identified in this planning scheme as the 1% annual exceedance probability (AEP) flood and is mapped as the combined extent of the high and medium flood hazard areas identified on overlay map	**On existing lots** AO4.1 Floor levels for residential buildings are 300mm above the defined flood level. Editor's note—In medium hazard — further investigation area, a flood assessment in accordance with the Flood hazard planning scheme policy no. SC6.7 may be needed to establish the defined flood level.	N/A
	AO4.2 Floor levels of non-residential buildings (other than	The building floor levels and pad level for the switchgear transformer will be above 1% AEP flood level (29.25 m AHD),

Performance outcomes	Acceptable outcomes	Response
OM-06.1 and 6.2. Other than in the medium hazard — further investigation area, council will be able to make available the height of the flood level for any particular location upon request. Applicants must be aware that in some areas storm tide hazard areas will also co-exist with flood hazard areas. In these instances, the floor levels and other design responses will need to be sufficient to comply with this code, the Coastal protection overlay code and the Building Regulation 2006.	class 10 buildings) are above the defined flood level. Editor's note—Class 10 buildings are identified under the Building Code of Australia and includes carports and outbuildings.	refer Appendix M for further detail.
	AO4.3 Underground car parks are designed to prevent the intrusion of flood waters by the incorporation of a bund or similar barrier with a minimum height of 300mm above the defined flood level.	N/A
	AO4.4 Development for non-permanent accommodation such as tents, cabins or caravans (whether intended for short or long-term accommodation) are located outside the medium hazard areas identified on overlay map OM-06.1 or 06.2.	N/A
	Where reconfiguring a lot AO4.5 Where reconfiguring a lot, new lots contain designated building envelopes (whether or not for residential purposes) outside the medium hazard areas identified on overlay map OM-06.1 or 06.2 and those building envelopes are of a sufficient size to accommodate buildings associated with the development.	N/A
	AO4.6 In new subdivisions, arterial, sub-arterial or major collector roads are located above the 2% AEP flood level.	N/A
	AO4.7 Reconfiguration of lots does not involve cul-de-sacs or dead end streets within medium hazard areas identified on overlay map OM-06.1 or 06.2.	N/A

Performance outcomes	Acceptable outcomes	Response
PO5 **Signage is provided within high and medium hazard areas to alert residents and visitors to the flood hazard.**	**AO5** Signage is provided on-site (regardless of whether land will be public or private ownership) to indicate depth at key hazard points, such as at floodway crossings, entrances to low-lying reserves or car parks.	The proposed development does not include any floodways, crossings or low lying reserves. Signage is not considered warranted for this development and location.
PO6 **Development within high and medium hazard areas ensures any changes to the depth, duration, velocity of flood waters are contained within the site.** Editor's note—Impacts on a range of floods may need to be assessed and in most instances can be evaluated by analysing the minor drainage system capacity event and the defined flood event for the catchment wide critical duration, unless the site is located in an area noted in the Flood hazard planning scheme policy SC6.7.	No acceptable outcome is nominated.	Results of flood modelling indicate no change in depth, duration and velocity of flood waters outside the proposed site. Refer to Appendix M for further detail.
PO7 **Development within high and medium hazard areas does not directly, indirectly or cumulatively worsen flood characteristics outside the development site, having regard to:** **(a) increased scour and erosion; or** **(b) loss of flood storage; or** **(c) loss of or changes to flow paths; or** **(d) flow acceleration or retardation; or** **(e) reduction in flood warning times.** Editor's note—To adequately assess the impacts of development on flooding regimes, applicants may need to have a hydrological and hydraulic assessment carried out by a suitably qualified and experienced hydrologist or engineer.	No acceptable outcome is nominated.	Results of flooding modelling indicate no change in depth, duration and velocity with the proposed development outside the site. In addition, the proposed development is not changing any flood storage and flow path. The proposed development is not expecting to worsen flow acceleration or retardation as the flood modelling results showed negligible change in flow velocity. Therefore, it is not expected to reduce flood warning times. Refer to Appendix M for further detail.

Performance outcomes	Acceptable outcomes	Response
PO8 **Facilities with a role in emergency management and vulnerable community services are able to function effectively during and immediately after flood events.** Editor's note—This provision applies to high, medium and low flood hazard areas.	AO8 The development is provided with the level of flood immunity set out in Table 8.2.6.3(b).	N/A
PO9 **Public safety and the environment are not adversely affected by the detrimental impacts of flooding on hazardous materials manufactured or stored in bulk.**	AO9.1 Development does not involve the manufacture or storage of hazardous materials within a high flood hazard area identified on overlay map OM-06.1 or 06.2.	The proposed development does not involve the manufacturing or storage of hazardous materials.
	AO9.2 Within the low or medium flood hazard area identified on overlay map OM-06.1 or 06.2, structures used for the manufacture or storage of hazardous materials in bulk are designed to prevent the intrusion of flood waters up to at least a 0.2% AEP flood event.	The proposed development does not involve the manufacturing or storage of hazardous materials.

Appendix H

Natural Assets Overlay Code

Appendix H Natural Assets Overlay Code

Performance outcomes	Acceptable outcomes	Applicant Response
Protection of biodiversity values and ecological processes		
PO1 **In areas identified as having high or very high environmental importance, significant values are protected and associated ecological functions and biophysical processes are maintained to ensure long term viability.** Editor's note—Applicants should also refer to other state and federal legislation which may also require applicants to obtain additional approvals.	No acceptable outcome is nominated. Editor's note—Natural assets planning scheme policy no. SC6.9 provides information on the primary attributes included in very high, high and medium environmental importance areas. The overlay map has been produced using local government area wide data. Site-specific investigation will be required to confirm the extent and nature of values indicated on the overlay map or otherwise identify site-specific natural assets and ecological functions.	The south-west corner of the site contains a "high" area of environmental importance. The proposed development will not directly impact upon this mapped area as the subject corner of the site has been excised from development as an 'Off-lease" area and will be fenced.
PO2 **In areas identified as having medium environmental importance, development is located, designed and operated to:** **(a) retain and protect significant values; and** **(b) maintain the underlying ecological functions and biophysical processes.** Editor's note—Applicants should also refer to other state and federal legislation which may also require applicants to obtain additional approvals.	No acceptable outcome is nominated. Editor's note—This category of environmental importance will also require a high level of investigation as part of any development application, to determine on the ground values and priority for protection. A detailed environmental assessment is to be undertaken by applicants in accordance with the guidance provided in the Natural assets planning scheme policy no. SC6.9.	N/A
PO3 **Degraded areas with significant ecological and environmental values or important to the maintenance of underlying ecological functions and biophysical processes required to maintain biodiversity and ecosystem services are rehabilitated as near as is practical to the naturally occurring suite of native plant species and ecological communities.**	No acceptable outcome is nominated. Editor's note—A rehabilitation plan supported by expert ecological advice prepared in accordance with Natural assets planning scheme policy no. SC6.9 will assist in demonstrating achievement of this performance outcome.	The proposed development will not directly impact a mapped area of environmental value. Rehabilitation is not considered necessary for this Project.

Performance outcomes	Acceptable outcomes	Applicant Response
Significant species and ecological communities		
PO4 **Development avoids direct and indirect impacts on significant ecological communities and significant species and their habitats, including disturbance from the presence of vehicles, pedestrian use, increased exposure to domestic animals and noise and lighting impacts.** Editor's note—Significant species and ecological communities include those identified in the Natural assets planning scheme policy no. SC6.9**.**	No acceptable outcome is nominated. Editor's note—Applications for development should identify any significant species or communities that may be affected by the proposal. A detailed environmental assessment is to be undertaken by applicants in accordance with the guidance provided in the Natural assets planning scheme policy no. SC6.9.	The proposed development is proposed over a disused mango farm. The land is not considered to be suitable for significant species or communities.
PO5 **Areas of habitat that support a critical life cycle stage such as feeding, breeding or roosting or ecological function for threatened species, ecological communities or migratory species are not impacted by development.**	No acceptable outcome is nominated.	Refer PO4 above.
Buffering and edge impacts		
PO6 **Development provides a vegetated buffer to an area of significant ecological or environmental value, in order to:** **(a) protect core habitat areas from threatening processes;** **(b) maintain connectivity or support linkages;** **(c) reduce threats to the environmental values from non-native or pest fauna or flora; and** **(d) avoid undesirable microclimate effects.** **Any setbacks or other areas required for bushfire management, safety, recreation, maintenance or any other purpose, are provided in addition to a vegetated buffer provided for ecological and**	AO6 A buffer extending from the outside edge of a declared fish habitat area (measured from highest astronomical tide (HAT)) has a minimum width of 100m. For other areas, no acceptable outcome is nominated. Editor's note—Areas which are expected to constitute core habitat as well as declared fish habitat areas are identified on maps contained in the Natural assets planning scheme policy no. SC6.9. Declared fish habitat areas may also be obtained from the relevant state agency. Buffers for significant species and	According to desktop mapping no declared fish habitat area or core habitat is in the vicinity of the project area.

Performance outcomes	Acceptable outcomes	Applicant Response
environmental protection purposes.	ecological communities, including areas of habitat for listed threatened and migratory species, should be based on best practice and current scientific knowledge of individual species requirements and supported by an environmental assessment prepared in accordance with the Natural assets planning scheme policy no. SC6.9. Other legislation, including the Nature Conservation Act and Environment Protection and Biodiversity Conservation Act may establish other requirements with which applicants must comply.	
PO7 **Buffering, rehabilitation or restoration:** **(a) uses site appropriate or endemic native vegetation;** **(b) replicates as far as practicable, the species composition and structural components of healthy remnant native vegetation and associated habitats, including understorey vegetation; and** **(c) excludes declared plants, environmental weeds and other non-native plants likely to displace native flora species or degrade habitat.**	No acceptable outcome is nominated. Editor's note—A site-based management and rehabilitation plan prepared in accordance with the Natural assets planning scheme policy no. SC6.9 will assist in demonstrating achievement of this performance outcome.	See PO3
PO8 **Pest species are prevented from encroaching into ecologically significant areas.**	No acceptable outcome is nominated. Editor's note—A site-based management and rehabilitation plan prepared in accordance with the Natural assets planning scheme policy no. SC6.9 will assist in demonstrating achievement of this performance outcome.	A Construction Environmental Management Plan will be used during construction to prevent the spread or introduction of pests and weeds on the site. Operational weed and pest procedures will be employed during the life of the project.
PO9 **During construction and operation of development, measures are implemented to prevent light, noise, visual and other disturbances.**	No acceptable outcome is nominated. Editor's note—A site-based management and rehabilitation plan prepared in accordance with the Natural assets planning scheme policy no. SC6.9 will assist in demonstrating achievement of this performance outcome.	The proposed development is unlikely to have any adverse impacts on the surrounding environmental areas in the form of light, noise, visual or other disturbances. Refer Section 0 of this Report.

Performance outcomes	Acceptable outcomes	Applicant Response
Ecological corridors and habitat connectivity		
PO10 **Significant ecological corridors and habitat linkages are protected and have dimensions and characteristics to support:** **(a) ecological processes and functions that enable the natural change in distributions of species and provide connectivity between populations of species over long periods of time;** **(b) ecological responses to climate change;** **(c) connectivity between large tracts and patches of remnant vegetation and habitat areas; and** **(d) effective and unhindered day-to-day and seasonal movement of avian, terrestrial and aquatic fauna.**	No acceptable outcome is nominated where in an urban residential zone or centre zone. In all other zones (including the Emerging community zone, Rural residential zone or industry zones): **AO10** Major ecological corridors identified on Figure SC6.9.3 in the Natural assets planning scheme policy no. SC6.9 are maintained and restored to achieve a minimum width of 350m, consisting of: (a) a 250m wide core corridor to support avian species and most arboreal mammals; and (b) a 50m wide vegetated buffer extending from the outside edges on both sides of the core corridor. No acceptable outcome is nominated for the great eastern ranges conservation corridor identified on Figure SC6.9.3 in the Natural assets planning scheme policy no SC6.9.	The proposed development does not traverse any major ecological corridors as identified on the mapping.
PO11 **Corridors and linkages are provided to supplement and create additional ecological corridors and habitat linkages along waterways, drainage lines, ridgelines, coastlines and other areas where possible.**	No acceptable outcome is nominated.	The south west corner has been excised from the lease area and will be fenced to maintain an existing ecological corridor being a tributary of the Bohle River.
PO12 **Development facilitates unimpeded use and movement of terrestrial and aquatic fauna that are associated with or are likely to use an ecological corridor as part of their normal life cycle by:** **(a) ensuring development, including roads, pedestrian access and in-stream structures, does not**	No acceptable outcome is nominated.	The south west corner has been excised from the lease area to maintain an existing ecological corridor. This allows movement of any terrestrial and aquatic fauna associated with the existing corridor. No wildlife management infrastructure is proposed for the development.

Performance outcomes	Acceptable outcomes	Applicant Response
create barriers to the movement of fauna along or within ecological corridors; **(b) providing effective wildlife management infrastructure to direct fauna to locations where wildlife movement infrastructure has been provided to enable fauna to safely negotiate a development area; and** **(c) separating fauna from potential hazards through the use of appropriate barriers and buffers.**		
Riparian and buffer area management for wetlands and waterways		
PO13 **Development locates outside of, and does not impact on wetlands, to ensure long-term ecological function.**	AO13 Development, including any associated filling or excavation (other than restorative works) is located outside of any mapped, defined or identified boundary of a wetland and its associated buffer. Editor's Note—Natural assets planning scheme policy no. SC6.9 contains Figure SC6.9.2 which identifies wetland areas. This information may also be obtained from the relevant state agency.	The proposed development does not include any works within a mapped wetland.
PO14 **Development provides a buffer to a wetland area to:** **(a) protect or enhance habitat values, connectivity and other ecological functions and values;** **(b) protect water quality and aquatic conditions;** **(c) maintain natural micro-climatic conditions;** **(d) maintain natural hydrological processes;** **(e) prevent mass movement, gully erosion, rill erosion, sheet erosion, tunnel erosion, stream bank erosion, wind erosion, or scalding; and** **(f) avoid loss or modification of chemical, physical or biological properties or functions of soil.** **Any setbacks or other areas required for bushfire management, safety, recreation, maintenance or any**	AO14 A development-free buffer is provided and maintained with a minimum width of: (a) for wetlands designated as high ecological significance (HES) by the Queensland Government: (i) 50m from the outermost part of the wetland where located in an urban area; or (ii) 200m from the outermost part of the wetland where located in a non-urban area; or (b) for other wetlands: 50m from the outermost part of the wetland in either urban or non-urban areas. Editor's note—Natural assets planning scheme policy no. SC6.9 contains Figure SC6.9.2 which identifies wetland areas. This information may also	The proposed development does not include any works within the buffer distances of a wetland.

Performance outcomes	Acceptable outcomes	Applicant Response
other purpose, are provided in addition to a vegetated buffer provided for ecological purposes.	be obtained from the relevant state agency. Editor's note—To avoid conflict, where a development requires multiple buffers to be established by this code to protect watercourses, corridors, wetlands or core habitat, the greatest distances required by this code will prevail to the extent of any inconsistency.	
PO15 **Development (including operation) and construction maintains or enhances the natural hydrological regime of wetlands, including surface and ground waters.** Editor's note—The hydrological regime of surface waters includes: (a) peak flows; (b) volume of flows; (c) duration of flows; (d) frequency of flows; (e) seasonability of flows; (f) water depth (seasonal average); and (g) wetting and drying cycle.	AO15.1 Development does not change the existing surface hydrological regime of a wetland including through channelisation, redirection or interruption of flows.	Development is unlikely to impact on any mapped wetlands.
	AO15.2 There is no change to the reference duration high-flow and low-flow duration frequency curves, low-flow spells frequency curve and mean annual flow to and from the wetland.	Development is unlikely to impact on any mapped wetlands.
	AO15.3 Any relevant stream flows into the wetland comply with relevant environmental flow objectives.	Development is unlikely to impact on any mapped wetlands.
	AO15.4 The water table and hydrostatic pressure in the wetland is either: (a) returned to its natural state; or (b) not lowered or raised outside the bounds of variability under existing pre-development conditions.	Development is unlikely to impact on any mapped wetlands.
	AO15.5 Development does not result in the ingress of saline water into freshwater aquifers.	Development is unlikely to impact on any mapped wetlands.

Performance outcomes	Acceptable outcomes	Applicant Response
PO16 **Development provides a buffer to a waterway, in order to:** **(a) protect or enhance habitat values, connectivity and other ecological processes and values;** **(b) protect water quality and aquatic conditions;** **(c) maintain natural micro-climatic conditions;** **(d) maintain natural hydrological processes;** **(e) prevent mass movement, gully erosion, rill erosion, sheet erosion, tunnel erosion, stream bank erosion, wind erosion, or scalding; and** **(f) prevent loss or modification of chemical, physical or biological properties or functions of soil.** **Any setbacks or other areas required for bushfire management, safety, recreation, maintenance or any other purpose, are provided in addition to a vegetated buffer provided for ecological purposes.**	No acceptable outcome is nominated where in an urban residential zone or centre zone. Elsewhere (including the Emerging community zone, Rural residential zone or industry zones): **AO16** Other than where cropping for forestry for wood production, a development-free buffer is provided and maintained, extending from top of the bank of a waterway and with a minimum width of: (a) where in the Wet Tropics bioregion: (i) stream order 1 to 4: 25m; or (ii) stream order 5 and above: 50m; OR (b) in all other regions (Brigalow Belt North Bioregion or the Einasleigh Uplands Bioregion): (i) stream order 1 or 2: 25m; or (ii) stream order 3 or 4: 50m; or (iii) stream order 5 and above: 100m; Editor's note—Natural assets planning scheme policy no. SC6.9 contains Figure SC6.9.1 which identifies stream orders and bioregions. This information may also be obtained from the relevant state agency. The Forestry for wood production code in section 9.2.2 is a mandatory statewide code and identifies stream setback requirements for forestry. Editor's note— Where a development requires multiple buffers to be established by this code to protect watercourses, corridors, wetlands or core habitat, the greatest distances required by this code will prevail to the extent of any inconsistency.	The section of the site containing a waterway is excised from the developable lease area. A buffer of approximately 500m has been provided to the developable lease area.

Performance outcomes	Acceptable outcomes	Applicant Response
Ongoing management, construction and operation		
PO17 **During construction and operation of development, ongoing management, monitoring and maintenance is undertaken to ensure impacts on significant ecological areas, underlying ecological functions and biophysical processes and environmental values are avoided or minimised.**	No acceptable outcome is nominated. Editor's note–Applicants will be asked to prepare an site based management plan to guide construction and operation.	Construction and Operational Management Plans will be prepared.
PO18 **Management arrangements facilitate the effective conservation and protection of significant ecological areas and underlying ecological functions and biophysical processes.**	AO18 Significant ecological areas are: (a) transferred into public ownership where the land is required for public access or for some other public purpose consistent with its values; or (b) incorporated within private open space and included within a voluntary statutory covenant by registration under the *Land Title Act 1994.*	This provision is not considered applicable to this site.

Appendix I

Healthy Waters Code

Appendix I Healthy Waters Code

Performance outcomes	Acceptable outcomes	Applicant Response
Stormwater management - protecting water quality		
PO1 **Development contributes to the protection of environmental values and water quality objectives of receiving waters to the extent practicable.** Editor's note—The environmental values and water quality objectives are established under the *Environmental Protection (Water) Policy (2009)*. For Townsville, they are specified in the Ross River Basin Environmental Values and Water Quality Objectives 2012 and Black River Basin Environmental Values and Water Quality Objectives (2012).	No acceptable outcome is nominated. Editor's note—Applicants should refer to the Development manual planning scheme policy SC6.4 - SC6.4.3.8 Stormwater management plans for development, SC6.4.3.9 Water sensitive urban design guidelines; and SC6.4.6.1 Water sensitive urban design construction and establishment requirements.	The proposed development will comply with this provision.
PO2 **High environmental value waters and slightly disturbed waters (shown on Figure 9.1 — High environmental value waters and slightly disturbed waters) are protected from the impacts of development within their catchments. Existing water quality, habitat and biota values, flow regimes and riparian areas are maintained or enhanced.**	No acceptable outcome is nominated. Editor's note—Refer to the Queensland Water Quality Guidelines (QWQG) for details on how to establish a minimum water quality data set for these areas.	The proposed project will not impact on High Environmental Value Waters or Slightly Disturbed Waters as mapped.
PO3 **The entry of contaminants into, and transport of contaminants in, stormwater is avoided or minimised.**	No acceptable outcome is nominated. Editor's note—Applicants should refer to the Development manual planning scheme policy SC6.4 - SC6.4.3.8 Stormwater management plans for development, SC6.4.3.9 Water sensitive urban design guidelines; and SC6.4.6.1 Water sensitive urban design construction and establishment guidelines.	The proposed development does not include any material likely to be a stormwater contaminant.
PO4 **Within the areas identified as potential acid sulfate soils on Figure 9.2 — Acid sulfate soils, the**	AO4.1 Development does not: (a) involve excavating or removing 100m^3 or more of soil	The development is not located in an area mapped as acid sulfate soils.

Performance outcomes	Acceptable outcomes	Applicant Response
generation or release of acid and metal contaminants into the environment from acid sulfate soils is avoided by: **(a) not disturbing acid sulfate soils when excavating or otherwise removing soil or sediment, draining or extracting groundwater, excluding tidal water or filling land; or** **(b) where disturbance of acid sulfate soils cannot be avoided, development:** **(i) neutralises existing acidity and prevents the generation of acid and metal contaminants; and** **(ii) prevents the release of surface or groundwater flows containing acid and metal contaminants into the environment.**	and sediment at or below 5m AHD; or (b) permanently or temporarily drain or extract groundwater or exclude tidal water resulting in the aeration of previously saturated acid sulfate soils; or (c) involve filling with 500m^3 or more with an average depth of 0.5m or greater that results in: (i) actual acid sulfate soils being moved below the water table; or (ii) previously saturated acid sulfate soils being aerated. OR AO4.2 Development manages waters so that: (a) all disturbed acid sulfate soils are adequately treated and/or managed so that they can no longer release acid or heavy metals; (b) the pH of all site any water including discharges and seepage to groundwater, is maintained between 6.5 and 8.5 (or an agreed pH in line with natural background); (c) waters on the site, including discharges and seepage to groundwater, do not contain elevated levels of soluble metals; (d) there are no visible iron stains, flocs or sums in discharge water; (e) all reasonable preparations and actions are undertaken to ensure that aquatic health is safeguarded; and (f) infrastructure such as buried services, pipes, culverts and bridges are protected from acid attack. Editor's note—Where works are proposed within the areas identified as potential acid sulfate soils on Figure 9.2 - Acid sulfate soils, the applicant is required to undertake an on-site acid sulfate investigation. The reason for undertaking an acid sulfate soils investigation is to determine the presence of acid sulfate soil in order to avoid disturbance. Where acid sulfate soils cannot reasonably be	

Performance outcomes	Acceptable outcomes	Applicant Response
	avoided, investigation results assist in the planning of treatment and remedial activities and must be undertaken in accordance with the *Queensland Acid Sulfate Soil Technical Manual* and relevant State Planning Policy. Applicants should also refer to the *Guidelines for Sampling Analysis of Lowland Acid Sulfate Soils in Queensland*, Acid Sulfate Soils Laboratory Methods Guidelines or Australian Standard 4969. It is highly recommended that the applicant develop a practical Acid Sulfate Soil Management Plan for use in monitoring and treating acid sulfate soils.	
PO5 **Construction activities for the development avoid or minimise adverse impacts on stormwater quality or hydrological processes.**	No acceptable outcome is nominated. Editor's note—Applicants should refer to the Development manual planning scheme policy SC6.4 - SC6.4.3.8 Stormwater management plans for development, SC6.4.5 Construction management; and SC6.4.6.1 - Water sensitive urban design construction and establishment requirements.	A Construction Environmental Management Plan will include measures to avoid and minimise adverse impacts on stormwater quality or hydrological processes during construction.
Hydrological processes		
PO6 **The stormwater management system:** **(a) retains natural waterway corridors and drainage paths; and** **(b) maximises the use of natural channel design in constructed components.**	AO6.1 All existing waterways and overland flow paths are retained.	The waterway that traverses the site has been excised from the lease and will not form part of the development site. The general drainage characteristics of the site will remain unchanged, only minor stormwater drainage measures are proposed to divert local low flows away from the site roads, parking areas and laydown areas. This will consist of localised surface grading. These measures will not impact the overall drainage or flooding characteristics of the site.
	AO6.2 The stormwater management system is designed in accordance with the Development manual planning scheme policy no. SC6.4 — SC6.4.3.9 Water sensitive urban design guidelines.	As above.

Performance outcomes	Acceptable outcomes	Applicant Response
PO7 **The development is designed to minimise run-off and peak flows by:** **(a) minimising large areas of impervious material; and** **(b) maximising opportunities for capture and reuse.**	No acceptable outcome is nominated. Editor's note—Applicants should refer to the Development manual planning scheme policy SC6.4 - SC6.4.3.8 Stormwater management plans for development, SC6.4.3.9 Water sensitive urban design guidelines; and SC6.4.6.1 Water sensitive urban design construction and establishment requirements.	The proposed development will comply with this provision. Refer Appendix M.
PO8 **Stormwater management is designed to:** **(a) protect in-stream ecosystems from the significant effects of increased run-off frequency by capturing the initial portion of run-off from impervious areas; and** **(b) create conditions such that the frequency of hydraulic disturbance to in-stream ecosystems in developed catchments is similar to pre-development conditions.** Editor's note—Frequent flow management is distinct from flood management purposes, which is concerned with the management of less frequent, more extreme stormwater flows. The latter is an important part of integrated stormwater management and should in no way be compromised in pursuit of the management of more frequent flows for waterway health enhancement.	AO8 The stormwater management system is designed in accordance with the Development manual planning scheme policy no. SC6.4 - SC6.4.3.9 Water sensitive urban design guidelines.	Refer PO6.
PO9 **Stormwater management is designed to prevent exacerbated in-stream erosion downstream of a development site by controlling the magnitude and duration of sediment-transporting, erosion-causing flows.**	AO9 The stormwater management system is designed in accordance with the Development manual planning scheme policy no. SC6.4 — SC6.4.3.9 Water sensitive urban design guidelines andSC6.4.3.8 Stormwater management plans for development.	The proposed development will comply with this provision. Refer Appendix M.

Performance outcomes	Acceptable outcomes	Applicant Response
PO10 **The proposed stormwater management system or site works does not adversely affect flooding or drainage characteristics of properties that are upstream, downstream or adjacent to the development site.**	AO10.1 The development does not result in an increase in flood level or flood duration on upstream, downstream or adjacent properties.	The proposed development will comply with this provision. Refer Appendix M.
	AO10.2 The stormwater management system is designed and constructed in accordance withthe Development manual planning scheme policy SC6.4 – SC6.4.4.4 Stormwater drainage design, SC6.4.3.9 Water sensitive urban design guidelines; and SC6.4.6.4 Stormwater drainage.	The proposed development will comply with this provision. Refer Appendix M and Appendix N.
PO11 **Development does not cause ponding, or changes in flows and velocities such that the safety, use and enjoyment of nearby properties are adversely affected.**	AO11 The stormwater management system is designed and constructed in accordance with the Development manual planning scheme policy SC6.4 – SC6.4.4.4 Stormwater drainage design; SC6.4.3.9 Water sensitive urban design guidelines; and SC6.4.6.4 Stormwater drainage.	The proposed development will comply with this provision. Refer Appendix M and Appendix N.
PO12 **The drainage network has sufficient capacity to safely convey stormwater run-off from the site.**	AO12 Development is undertaken in accordance with the Development manual planning scheme policy SC6.4 – SC6.4.4.4 Stormwater drainage design; SC6.4.6.4 Drainage structures and SC6.4.6.4 Stormwater drainage.	The proposed development will comply with this provision. Refer Appendix M and Appendix N.
PO13 **The stormwater management system:** **(a) provides for safe access and maintenance; and** **(b) where relevant, provides for safe recreational use of stormwater management features.**	No acceptable outcome is nominated. Editor's note—Applicants should refer to the Development manual planning scheme policy SC6.4 - SC6.4.3.8 Stormwater management plans for development and SC6.4.4.4 Stormwater drainage design, SC6.4.3.9 Water sensitive urban design guidelines; SC6.4.3.6 Landscape policy; SC6.4.6.1 Water sensitive urban design construction and establishment requirements; and SC6.4.6.4 Stormwater drainage	The stormwater management system will allow for safe access and maintenance.

Performance outcomes	Acceptable outcomes	Applicant Response
Point source waste water management (other than contaminated stormwater and sewage)		
PO14 **Waste water is managed in accordance with a waste management hierarchy that:** **(a) avoids waste water discharge to waterways; or** **(b) if waste water discharge to waterways cannot practicably be avoided, minimises waste water discharge to waterways by re-use, recycling, recovery and treatment for disposal to sewer, surface water and groundwater.** Editor's note—To meet this outcome, a waste water management plan (WWMP) should be prepared by a suitably qualified person. The WWMP is to account for the waste water type, climatic conditions, Water Quality Objective (WQOs) and best practice environmental management.	No acceptable outcome is nominated.	The proposed project is unlikely to generate waste water. If waste water is to be generated it will avoid discharge to any waterways and will be dealt with in a suitable manner.
PO15 **Any treatment and disposal of waste water to a waterway:** **protects the applicable water quality objectives for the receiving waters; and** **avoids adverse impact on ecosystem health of receiving waters.**	No acceptable outcome is nominated.	Refer PO14
PO16 **Development avoids or minimises and appropriately manages soil disturbance or altering natural hydrology in nutrient hazardous areas.**	No acceptable outcome is nominated.	The proposed development will comply with this provision.
PO17 **Waste water discharge to waterways is managed to avoid or minimise the release of nutrients of concern so as to minimise the occurrence, frequency and intensity of coastal algal blooms.**	No acceptable outcome is nominated.	Refer PO14

Performance outcomes	Acceptable outcomes	Applicant Response
Editor's note—Compliance with this outcome can be demonstrated by following the management advice in the Implementing Policies and Plans for Managing Nutrients of Concern for Coastal Algal Blooms in Queensland and associated technical guideline.		
Constructed lakes and artificial waterways		
PO18 **Where established, a constructed lake or artificial waterway is designed to maintain a reasonable standard of water quality, having regard to factors affecting lake health, including:** **(a) nutrients and eutrophication;** **(b) gross pollutants, including organic material;** **(c) light and turbidity;** **(d) organic carbon loads;** **(e) lake stormwater detention time;** **(f) salinity;** **(g) temperature;** **(h) water depth and seasonal variations;** **(i) water column mixing temperature; and** **(j) pesticides and other chemicals.**	No acceptable outcome is nominated. Editor's note—Applicants should refer to the Development manual planning scheme policy no. SC 6.4 - SC6.4.3.12 Constructed Lakes.	N/A
PO19 **Stormwater run-off entering and leaving a constructed lake or artificial waterway maintains receiving water quality.**	No acceptable outcome is nominated. Editor's note—Applicants should refer to the Development manual planning scheme policy no. SC 6.4 - SC6.4.3.12 Constructed Lakes.	N/A
PO20 **The location, design and operation of a constructed lake or artificial waterway:** **(a) protects environmental values in downstream and upstream waterways;** **(b) protects any groundwater recharge areas;**	No acceptable outcome is nominated. Editor's note—Applicants should refer to the Development manual planning scheme policy no. SC 6.4 - SC6.4.3.12 Constructed Lakes.	N/A

Performance outcomes	Acceptable outcomes	Applicant Response
(c) incorporates low lying areas of a catchment connected to an existing waterway; **(d) does not disrupt natural wetlands and any associated buffer areas;** **(e) avoids disturbing soils or sediments; and** **(f) avoids altering the natural hydrologic regime in acid sulfate soil and nutrient hazardous areas.** **Editor's Note—Monitoring and maintenance programs will be required to adaptively manage water quality and to achieve relevant water quality objectives.**		
PO21 **The constructed lake or artificial waterway is located in a way that is compatible with existing tidal waterways.**	For constructed lakes — No acceptable solution is nominated. AO21 For an artificial waterway: Where an artificial waterway is located adjacent to, or connected to, a tidal waterway by means of a weir, lock, pumping system or similar: (a) there is sufficent flushing or tidal flushing with water level variation >0.3m; (b) any tidal flow alteration does not adversely impact on the tidal waterway; and (c) there is no introduction of salt water into freshwater environments. Editor's note—Applicants should refer to the Development manual planning scheme policy no. SC 6.4 - SC6.4.3.12 Constructed Lakes.	N/A
PO22 **The construction phase for the constructed lake or artificial waterway is compatible with protecting aquatic environmental values in existing natural waterways and wetlands.**	No acceptable outcome is nominated. Editor's note—Applicants should refer to the Development manual planning scheme policy no. SC 6.4 - SC6.4.3.12 Constructed Lakes.	N/A

Performance outcomes	Acceptable outcomes	Applicant Response
PO23 **A constructed lake or artificial waterway is designed to avoid terrestrial and aquatic weeds, vectors and concentrations of populations.**	No acceptable outcome is nominated. Editor's note—Applicants should refer to the Development manual planning scheme policy no. SC 6.4 - SC6.4.3.12 Constructed Lakes.	N/A
PO24 **The lake design provides for suitable machinery access to enable maintenance of the lake, including the removal of terrestrial and aquatic weeds.**	No acceptable outcome is nominated. Editor's note—Applicants should refer to the Development manual planning scheme policy no. SC 6.4 - SC6.4.3.12 Constructed Lakes.	N/A
PO25 **A constructed lake or artificial waterway has no adverse impact on flood capacity, including the capacity of upstream catchments and floodplain areas.**	No acceptable outcome is nominated. Editor's note—Applicants should refer to the Development manual planning scheme policy no. SC 6.4 - SC6.4.3.12 Constructed Lakes.	N/A
PO26 **A constructed lake or artificial waterway is designed to minimise hazards to ensure public safety is maintained.**	No acceptable outcome is nominated. Editor's note—Applicants should refer to the Development manual planning scheme policy no. SC 6.4 - SC6.4.3.12 Constructed Lakes.	N/A
PO27 **A constructed lake or artificial waterway is designed to provide a high level of amenity for surrounding residents.**	No acceptable outcome is nominated. Editor's note—Applicants should refer to the Development manual planning scheme policy no. SC 6.4 - SC6.4.3.12 Constructed Lakes.	N/A
PO28 **Opportunities for incorporation of accessible passive and active recreation facilities into the design of the constructed lake or artificial waterway are facilitated.**	No acceptable outcome is nominated. Editor's note—Applicants should refer to the Development manual planning scheme policy no. SC 6.4 - SC6.4.3.12 Constructed Lakes.	N/A
Efficiency and whole of life cycle cost		
PO29 **Life cycle costs are minimised, taking into account acquisition, construction, establishment, operation, monitoring, maintenance, replacement and disposal costs.**	No acceptable outcome is nominated. Editor's note—Applicants should refer to the Development manual planning scheme policy SC6.4 for assistance in demonstrating this outcome.	The proposed development will comply with this provision.

Performance outcomes	Acceptable outcomes	Applicant Response
PO30 **The design of the development allows for sufficient site area to accommodate an effective stormwater management system.**	No acceptable outcome is nominated. Editor's note—Applicants should refer to the Development manual planning scheme policy SC6.4 for assistance in demonstrating this outcome.	The proposed development will comply with this provision.
PO31 **The proposal provides for the orderly development of stormwater infrastructure within a catchment, having regard to:** **(a) existing capacity of stormwater infrastructure and ultimate catchment conditions;** **(b) discharge for existing and future upstream development; and** **(c) protecting the integrity of adjacent and downstream development.**	No acceptable outcome is nominated. Editor's note—Applicants should refer to the Development manual planning scheme policy SC6.4 for assistance in demonstrating this outcome.	The proposed development will comply with this provision. Refer Appendix M and Appendix N.
PO32 **Proposed stormwater infrastructure remains fit for purpose for the life of the development.**	No acceptable outcome is nominated. Editor's note—Applicants should refer to the Development manual planning scheme policy SC6.4 for assistance in demonstrating this outcome.	The proposed development will comply with this provision.
PO33 **Proposed stormwater infrastructure can be easily accessed and can be maintained in a safe and cost effective way.**	AO33 The stormwater management system is designed in accordance with the Development manual planning scheme policy SC6.4 – SC6.4.3.9 Water sensitive urban design guidelines and SC6.4.4.4 Stormwater drainage design.	The proposed development will comply with this provision.

Performance outcomes	Acceptable outcomes	Applicant Response
Water management in reconfiguring a lot		
PO34 **Reconfiguration of lots includes water management measures in the design of any road reserve, streetscape or drainage networks to:** **(a) minimise impacts on the water cycle;** **(b) protect waterway health by improving stormwater quality and reducing site run-off; and** **(c) avoid large areas of impervious surfaces.**	No acceptable outcome is nominated. Editor's note—Applicants should refer to the Development manual planning scheme policy SC6.4 for assistance in demonstrating this outcome.	N/A
Ship-sourced pollutants		
PO35 **Common user facilities for the handling and disposal of ship-sourced pollutants including oil, garbage and sewage are provided at a suitable location in any development involving a marina or berthing facilities.** **Editor's note—Refer to: *Australian and New Zealand Environment and Conservation Council (ANZECC)*, 1997, *Best Practice Guidelines for Waste Reception Facilities at Ports*, *Marinas and Boat Harbours in Australia and New Zealand.***	No acceptable outcome is nominated.	N/A
PO36 **Marinas or berthing facilities are designed and operated to ensure the risk of spillage from operations is minimised.**	No acceptable outcome is nominated.	N/A
PO37 **Equipment to contain and remove spillages is stored in a convenient position near marina or berthing facilities and is available for immediate use.**	No acceptable outcome is nominated.	N/A

Performance outcomes	Acceptable outcomes	Applicant Response
PO38 **Where practical, the marina pollutant reception facility is connected to a sewerage or other waste reception infrastructure.** **Editor's note—Reception facilities require compliance assessment under the *Plumbing and Drainage Act 2002*. The plumbing compliance assessment process will ensure that the proposed facilities address 'peak load'.**	No acceptable outcome is nominated.	N/A

Appendix J

Landscape Code

Appendix J Landscape Code

Performance outcomes	Acceptable outcomes	Applicant Response
Landscape design and character		
PO1 **The overall landscape design of both public and private spaces:** **(a) creates a sense of place that is consistent with the intended character of the streetscape, city or locality; and** **(b) is functional and designed to be visually appealing in the long-term as well as when first constructed.**	AO1 When the development is in an identified locality in the Development manual planning scheme policy no. SC6.4 - SC6.4.3.6 Landscape policy, landscape design is in accordance with the requirements for that area. Otherwise, no acceptable outcome is nominated. Editor's note—Applicants should refer to the Development manual planning scheme policy no. SC6.4 - SC6.4.3.6 Landscape policy.	As per the Landscaping Policy, there are currently no specific requirements relating to visual screening. A 10 metre wide vegetated landscaping buffer will be provided along the width of the northern and southern road frontage. The northern road frontage includes existing natural vegetation which provides screening, specifically to Kelso Drive and the lower density residential estate to the south. This vegetate buffer is high density with average tree height of over 6m. A concept landscape design report is included in Appendix Q of this report and details the proposed landscape design and species in accordance with the Councils Landscape Policy. .
PO2 **Tree and plant selection ensures:** **(a) climatically appropriate landscaping;** **(b) creation of a diverse palette: in form, texture and seasonal colour;** **(c) longevity of plants and the form and function of landscaped areas; and** **(d) cost effective and convenient maintenance over the long-term.**	AO2.1 Species are selected from those listed in the Development manual planning scheme policy no. SC6.4 - SC6.4.3.6 Landscape policy.	Species for planting has been provided in Appendix Q, the concept landscape design and have been selected from the Council's Landscape Policy.
	AO2.2 Plant species do not include undesirable species as listed in the Development manual planning scheme policy no. SC6.4 - SC6.4.3.6 Landscape policy.	As above.
PO3 **Where appropriate, provision is made for on-street planting that:** **(a) complements the local streetscape;** **(b) ensures visibility is maintained from entrances and exits to properties and at intersections;** **(c) establishes healthy vegetation of suitable**	AO3 Street planting is provided that is consistent with the standards set out in the Development manual planning scheme policy no. SC6.4 - SC6.4.3.6 Landscape policy. Editor's note—Applicants may also have reference to the Development manual planning scheme policy no.	On street planting is not proposed as a part of this project.

Performance outcomes	Acceptable outcomes	Applicant Response
species; **(d) minimises the potential for vegetation to cause damage to persons, property or infrastructure; and** **(e) does not limit or hinder pedestrian or vehicular flow and movement.**	SC6.4 - SC6.4.4.1 Geometric road design.	
PO4 **Streetscape treatments and paving form a functional and attractive component of the overall landscape scheme.**	AO4.1 All general streetscape elements are provided in accordance with the standards set out in the Development manual planning scheme policy no. SC6.4 - SC6.4.3.6 Landscape policy.	Streetscape treatments are not proposed as a part of this application.
	AO4.2 Streetscape pavements are provided in accordance with the standards set out in the Development manual planning scheme policy no. SC6.4 - SC6.4.3.6 Landscape policy.	Streetscape treatments are not proposed as a part of this application.
	AO4.3 Streetscape furniture is provided in accordance with the standards set out in the Development manual planning scheme policy no. SC6.4 - SC6.4.3.6 Landscape policy.	Streetscape treatments are not proposed as a part of this application.
PO5 **Landscaping within on-site open space areas is well-designed, having regard to its purpose and the provision of shading, climatic response, and the proportion of soft and hard elements.**	AO5.1 Selected tree species within communal recreation areas are to provide at least 30% shade coverage within 5 — 10 years of planting.	No communal recreation area is proposed as a part of this application.
	AO5.2 A minimum of 50% of landscaped areas are to be covered in soft landscaping (turf areas and planting beds), with at least 25% of that area being planting.	Landscaping will be provided for the purpose of screening on the outer boundaries of the site. This will be planted vegetation to act as a visual buffer.
PO6 **Landscaping and embellishments in local recreational parks is fit for purpose and well-**	AO6 Landscaping and embellishments are provided that are consistent with the standards set out in the	No landscaping is proposed in local recreational parks.

Performance outcomes	Acceptable outcomes	Applicant Response
designed, having regard to shading, climatic response, and the proportion of soft and hard elements. Landscaping softens edges and creates an attractive interface with adjoining land.	Development manual planning scheme policy no. SC6.4 - SC6.4.3.6 Landscape policy. Editor's note—Applicants should also have regard to requirements for local recreational parks in the Reconfiguring of a lot code.	
PO7 **The use of hard surface treatments within private and public spaces do not detract from a high standard of amenity, and large unbroken areas of hardstand material is avoided.**	AO7 Surface treatments are provided that are consistent with the standards set out in the Development manual planning scheme policy no. SC6.4 - SC6.4.3.6 Landscape policy.	No unnecessary areas of hardstand are provided. Hardstand areas will include the site access, car parking and access tracks.
Edge treatments		
PO8 **Where provided, landscape design along site frontages is used to mitigate adverse aesthetic elements, provide privacy and reduce illumination impacts, while maintaining a safe environment for users.**	AO8 Landscaped areas along the frontage of a site consists of: (a) shade or rounded canopy trees that will provide a minimum of 50% shade to the frontage of the site within 5 years of planting; (b) shrubs that provide screening to blank walls and privacy as required; and (c) low shrubs and ground covers that reach a maximum height of 750mm at maturity.	Refer to Appendix Q, concept landscape design report for detail on the landscape design.
PO9 **Where appropriate, acoustic barriers and long fences along road frontages and within the development are screened or softened by landscaping or architectural embellishment to improve visual amenity of the development.**	No acceptable outcome is nominated. Editor's note—Guidance on desirable treatments in particular circumstances is provided in the Development manual planning scheme policy no. SC6.4 - SC6.4.3.6 Landscape policy.	Refer to Appendix Q, concept landscape design report for detail on the landscape design.

Performance outcomes	Acceptable outcomes	Applicant Response
PO10 **Where provided, landscaping along a side or rear boundary assists in maintaining privacy, screening unsightly or service elements and enhancing the appearance of the development from nearby premises.**	AO10.1 Screen planting is provided along the side or rear boundary of a site, which consists of: (a) either trees with a maximum spacing of 3m (measured from centres) and capable of providing a dense screen within 3 years of planting or screening shrubs capable of growing to a height of 3m within 2 years of planting; and (b) low shrubs and ground covers, where appropriate, to allow for complete covering of planting area.	Refer to Appendix Q, concept landscape design report for detail on the landscape design.
	AO10.2 A minimum of 25% of all trees are to grow above the height of the eaves of the equivalent second storey of the building.	Refer to Appendix Q, concept landscape design report for detail on the landscape design. Tree species have been selected which will grow to an approximate height of 4 metres to avoid shading of the solar panels.
PO11 **Landscaped areas along or near retaining walls, long unbroken walls, service areas and car parking areas consist of an appropriate combination and species of trees, shrubs and groundcovers to minimise the visual impact of these elements.**	No acceptable outcome is nominated. Editor's note—Guidance on desirable treatments in particular circumstances is provided in the Development manual planning scheme policy no. SC6.4 - SC6.4.3.6 Landscape policy.	N/A.
PO12 **Screening trees, shrubs, low shrubs, ground covers and vertical accent plants are appropriate for the space available, orientation and functional requirements of the area.**	No acceptable outcome is nominated. Editor's note—Guidance on desirable treatments in particular circumstances is provided in the Development manual planning scheme policy no. SC6.4 - SC6.4.3.6 Landscape policy.	The proposed development complies with this provision.
Maintenance, drainage, utilities, services and construction		
PO13 **Plant selection and location protects the integrity and function of overhead and underground services.**	AO13 Plant selection and location complies with the Development manual planning scheme policy no. SC6.4 - SC6.4.3.6 Landscape policy.	The proposed development will comply with this provision. Refer Appendix Q.

Performance outcomes	Acceptable outcomes	Applicant Response
PO14 **Landscape elements do not adversely affect stormwater quantity or quality by ensuring:** **(a) the flow of water along overland flow paths is not restricted;** **(b) opportunities for water infiltration are maximised; and** **(c) areas of pavement, turf and mulched garden beds are appropriately located and adequately drained.**	No acceptable outcome is nominated. Editor's note—Applicants should also refer to the Works code and Healthy waters code and the Development manual planning scheme policy to assist in demonstrating the outcome.	Landscaping will be located on the boundaries of the lot and will not adversely affect the flow or quality of stormwater on the site. In addition, the stormwater flow is to the west of the site where no landscaped buffer is proposed.
PO15 **Landscaping works, design and materials used minimise maintenance costs and whole of life cycle costs.** **Editor's note—Council may request a lifecycle cost analysis and maintenance cost plan for developments that create new public landscape embellishment to determine the appropriateness of landscaping treatment lifecycle costs to the community.**	No acceptable outcome is nominated. Editor's note—Applicants should refer to the Development manual planning scheme policy to assist in demonstrating the outcome, including SC6.4.3.6 Landscape policy and SC6.4.6. Construction standards.	The proposed development will comply with this provision.
PO16 **All turf areas on-site are accessible externally by standard lawn maintenance equipment and receive adequate sunlight for the turf species used.**	No acceptable outcome is nominated. Editor's note—Applicants should refer to the Development manual planning scheme policy SC6.4.3.6 Landscape policy to assist in demonstrating the outcome.	Turf is not proposed as a part of the development.
PO17 **Drainage of podium planters allows for flush out in future and are adequately drained.**	No acceptable outcome is nominated.	N/A

Performance outcomes	Acceptable outcomes	Applicant Response
PO18 **The need for irrigation within private and public spaces to ensure long-term viability and integrity of landscaped areas is minimised as far as practical. Where provided, irrigation is designed to facilitate the efficient supply of water in accordance with micro-climatic conditions.**	AO18 Irrigation is provided accordance with the Development manual planning scheme policy no. SC6.4 - SC6.4.3.6 Landscape policy.	Irrigation is not proposed as a part of the development.
PO19 **Limited on-site maintenance is achieved for private and public landscaping, by selecting plant species having regard to long life expectancy and minimal leaf litter drop, pruning, watering and fertilising requirements.**	No acceptable outcome is nominated. Editor's note—Applicants should refer to the Development manual planning scheme policy SC6.4.3.6 Landscape policy to assist in demonstrating the outcome.	The proposed development will comply with this provision.
PO20 **Container sizes and planting stock maturity is consistent with the intended role of the landscaping.**	AO20 Landscaping is undertaken in accordance with the Development manual planning scheme policy no. SC6.4 - SC6.4.3.6 Landscape policy.	The proposed development will comply with this provision.
PO21 **Planting stocks are of a quality to ensure vigorous growth.**	AO21 Landscaping is undertaken in accordance with the Development manual planning scheme policy no. SC6.4 - SC6.4.3.6 Landscape policy and SC6.4.6.26 Landscaping.	The proposed development will comply with this provision.
PO22 **Plants are protected and maintained to facilitate in-situ growth, vigour and quality form.**	AO22 Landscaping is undertaken in accordance with the Development manual planning scheme policy no. SC6.4 - SC6.4.3.6 Landscape policy and SC6.4.6.26 Landscaping.	The proposed development will comply with this provision.
PO23 **Site preparation works ensure a stable and enhanced landscape form.**	AO23 Landscaping is undertaken in accordance with the Development manual planning scheme policy no. SC6.4 - SC6.4.3.6 Landscape policy and SC6.4.6.26 Landscaping.	The proposed development will comply with this provision.

Performance outcomes	Acceptable outcomes	Applicant Response
Sustainability		
PO24 **Wherever possible, landscape design facilitates the retention of significant existing vegetation, both within and external to the site.**	AO24.1 Site design integrates and incorporates retained and significant trees and vegetation within and external to the site.	No significant vegetation is proposed to be removed as a part of this project.
	AO24.2 Removed or damaged significant vegetation is replaced with mature vegetation of a comparable quantity and species.	No significant vegetation is proposed to be removed as a part of this project.
PO25 **Appropriate site planning and construction management is undertaken to ensure the longevity and health of retained and significant trees and vegetation.**	AO25.1 Retained trees are protected by a tree protection zone (TPZ) and fenced along the canopy/drip line to comply with AS4970- 2009 Protection of Trees on Development Sites.	No significant vegetation is proposed to be removed as a part of this project.
	AO25.2 Any required pruning or trimming work is undertaken in accordance with AS4373 — Pruning of Amenity Trees and is carried out by a qualified aborist.	No significant vegetation is proposed to be removed as a part of this project.
	AO25.3 Retained and significant vegetation damaged during development or construction is treated to repair any damage to the extent practicable by a qualified aborist.	No significant vegetation is proposed to be removed as a part of this project.
	AO25.4 Protective measures and practices are employed for work adjacent to trees in accordance with the Development manual planning scheme policy no. SC6.4 - SC6.4.5 Construction management.	No significant vegetation is proposed to be removed as a part of this project.
PO26 **Landscape design optimises water and energy efficiency and responds appropriately to local conditions, by:**	No acceptable outcome is nominated. Editor's note—Applicants should refer to Development manual planning scheme policy no. SC6.4 - SC6.4.3.6 Landscape policy.	N/A

Performance outcomes	Acceptable outcomes	Applicant Response
(a) maximising the exposure to the prevailing summer breezes and the north-east winter morning sun; **(b) minimising exposure to the prevailing winter winds and western summer sun; and** **(c) optimising shade to create useable and comfortable areas;** **(d) hydro-zoning planting.**		
PO27 **Planting bed profiles and edging encourage plant viability, reduce erosion, control weed invasion, provide adequate water infiltration and ease of maintenance to support long-term plant viability and vigorous growth.**	AO27 Planting beds are designed in accordance with the Development manual planning scheme policy no. 6.4 - SC6.4.3.6 Landscape policy.	The proposed development will comply with this provision.
PO28 **Landscape buffering and species selection is consistent and compatible with any ecological values on or adjoining the site.**	No acceptable outcome is nominated. Editor's note—Applicants should refer to Development manual planning scheme policy no. SC6.4 - SC6.4.3.6 Landscape policy.	The proposed development will comply with this provision.
PO29 **Landscaping elements are provided within car parking areas, along driveways and internal roadways to provide adequate shading, and safe and legible parking areas.**	AO29 Landscaping is provided in accordance with the Development manual planning scheme policy no. SC6.4 - SC6.4.3.6 Landscape policy.	N/A
Safety		
PO30 **Landscape design enhances community safety and reduces the potential for crime and antisocial behaviour.** **Editor's note—Applicants may find useful guidance in the Queensland Government's Crime Prevention through Environmental Design**	AO30.1 Access to a site, car park, buildings or public open space is well lit, free from obstructions and clearly defined by landscape treatments.	Where appropriate, the proposed development will comply with this provision.
	AO30.2 Trees with a minimum 1.8m of clear trunk (at maturity) are located along pathways, at building entries, within	Where appropriate, the proposed development will comply with this provision.

Performance outcomes	Acceptable outcomes	Applicant Response
Guidelines for Queensland.	parking areas, on street corners, adjacent to street lighting and along driveways. Garden beds within the aforementioned areas consist of low shrubs and groundcovers that do not exceed 750mm in height.	
	AO30.3 Any solid wall or semi permeable fence is protected from graffiti through means of vertical landscaping or vandal resistant paint or artwork.	No solid walls or semi permeable fencing is proposed.
PO31 **Where appropriate and practicable, all elements of the landscape design are safe and provide accessibility for all abilities.**	AO31.1 Paving material, tactile indicators and construction complies with AS1428 - Design for Access and Mobility.	Where appropriate, the proposed development will comply with this provision.
	AO31.2 Pavement material or treatment clearly delineates between pedestrian and vehicular movement systems through contrasting materials, colours or level changes.	Where appropriate, the proposed development will comply with this provision.
	AO31.3 Hard landscaping materials are not highly reflective, or likely to create glare, slipperiness or other hazardous conditions.	Where appropriate, the proposed development will comply with this provision.

Appendix K

Transport Impact Access and Parking Code

Appendix K Transport Impact Access and Parking Code

Performance outcomes	Acceptable outcomes	Applicant Response
Transport impact **Editor's note—Applicants should note that the Department of Transport and Main Roads may have additional requirements.** **Editor's note—Applicants should also note that a transport impact assessment may be required to demonstrate compliance with this code.**		
PO1 **The development is located on roads that are appropriate for the nature of traffic generated, having regard to the safety and efficiency of the transport network, and the functions and characteristics identified of the road hierarchy.** **The road hierarchy is shown on Figure 9.5 — Road hierarchy existing and Figure 9.6 Road Hierarchy Future**	No acceptable outcome is nominated. Editor's note— Applicants should refer to the Development manual planning scheme policy no. SC6.4 - SC6.4.3.13 Townsville road hierarchy, SC6.4.4.1 Geometric road design and SC6.4.3.14 Traffic impact assessment guidelines.	The development is located on local roads. The traffic generation for a development of this nature is expected to be minimal during operation. Post construction there will be very minimal deliveries to the site. There is expected to be a slight increase in the amount of traffic generated during construction for material delivery and construction personnel. This is assessed in Appendix N. Overall, the existing road network is of a capacity that can support the construction and operation of the solar farm.
PO2 **Development does not compromise the orderly provision or upgrading of the transport network.**	No acceptable outcome is nominated. Editor's note— Applicants should refer to the Development manual planning scheme policy no. SC6.4 - SC6.4.3.13 Townsville road hierarchy, SC6.4.4.1 Geometric road design and SC6.4.3.14 Traffic impact assessment guidelines.	The proposed development complies with this provision.
PO3 **On-site transport network infrastructure (including roads, parking, access and public transport, pedestrian and cyclist facilities) appropriately integrates and connects with surrounding networks.** **Editor's note—To demonstrate compliance with this performance outcome with regard to pedestrian and cyclist elements, applicants may be requested to provide a walk and cycle network plan to show connections to internal and**	No acceptable outcome is nominated. Editor's note— Applicants should refer to the Development manual planning scheme policy no. SC6.4 - SC6.4.3.5 Carparking and transport facilities guidelines, SC6.4.3.14 Traffic impact assessment guidelines, SC6.4.4.7 bicycle, pedestrian and shared path design, SC6.4.4.1 Geometric road design and SC6.4.3.13 Townsville road hierarchy.	The proposed development provides safe and efficient access from Kelso Drive. Parking is easily accessible from the access to the site. Public transport, pedestrian and cycle facilities are currently not present within the surrounding network and not considered necessary for the development.

Performance outcomes	Acceptable outcomes	Applicant Response
external attractions, existing and proposed walk and cycle facilities and which respond to desire lines of all users.		
PO4 **As far as practicable, development is designed to encourage travel by public transport, walking and cycling.**	No acceptable outcome is nominated. Editor's note— Applicants should refer to the Development manual planning scheme policy no. SC6.4 - SC6.4.3.5 Carparking and transport facilities guidelines, SC6.4.3.14 Traffic impact assessment guidelines, SC6.4.4.7 bicycle, pedestrian and shared path design, SC6.4.4.1 Geometric road design and SC6.4.3.13 Townsville road hierarchy	Given the nature of the development and the lack of existing public transport, walking and cycling facilities in the vicinity of the development, this provision is not considered practicable.
Site access **Editor's note—Local government (or other service owner) approval must be obtained before interfering with any infrastructure or undertaking works in the road reserve. In addition, be aware that the location of a driveway may be influenced by an approved plan of development that applies to the site or by the location of existing infrastructure or existing vehicle crossovers.**		
PO5 **Access arrangements are appropriate for:** **(a) the capacity of the parking area;** **(b) the volume, frequency and type of vehicle usage;** **(c) the function and characteristics of the access road and adjoining road network; and** **(d) the safety and efficiency of the road network.**	AO5 Access is provided in accordance with the standards identified in the Development manual planning scheme policy SC6.4 — SC6.4.3.17 Driveways and SC6.4.3.5 Carparking and public transport facilities guidelines. Editor's note— Applicants should refer to the Development manual planning scheme policy no. SC6.4 - SC6.4.3.13 Townsville road hierarchy and SC6.4.3.14 Traffic impact assessment guidelines.	Refer Appendix N.
PO6 **Where practical, access for cyclists and pedestrians is clearly distinguished from vehicle access.**	No acceptable outcome is nominated. Editor's note— Applicants should refer to the Development manual planning scheme policy no. SC6.4 - SC6.4.3.5 Carparking and public transport facilities guidelines.	This is not considered practical for this development.
PO7 **Access is located and designed to provide safe and easy access to the site, having regard to its position, width and gradient.**	AO7 Access is provided in accordance with the standards identified in the Development manual planning scheme policy no. SC6.4 — SC6.4.3.17 Driveways and SC6.4.4.8 Standard drawings	The proposed development will comply with this provision. The access is positioned in the northeast section of the site and also provides access for the Powerlink easement. The position of the access allows a left hand turn off Kelso Drive and is simular in nature to the other turns off Kelso

Performance outcomes	Acceptable outcomes	Applicant Response
	Editor's note— Applicants should refer to the Development manual planning scheme policy no. SC6.4 - SC6.4.3.5 Carparking and public transport facilities guidelines, SC6.4.3.14 Traffic impact assessment guidelines and SC6.4.3.13 Townsville road hierarchy.	Drive in the vicinity of the project. Refer Appendix N.
PO8 **All vehicles reasonably expected to use the site are able to travel the length of the driveway or driveway access without damage to vehicle or the driveway surface.**	AO8 Access is provided in accordance with the standards identified in the Development manual planning scheme policy no. SC6.4 — SC6.4.3.17 Driveways and SC6.4.3.5 Carparking and public transport facilities guidelines.	The proposed development will comply with this provision.
PO9 **A driveway does not cause change in the level of a footpath that is unsafe or inaccessible for people with mobility difficulties.**	AO9 Access is provided in accordance with the standards identified in the Development manual planning scheme policy no. SC6.4 — SC6.4.3.17 Driveways and SC6.4.4.8 Standard drawings.	The proposed development will comply with this provision.
PO10 **Driveways are designed to withstand loadings from all vehicles reasonably expected to use the site.**	AO10 Access is provided in accordance with the standards identified in the Development manual planning scheme policy no. SC6.4 — SC6.4.3.17 Driveways.	The proposed development will comply with this provision.
PO11 **A driveway does not allow water to pond on adjacent properties or adjacent buildings and does not allow water to enter a building or property.**	AO11 Access is provided in accordance with the standards identified in the Development manual planning scheme policy no. SC6.4 — SC6.4.3.17 Driveways.	The proposed development will comply with this provision.
PO12 **Construction of a driveway does not damage or interfere with the location, function of or access to any services and infrastructure.**	AO12 Access is provided in accordance with the standards identified in the Development manual planning scheme policy no. SC6.4 — SC6.4.3.17 Driveways, SC6.4.3.5 Carparking and public transport facilities guidelines, and SC6.4.4.8 Standard drawings.	The proposed access may require relocation of a power pole at the entrance to the site. This will be discussed with Ergon Energy / Powerlink during the detailed design stage. Refer Appendix N.

Performance outcomes	Acceptable outcomes	Applicant Response
PO13 **All vehicles reasonably expected to access the site can safely manoeuvre to allow vehicles to exit and enter in a forward motion.**	AO13 Access is provided in accordance with the standards identified in Development manual planning scheme policy no. SC6.4 - SC6.4.3.17 Driveways, SC6.4.3.5 Carparking and public transport facilities guidelines and SC6.4.4.8 Standard drawings such that all vehicles reasonably expected to access the site, can exit and enter in a forward motion with no more than a three-point turn.	The proposed development will comply with this provision.
Pedestrian and cyclist facilities		
PO14 **Provision is made for the safe and convenient movement of pedestrians on-site and connecting to the external network, having regard to desire lines, legibility, safety, topographical constraints, shading and other weather protection and equitable access arrangements.**	No acceptable outcome is nominated. Editor's note— Applicants should refer to the Development manual planning scheme policy no. SC6.4 — SC6.4.3.5 Carparking and public transport facilities guidelines, SC6.4.4.7 Bicycle, pedestrian and shared path design, SC6.4.3.1.3 Townsville road hierarchy, SC6.4.4.1 Geometric road design and SC6.4.3.6 Landscape policy to assist in complying with this outcome.	N/A
PO15 **Provision is made for safe and convenient cycle movement to the site and within the site and connecting to the external network having regard to desire lines, users' needs, safety, topographical constraints and legibility.** Editor's note—**End of trip bicycle facilities will need to be provided for major development in accordance with the Queensland Development Code Mandatory Part 4.1 — Sustainable Buildings. "Major development" is defined in MP4.1.**	No acceptable outcome is nominated. Editor's note— Applicants should refer to the Development manual planning scheme policy no. SC6.4 — SC6.4.3.5 Carparking and public transport facilities guidelines, SC6.4.4.7 Bicycle, pedestrian and shared path design, SC6.4.3.1.3 Townsville road hierarchy, SC6.4.4.1 Geometric road design and SC6.4.3.6 Landscape policy to assist in complying with this outcome.	N/A
PO16 **Car parking areas, pathways and other elements of transport network infrastructure are designed to enhance public safety by discouraging crime and**	No acceptable outcome is nominated. Editor's note— Applicants should refer to the Development manual planning scheme policy no. SC6.4 — SC6.4.3.5 Carparking and public transport facilities	N/A

Performance outcomes	Acceptable outcomes	Applicant Response
antisocial behaviour, having regard to: **(a) provision of opportunities for casual surveillance;** **(b) provision of lighting;** **(c) the use of fencing to define public and private spaces, whilst allowing for appropriate sight lines;** **(d) minimising potential concealment points and assault locations;** **(e) minimising opportunities for graffiti and other vandalism; and** **(f) restricting unlawful access to buildings and between buildings.** Editor's note—**Crime Prevention through Environmental Design Guidelines for Queensland prepared by the State Government may provide applicants with guidance on these matters.**	guidelines, SC6.4.4.7 Bicycle, pedestrian and shared path design, SC6.4.3.13 Townsville road hierarchy, SC6.4.4.1 Geometric road design, SC6.4.3.20 Public lighting and utility services and SC6.4.3.6 Landscape policy to assist in complying with this outcome.	
Parking		
PO17 **Provision is made for on-site vehicle parking to:** **(a) meet the demand likely to be generated by the development; and** **(b) avoid on street parking that would adversely impact on the safety or capacity of the road network or unduly impact on local amenity.**	AO17 Car parking is provided in accordance with the standards identified in Parking rates planning scheme policy no. SC6.10. Editor's note— Applicants should refer to the Development manual planning scheme policy no. SC6.4 - SC6.4.3.5 Carparking and public transport facilities guidelines, SC6.4.3.14 Traffic impact assessment guidelines, SC6.4.4.1 Geometric road designand SC6.4.3.13 Townsville road hierarchy to assist in complying with this outcome.	Planning Scheme Policy no.SC6.10 does not provide a parking rate for renewable energy facilities. 8 car parking spaces have been provided. Refer Appendix A (Development Plans) and Appendix N (Engineering Report).

Performance outcomes	Acceptable outcomes	Applicant Response
PO18 **Parking ensures access is provided for people with disabilities.**	AO18 Car parking areas are designed in accordance with the standards identified in the Development manual planning scheme policy no. SC6.4 — SC6.4.3.5 Car parking and public transport facilities guidelines.	Sufficient car parking spaces are provided for the nature of the development. Car parking provision for people with disabilities will be provided if required by Council during the detailed design stage.
PO19 **Where the nature of the proposed development creates a demand, provision is made for set-down and pick-up facilities by bus, taxis or private vehicle, which:** **(a) are safe for pedestrians and vehicles;** **(b) are conveniently connected to the main component of the development by pedestrian pathway; and** **(c) provide for pedestrian priority and clear sight lines.**	No acceptable outcome is nominated. Editor's note—Applicants should refer to the Development manual planning scheme policy no. SC6.4 - SC6.4.3.5 Carparking and public transport facilities guidelines, SC6.4.3.14 Traffic impact assessment guidelines, SC6.4.4.1 Geometric road design,SC6.4.3.13 Townsville road hierarchy and SC6.4.3.6 Landscape policy to assist in complying with this outcome.	N/A The nature of the development does not require the need for set-down and pick up facilities for bus, taxi etc.
PO20 **Car parking and servicing areas are designed to:** **(a) be clearly defined, marked and signed;** **(b) be convenient and accessible;** **(c) minimise large unbroken areas of hardstand to the extent practicable;** **(d) be safe for vehicles, pedestrians and cyclists;** **(e) provide shading;** **(f) be located to encourage multi-purpose trip ends and minimise vehicle movements within the site; and** **(g) minimise any adverse impacts on the amenity of surrounding land.**	No acceptable outcome is nominated. Editor's note—Applicants should refer to the Development manual planning scheme policy no. SC6.4 - SC6.4.3.5 Carparking and public transport facilities guidelines, SC6.4.3.17 Driveways, SC6.4.3.14 Traffic impact assessment guidelines, SC6.4.4.1 Geometric road design and SC6.4.3.6 Landscape policy.	Adequate car parking will be provided on site as per the development plans in Appendix A.

Performance outcomes	Acceptable outcomes	Applicant Response
PO21 **Vehicle spaces have adequate dimensions to meet user requirements.**	AO21 Car parking areas are designed in accordance with the standards identified in the Development manual planning scheme policy no. SC6.4 — SC6.4.3.5 Car parking and public transport facilities guidelines.	During operation, the proposed development will comply with this provision.
PO22 **Pavement is constructed to an appropriate standard.**	No acceptable outcome is nominated.	The proposed development will comply with this provision.
PO23 **Parking and servicing areas are kept accessible and available for use as a car park at all times during the normal business hours of the activity.**	No acceptable outcome is nominated.	The propose development will comply with this provision.
PO24 **Visitor parking for accommodation activities remains accessible and useable to visitors at all times.**	No acceptable outcome is nominated.	N/A
PO25 **Multi-level car parking areas are designed, articulated and finished to make a positive contribution to the local external streetscape character, as well as the internal user experience of the facility ensuring way finding technologies and aesthetic treatments are provided.**	No acceptable outcome is nominated.	N/A
Servicing		
PO26 **Provision is made for the on-site loading, unloading, manoeuvring and access by service vehicles that:** **(a) are adequate to meet the demands generated by the development;**	AO26 Servicing areas are provided and designed in accordance with the standards identified in the Development manual planning scheme policy no. SC6.4 – SC6.4.3.5 Car parking and public transport facilities guidelines.	The proposed development will comply with this provision.

Performance outcomes	Acceptable outcomes	Applicant Response
(b) are able to accommodate the design service vehicle requirements; and **(c) does not unduly impede vehicular, cyclist and pedestrian safety and convenience both within the site and external to the site.**		
PO27 **Refuse collection vehicles are able to safely access on-site refuse collection facilities.**	AO27 Refuse collection areas are provided and designed in accordance with the standards identified in the Development manual planning scheme policy no. SC6.4 – SC6.4.3.22 Waste management guidelinesand SC6.4.3.5 Car parking and public transport facilities guidelines.	The proposed development is on a rural lot which does not have refuse collection services. Any waste generated on the site will be dealt with by a suitable contractor.
PO28 **Servicing arrangements minimise any adverse impact on the amenity of premises in the vicinity, having regard to operating hours, noise generation, proximity to sensitive uses, odour generation and dust.**	No acceptable outcome is nominated.	The proposed development will comply with this provision.

Appendix L

Works Code

Appendix L Works Code

Performance outcomes	Acceptable outcomes	Applicant Response
Services and utilities		
PO1 **A potable water supply is provided that is adequate for the needs of the intended use.**	AO1.1 Where within an area designated for urban or rural residential development, the development is connected to council's reticulated water supply system in accordance with the Development manual planning scheme policy no. SC6.4-SC6.4.3.21 Townsville Water planning and design guidelines. OR AO1.2 Otherwise, the development is provided with an on-site water supply in accordance with the Development manual planning scheme policy no. SC6.4-SC6.4.3.11 On-site water supply.	The development does not include any toilet, bathroom or potable water facilities. Connection to the TCC water reticulation network is not proposed.
	AO1.3 Water supply systems and connections are designed and constructed in accordance with the Development manual planning scheme policy no. SC6.4-SC6.4.3.21 Townsville Water planning and design guidelines, SC6.4.3.23 Water and sewer network modelling guidelines, SC6.4.6.2 Water supply and SC6.4.4.8 Standard drawings.	N/A
PO2 **Wastewater treatment and disposal is provided that is appropriate for the level of demand generated, protects public health and avoids adverse impacts on environmental values.**	AO2.1 Where within an area designated for urban development, the development is connected to the council's reticulated sewerage system in accordance with the Development manual planning scheme policy no. SC6.4-SC6.4.3.21 Townsville Water planning and design guidelines. OR AO2.2 Otherwise, on-site waste water treatment and disposal is provided which complies with the Development manual planning scheme policy no. SC6.4-SC6.4.3.10 On-site sewerage facilities.	No on site sewage collection, treatment or disposal facilities are proposed for the site. Appropriate portable facilities will be utilised during the construction phase of the development.

Performance outcomes	Acceptable outcomes	Applicant Response
	AO2.3 Waste water systems and connections are designed and constructed in accordance with the Development manual planning scheme policy no. SC6.4-SC6.4.3.21 Townsville Water planning and design guidelines, SC6.4.3.23 Water and sewer network modelling guidelines, SC6.4.6.3 Sewerage systems and SC6.4.4.8 Standard drawings.	The proposed project is unlikely to generate waste water. If waste water is to be generated it will avoid discharge to any waterways and will be dealt with in a suitable manner.
PO3 **The design and management of the development integrates water cycle elements having regard to:** **(a) reducing potable water demand;** **(b) minimising wastewater production;** **(c) minimising stormwater peak discharges and run-off volumes;** **(d) maintaining natural drainage lines and hydrological regimes as far as possible;** **(e) reusing stormwater and greywater is encouraged where public safety and amenity will not be compromised; and** **(f) efficient use of water.**	AO3 Integrated water management practices and infrastructure are implemented in accordance with Development manual planning scheme policy no. SC6.4 - SC6.4.3.8 Stormwater quality management plans for development and SC6.4.3.9 Water sensitive urban design guidelines.	Refer Appendix N and Appendix M.
PO4 **The development is provided with an adequate energy supply which maintains acceptable standards of public health, safety, environmental quality and amenity.**	AO4 For other than the Rural zone, premises are serviced by: an underground electricity supply approved by the relevant energy authority; or an overhead supply approved by the relevant energy authority where in the Rural residential zone, Special purpose zone or High impact industry zone or where on a lot of less than 2,500m^2 within an area where the existing supply is overhead. Editor's note—Applicants should also have regard to the Development manual planning scheme policy no. SC6.4 -SC6.4.3.20 Public lighting and utility services.	The proposed project is for the generation of electricity. Any connections will be agreed upon with Powerlink or Ergon Energy.

Performance outcomes	Acceptable outcomes	Applicant Response
PO5 **Premises are connected to a telecommunications service approved by the relevant authority.**	AO5 The development is connected to telecommunications infrastructure in accordance with the standards of the relevant regulatory authority. Editor's note—The Development manual planning scheme policy no. SC6.4-SC6.4.3.20 — Public lighting and utility services provides additional information regarding the supply of telecommunications.	The proposed development will comply with this provision.
PO6 **Provision is made for future telecommunications services (for example fibre optic cable).**	No acceptable outcome is nominated.	This provision is not applicable to this development.
PO7 **Where available, provision is made for reticulated gas.**	AO7 Design and provision of reticulated gas is undertaken in accordance with the Development manual planning scheme policy no. SC6.4-SC6.4.3.20 — Public lighting and utility services. Editor's note—Applicants should also have regard to the metering requirements of other relevant authorities.	This provision is not applicable to this development.
PO8 **Adequate access is provided to public services and utilities for future maintenance.**	No acceptable outcome is nominated. Editor's note—The Development manual planning scheme policy no. SC6.4 provides additional information and requirements for applicants, including when council will require easements over public services and utilities.	If necessary, the proposed development will comply with this provision.
Earthworks **Editor's note—Applicants should be aware that some retaining walls constitute building works that are assessable under the Building Regulation 2006. No approval is required under the Building Regulation 2006 for retaining walls if:** **(a) there is no surcharge loading; and** **(b) the height of wall or height of fill or excavation is not more than 1m; and** **(c) the wall is no closer than 1.5m to a building, structure (e.g. a swimming pool) or other retaining wall. In these cases, the "applicable code" for the purposes of the Act is the Building** **Code of Australia (refer to BCA Volume 2, Part 3.1.1). Retaining walls not more than 1m in height may be constructed in accordance with an accepted industry standard publication (e.g. timber, concrete masonry or similar).** **Editor's note—Applicants should note that council may request the submission of an engineering report undertaken by suitably qualified engineer to demonstrate compliance with the performance outcomes, particularly where alternative solutions are proposed.**		

Performance outcomes	Acceptable outcomes	Applicant Response
PO9 **Filling and excavation does not result in contamination of land or pose a health and safety risk.**	AO9 Filling and excavation does not: (a) use contaminated materials as fill; (b) excavate contaminated material; and (c) use waste material as fill. Editor's note—Applicants should refer to the Development manual planning scheme policy no. SC6.4 - SC6.4.6.10 Earthworks (construction) and SC6.4.5 Construction management for additional information.	The proposed development will comply with this provision.
PO10 **Earthworks result in stable landforms and structures.**	AO10 Earthworks and the construction of retaining walls and batters are undertaken in accordance with the Development manual planning scheme policy no. SC6.4 - SC6.4.4.5 Earthworks (design) andSC6.4.6.10 Earthworks (construction).	The proposed development will comply with this provision. Minor earthworks will be required for installation of the solar panels. No retaining walls are proposed.
PO11 **Earthworks are undertaken in a manner that:** **(a) maintains natural landforms as far as possible; and** **(b) minimises height of retaining walls and batter faces.**	AO11.1 Earthworks are undertaken in accordance with the Development manual planning scheme policy no. SC6.4 - SC6.4.4.5 Earthworks (design) and SC6.4.6.10 Earthworks (construction).	The proposed development will comply with this provision.
	AO11.2 Retaining walls are designed and constructed: (a) certified as stable by a Registered Professional Engineer of Queensland; and (b) have a combined height of retaining wall and fence of not more than 2 metres.	No retaining walls are proposed as a part of this project.
PO12 **Earthworks do not unduly impact on amenity or privacy for occupants of the site or on adjoining land.**	No acceptable outcome is nominated.	There may be minor impacts to amenity in terms of noise and dust during the construction period. These impacts will be mitigated through appropriate measures in the Construction Environmental Management Plan.
PO13 **Earthworks do not cause environmental harm.**	No acceptable outcome is nominated.	The proposed development will comply with this provision.

Performance outcomes	Acceptable outcomes	Applicant Response
PO14 **Filling or excavation does not worsen any flooding or drainage problems on the site or on neighbouring properties.**	AO14 Earthworks are undertaken in accordance with the Development manual planning scheme policy no. SC6.4 - SC6.4.4.5 Earthworks (design) and SC6.4.6.10 Earthworks (construction).	The proposed development will comply with this provision.
PO15 **Any structure used to restrain fill or excavation does not worsen drainage problems or cause surface water to be a nuisance to neighbouring properties.**	AO15 Earthworks are undertaken in accordance with the Development manual planning scheme policy no. SC6.4 - SC6.4.4.5 Earthworks (design) and SC6.4.6.10 Earthworks (construction).	No structure to restrain fill or excavation are proposed.
PO16 **Filling or excavation does not adversely affect sewer, stormwater or water utility infrastructure or access to them for maintenance purposes.**	AO16 Earthworks are undertaken in accordance with the Development manual planning scheme policy no. SC6.4 - SC6.4.4.5 Earthworks (design) and SC6.4.6.10 Earthworks (construction).	The proposed development will comply with this provision.
PO17 **Filling or excavation does not prevent or create difficult access to any property.**	AO17 Earthworks are undertaken in accordance with the Development manual planning scheme policy no. SC6.4 - SC6.4.4.5 Earthworks (design) and SC6.4.6.10 Earthworks (construction).	The proposed development will comply with this provision.
PO18 **Earthworks do not cause significant impacts through truck movements, dust or noise on the amenity of the locality in which the works are undertaken or along routes taken to transport the material and the transportation of materials minimises adverse impacts on the road network.**	AO18 Earthworks are undertaken in accordance with the Development manual planning scheme policy no. SC6.4 - SC6.4.6.10 Earthworks (construction) and SC6.4.5 Construction management.	The proposed development will comply with this provision.

Performance outcomes	Acceptable outcomes	Applicant Response
Movement networks		
PO19 **The following are provided along the full extent of the road frontage and to a standard that is appropriate to the function of the road or street and the character of the locality:** **(a) paved roadway;** **(b) appropriate pavement edging (including kerb and channel);** **(c) pedestrian paths and cycleways;** **(d) streetscaping and street tree planting;** **(e) stormwater drainage;** **(f) street lighting systems; and** **(g) conduits to facilitate the provision of and other utility services.**	AO19 Design and construction of external road works are undertaken in accordance with the Development manual planning scheme policy no. SC6.4. Editor's note—Applicants should have regard to the following sub-sections of the Development manual planning scheme policy no. SC6.4 - SC6.4.3.20 Public lighting and utility services; SC6.4.4.4 Stormwater drainage design; SC6.4.4.2 Pavement design; SC6.4.4.7 Bicycle, pedestrian and shared path design; SC6.4.3.6 Landscape policy, SC6.4.4.1 Geometric road design, SC6.4.3.3 Footpath treatment policy and SC6.4.6 Construction standards.	Refer Appendix N.
PO20 **Provision is made in the road reserve for streetscaping, pedestrians and cyclists in a manner consistent with:** **(a) the current and projected level of usage;** **(b) the desired streetscape character; and** **(c) activities which are anticipated to occur within the verge.**	AO20 Streetscaping works, footpaths and cycle paths are provided in accordance with Development manual planning scheme policy no. SC6.4. Editor's note—Applicants should have regard to the following sub-sections of the Development manual planning scheme policy no. SC6.4 - SC6.4.3.3 Footpath treatment policy; SC6.4.4.1 Geometric road design; SC6.4.3.13 Townsville road hierarchy, SC6.4.4.7 Bicycle, pedestrian and shared path design; SC6.4.3.6 Landscape policy and SC6.4.3.20 Public lighting and utility services in demonstrating compliance.	N/A

Performance outcomes	Acceptable outcomes	Applicant Response
PO21 **Parking areas are designed and constructed in a manner that is sufficiently durable for the intended function, maintains all weather access and ensures the safe passage of vehicles, pedestrians and cyclists.**	AO21 Parking area design and construction is undertaken in accordance with the Development manual planning scheme policy no. SC6.4 — SC6.4.3.5 Car parking and public transport facilities guidelines.	The proposed development will comply with this provision.
PO22 **Movement networks can be easily and efficiently maintained.**	AO22 Infrastructure is provided in accordance with the Development manual planning scheme policy no. SC6.4 — SC6.4.4.1 Geometric road design, SC6.4.3.13 Townsville road hierarchy and SC6.4.3.14 Traffic impact assessment guidelines.	The proposed development will comply with this provision.
Waste management		
PO23 **Development provides adequate waste management facilities on site for the storage of waste and recyclable material in a manner which:** **(a) is of adequate size to accommodate the expected amount of refuse to be generated by the use;** **(b) is in a position that is conveniently accessible for collection at all times;** **(c) is able to be kept in a clean, safe and hygienic state at all times; and** **(d) minimises the potential for environmental harm, environmental nuisance and adverse amenity impacts.**	AO23 Waste management facilities are provided in accordance with the Development manual planning scheme policy no. SC6.4 – SC6.4.3.22 Waste management guidelines. Editor's note—Applicants may be requested to prepare a Waste management plan in accordance with the Development manual planning scheme policy no.SC6.4-SC6.4.3.22 Waste management guidelines.	The proposed development is not expected to generate large amounts of waste during operation. Therefore a waste management plan is not considered warranted for this development. Any waste generated on site will be removed by a suitable contractor.

Performance outcomes	Acceptable outcomes	Applicant Response
Construction management		
PO24 **Work is undertaken in a manner which does not cause unacceptable impacts on surrounding areas as a result of dust, odour, noise or lighting.**	No acceptable outcome is nominated. Editor's note—Applicants should refer to the Development manual planning scheme policy no.SC6.4 for assistance in complying with this outcome.	The proposed development will comply with this provision. Construction work will be undertaken line with a Construction Environmental Management Plan which will provide appropriate mitigation for all construction activities. The solar operation is not anticipated to have adverse impacts on surrounding amenity.
PO25 **While undertaking development works, the site and adjoining road are maintained in a tidy, safe and hygienic manner.**	No acceptable outcome is nominated. Editor's note—Applicants should refer to the Development manual planning scheme policy no.SC6.4 for assistance in complying with this outcome.	The proposed development will comply with this provision.
PO26 **Traffic and parking generated during construction are managed to minimise impact on the amenity of the surrounding area.**	No acceptable outcome is nominated. Editor's note—Applicants should refer to the Development manual planning scheme policy no.SC6.4 for assistance in complying with this outcome.	The proposed development will comply with this provision.
PO27 **Council's infrastructure is not damaged by construction activities.**	No acceptable outcome is nominated. Editor's note—Applicants should refer to the Development manual planning scheme policy no.SC6.4 for assistance in complying with this outcome	The proposed development will comply with this provision.
PO28 **The integrity of new infrastructure is maintained.**	No acceptable outcome in nominated. Editor's note—Applicants should have regard to the following sections of the Development manual planning scheme policy no. SC6.4 - SC6.4.5 Construction management; SC6.4.6 Construction standards and SC6.4.7 Acceptance of completed works in demonstrating compliance.	The proposed development will comply with this provision.

Performance outcomes	Acceptable outcomes	Applicant Response
PO29 **Construction activities and works are carried out in a manner which avoids damage to the environment, retained vegetation and impacts on fauna.**	AO29 Construction activities and works are undertaken in accordance with the Development manual planning scheme policy no. SC6.4 - SC6.4.5 Construction management.	The proposed development will comply with this provision.
PO30 **Vegetation cleared from a site is disposed of in a manner that maximises reuse and recycling and minimises impacts on public health and safety.**	AO30 Construction activities and works are carried out in accordance with Development manual planning scheme policy no. SC6.4 - SC6.4.6.11 Clearing and grubbing. Editor's note—Applicants shall also refer to Development manual planning scheme policy no. SC6.4 for assistance in complying with this outcome.	The proposed development will comply with this provision.

Appendix M

Flood Impact Assessment

Appendix N

Engineering Services Report

Appendix O

Glint and Glare Assessment

Appendix P

Visual Amenity Assessment

Appendix Q

Landscape Concept Plans

Appendix R

Pre-lodgement Advice