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MMG Dugald River Pty Ltd

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7 April 2026

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# Planning Report

## Dugald River Wind Farm Project



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SIGNATURE PAGE

# Planning Report

## Dugald River Wind Farm Project

0755929



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## ACRONYMS AND ABBREVIATIONS

Acronym	Description
AGL	Above Ground Level
AHD	Australian Height Datum
BESS	Battery Energy Storage System
BMP	Bushfire Management Plan
DRM	Dugald River Mine
ERM	Environmental Resource Management Australia Pty Ltd
EVNT	Endangered, Vulnerable or Near Threatened
ha	Hectare
ILUA	Indigenous Land Use Agreement
IPP	Independent Power Provider
Km	Kilometre
kV	Kilovolts
Li-ion	Lithium Ion
LVIA	Landscape Visual Impact Assessment
M	Metre
Met Mast	Meteorological Mast
MMG	MMG Dugald River Pty Ltd
MSES	Matters of State Environmental Significance
MVPS	Medium Voltage Power Stations
MW	Megawatts
NAIDOC	National Aborigines and Islanders Day Observance Committee
NEM	National Energy Market
NHRA	Natural Hazard Risk Assessment
NWPS	North West Power System
OSOM	Over-size Over-mass
Planning Act	<i>Planning Act 2016</i>
Planning Scheme	Cloncurry Shire Planning Scheme 2016 (version 2)
PCEMP	Preliminary Construction Environment Management Plan
Regional Plan	North West Queensland Regional Plan 2010
RHF	Radiant Heat Flux
SARA	State Assessment and Referral Agency
SPP	State Planning Policy

Acronym	Description
State Code 16	State Code 16: Native Vegetation Clearing
State Code 23	State Code 23: Wind Farm Development
State Code 27	State Code 27: Battery Storage Facility Development
TPIA	Traffic and Pavement Impact Assessment
WTG	Wind Turbine Generator

## EXECUTIVE SUMMARY

MMG Dugald River Pty Ltd (MMG) proposes to develop the Dugald River Wind Farm Project (the Project) which primarily comprises the construction, operation and decommissioning of up to 24 Wind Turbine Generators and a Battery Energy Storage System (BESS) with an ultimate capacity of 120 MW, 240 MWh across two stages. Delivery of the Project will be through an Independent Power Provider (IPP).

Situated on the Knapdale Range, the Project is located approximately 63km north-east of the Township of Cloncurry and adjacent to the Dugald River Mine (DRM). Ancillary features of the Project include up to two permanent Meteorological Masts (Met Masts), as well as associated infrastructure including access tracks, foundations, hardstand areas, underground cabling, overhead powerlines, material laydown areas, construction areas, and a centralised operations and maintenance facility.

The purpose of the Project is to generate renewable energy using the available wind resource associated with the Knapdale Range. Power will service mining operations at the DRM, with additional energy generation to be sold into the North West Power System (NWPS), to contribute to the achievement of objectives associated with the Queensland Energy Road Map, and export energy to the National Energy Market, once it is connected via the proposed CopperString Project.

Pursuant to the *Planning Act 2016* (Planning Act), the Project is an assessable development and requires a Development Permit for a Material Change of Use (Wind Farm Development), Material Change of Use (Battery Storage Facility Development) and Operational Works (Clearing of Native Vegetation).

This Planning Application has been prepared in response to the requirements of State Code 16: Native Vegetation Clearing (State Code 16), State Code 23: Wind Farm Development (State Code 23), and State Code 27: Battery Storage Facility Development (State Code 27), as outlined within the State Development Assessment Provisions.

More broadly, the Development Application considers the requirements of the Cloncurry Shire Council Planning Scheme 2016, the North West Queensland Regional Plan 2010, and the Queensland State Planning Policy.

Consistent with recent changes to the Planning Act, the Project is Impact Assessable and therefore requires Public Notification in accordance with the recently revised Development Assessment Rules.

The Project has been developed through a consideration of environmental design philosophy, with the proposed alignment responding to known environmental values obtained through 17 years of on-ground ecological surveys across the Knapdale Range. Development of the Project Layout has occurred progressively since inception of the Project and has been refined in response to Technical Assessment outcomes and progression of the detailed design process.

The Project, which initially considered the entirety of the Knapdale Range, was refined to a Study Area of 631.20 ha, and finalised as comprising a Disturbance Footprint of 136.82 ha, reflecting the ultimate disturbance required for construction of the Project.

Key considerations relevant to the finalised Disturbance Footprint include:

- Topographical and geotechnical considerations;
- Constructability requirements and costings;
- Ecological constraints including known and suspected, Purple-necked rock-wallaby dens;
- Avoidance of multiple disturbance corridors resulting in ecological fragmentation;
- The Life of Mine Plan and layout for the DRM including the Tailings Storage Facility;
- Electrical reticulation and connection to both the DRM and the NWPS; and
- Retention of flexibility in design for Stage 2 of the Project.

The following Planning Report provides a detailed description of the Project, the existing land uses relevant to the Knapdale Range, the legislative framework for the Application, the various areas of technical assessment and a completed response to State Code 16, State Code 23 and State Code 27. The Report is supported by technical impact assessments completed by suitably qualified and experienced technical consultants.

Where the potential for impacts associated with the Project are identified, mitigation and management measures are provided. Additionally, the Project is supported by a broad range of Management Plans which align to the requirements and findings associated with the technical impact assessments.

A Social Impact Assessment (SIA) was prepared in line with the Social Impact Assessment Guideline, to support the development of a Community Benefit Agreement (CBA) with the Cloncurry Shire Council. The Social Impact Assessment identifies, assesses and proposes management strategies for 18 potential social impacts (direct and indirect, positive and negative) across the construction and operation phases of the Project.

Three key positive impacts identified were the increased support for the DRM and mining industry, greater demand for labour, and increased demand for local goods and services. No impacts were rated as having a Major (negative) residual impact. One Moderate impact related to transport safety for Over-size, Over-Mass (OSOM) loads was identified and will be mitigated through a Traffic Management Plan, relevant permits and existing measures associated with the DRM. All remaining impacts were assessed as Minor or Negligible.

This Project presents a unique approach to the design, construction and operation of a Wind Farm, given its location and proximity to the DRM. The Project is benefitted by access to existing mine infrastructure and services, particularly the DRM Accommodation Camp and DRM Fly Camp, which can accommodate the Project's workforce requirements and avoid impacts on Council assets. Consequently, impacts to community infrastructure as a result of the Project can be managed to result in net-positive socio-economic outcomes for the local area and the Cloncurry Township.

The Project will assist in securing the long-term energy requirements for the DRM whilst simultaneously contributing towards the Queensland Government's objectives of providing affordable, reliable and sustainable energy. By extension, the Project will assist in providing economic stimulus and benefit to the local area through job creation and indirect socio-economic benefits.

As demonstrated by this Planning Report and associated impact assessments, the Project complies with the relevant assessment benchmarks associated with State Code 16, State Code

23 and State Code 27. The Project is therefore recommended for approval via a combined Development Permit, subject to the imposition of reasonable and relevant conditions.

## 1. INTRODUCTION

The following Planning Report (the Report) has been prepared by Environmental Resources Management Australia Pty Ltd (ERM) on behalf of MMG Dugald River Pty Ltd (MMG), a wholly owned subsidiary of MMG Limited, in support of a combined Development Application for a Material Change of Use (Wind Farm), Material Change of Use (Battery Storage Facility) and Operational Works (Clearing Native Vegetation), under the *Planning Act 2016* (Planning Act).

MMG proposes to develop the Dugald River Wind Farm Project (the Project), which comprises the construction, operation and decommissioning of up to 24 Wind Turbine Generators (WTGs) and an associated Battery Energy Storage System (BESS) with an ultimate capacity of 120 MW, 240 MWh. Delivery of the Project will be through an Independent Power Provider (IPP)

Ancillary features of the Project include up to two permanent Meteorological Masts (Met Masts), as well as associated infrastructure including access tracks, foundations, hardstand areas, underground cabling, overhead powerlines, material laydown areas, construction areas and a centralised operations facility.

The Project will be located on the Knapdale Range, adjacent to the Dugald River Mine (DRM), a global top 10 zinc deposit, owned and operated by MMG. The Project is situated on State Land, 63 km north-east of the Township of Cloncurry.

In accordance with Schedule 10 of the Planning Regulation 2017, whilst the Project is located within the judicial boundary of the Cloncurry Shire Council, the Assessment Manager is the Department of State Development, Infrastructure, and Planning through the State Assessment and Referral Agency (SARA).

This Report sets out details of the Project, the background to the Application and addresses relevant issues arising with the activities proposed. A detailed assessment has been undertaken with respect to relevant State Development Assessment Provisions and other relevant planning matters for State or Local interest.

### 1.1 THE APPLICANT

Founded in 2009, MMG Limited (Company No. 222797; ARBN 31 150 889 151; HKEX: 1208) is a global resources company that mines, explores and develops base metal projects that achieve a low carbon future. MMG Limited has a progressive global commitment to decarbonising its mining operations through a reduction of Scope 1 and 2 emissions by 40% from a 2020 baseline by 2030, whilst simultaneously working towards net-zero by 2050.

In 2017, MMG commenced operations at the DRM, a top 10 global zinc deposit, with electricity supplied from the gas fired Diamantina Power Station. The DRM has a planned Life of Mine of 20+ years, with an average production of 1.7 million tonnes of ore per annum. The operation predominantly produces zinc concentrate, with by-products including lead and silver.

In 2021, MMG signed as the foundation customer for power sourced from the 88 Megawatt (MW) Mount Isa Solar Farm. The MMG allocation is sufficient to power 100% of DRM during daylight hours and has resulted in approximately 33% reduction in power related CO<sub>2</sub> emissions from the DRM.

## 1.2 PURPOSE OF THE PROJECT

The purpose of the Project is to generate renewable energy using the available wind resource associated with the Knapdale Range. Power generated will service mining operations at the DRM with additional energy generation to be sold into the North West Power System (NWPS). Through the planned CopperString Project, the long-term intention of the Project is to sell power into the National Energy Market (NEM) once the NWPS is connected to the NEM. Should the CopperString Project be further delayed, the Project will bolster the NWPS.

Energy is one of the highest operating costs for operations at the DRM and is subject to pricing variability and reliability concerns given the aging status of regional power infrastructure currently supporting the DRM. The DRM currently sources electricity from the Diamantina Power Station and the recently commissioned Dugald River Solar Farm.

The Project will generate power to service operations through a renewable energy source that aims to reduce operational costs and stabilise price volatility whilst providing positive environmental outcomes in the form of reduced emissions.

The Dugald River Solar Farm currently displaces approximately 33% of electricity related emissions, saving approximately 750 tonnes of CO<sub>2</sub>e emissions per week. The Project has the potential to further displace an additional 40% of electricity related emissions and 900 tonnes of CO<sub>2</sub>e per week, which will assist MMG to achieve their commitment of net-zero Scope 1 and Scope 2 emissions by 2050.

The Project is crucial to drive progress against State and Federal decarbonisation objectives. The necessity of this Project aligns with the Queensland Government Energy Road Map objectives of providing affordable, reliable and sustainable energy to the DRM and the region.

The revised Queensland Energy Road Map highlights the importance of providing resilience to NWPS and the planned CopperString Project which will connect the NWPS to the NEM, enabling the Project to provide renewable energy to a larger customer base. In the short to medium term, the Project can provide benefits for customers connected to the NWPS including at Mount Isa and Cloncurry and reduce reliance on gas for baseload electricity consumption.

## 1.3 PROJECT DETAILS

The Project will be located on the Knapdale Range, adjacent to the Dugald River Mine, owned and operated by MMG. The Project is situated on State Land, 63 km north-east of the Township of Cloncurry. The Project is proposed to be constructed in two stages.

The first stage is proposed to comprise the construction and operation of eight (8) WTGs, one permanent Met Mast, the 220/33 Kilovolt (kV) substation, overhead connection to the DRM and an initial BESS. Stage Two of the Project comprises an additional (up to) 16 WTGs, an expanded BESS and an update of the 220/33 kV substation.

Construction of Stage Two represents the ultimate design of the Project which reflects optimal usage of the wind resource on the Knapdale Range. Construction of the additional (maximum) 16 WTGs associated with Stage 2 is undergoing a feasibility assessment and is dependent on a number of factors including the capacity of the NWPS, customer demand and the construction timing for the planned CopperString Project.

On completion, the Project will consist of a total of up to 24 WTGs, two permanent Met Masts, a 220/33 kV substation, an overhead connection to the DRM and a BESS, as well as associated infrastructure. Further details relating to the Project are provided in Section 4 of this Report, with Table 1-1 providing a summary of the Development Application.

**TABLE 1-1 DEVELOPMENT APPLICATION SUMMARY**

<b>Development Application Summary</b>	
<b>Lot and Plan</b>	<ul style="list-style-type: none"> <li>• Lot 93 on SP 353339;</li> <li>• Lot 92 on SP 353339; and</li> <li>• Lot 36 on AP 23793.</li> </ul>
<b>Local Government</b>	Cloncurry Shire Council (Council)
<b>Zone</b>	Rural Zone
<b>Relevant Planning Scheme</b>	Cloncurry Shire Planning Scheme 2016 (Version 2) (the Planning Scheme)
<b>Description of Proposal</b>	Wind Farm and associated BESS including Native Vegetation Clearing.
<b>Application Type</b>	<ul style="list-style-type: none"> <li>• Material Change of Use (Wind Farm);</li> <li>• Material Change of Use (BESS); and</li> <li>• Operational Works (Clearing Native Vegetation).</li> </ul>
<b>Assessment Manager</b>	Department of State Development, Infrastructure, and Planning through SARA.
<b>Applicant</b>	MMG Dugald River Pty Ltd
<b>Proposed Development</b>	Dugald River Wind Farm Project
<b>Level of Assessment</b>	Impact Assessment
<b>State Referral</b>	Not Applicable
<b>Advice Agencies</b>	<ul style="list-style-type: none"> <li>• Civil Aviation Safety Authority;</li> <li>• Aviation Services Australia;</li> <li>• Department of Resources and Mines, Manufacturing, Regional and Rural Development; and</li> <li>• Cloncurry Shire Council.</li> </ul>
<b>State Development Assessment Provision Codes</b>	<ul style="list-style-type: none"> <li>• State Code 16: Native Vegetation Clearing (State Code 16);</li> <li>• State Code 23: Wind Farm Development (State Code 23); and</li> <li>• State Code 27: Battery Storage Facility Development (State Code 27).</li> </ul>
<b>Regional Plan</b>	North West Queensland Regional Plan 2010

## 1.4 PROJECT DRIVERS AND BENEFITS

There are several key drivers and benefits to co-location of the Project on the Knapdale Range, which include:

- The Knapdale Range has an untapped wind resource and diurnal generation profile, where the wind tends to blow in the evening and at night which compliments energy generation from solar farm assets;
- A low population density in the immediate vicinity of the Project, consistent with the Rural character and Zoning of the Knapdale Range;
- MMG has established Landholder agreement for development of the Project;
- The Knapdale Range has been the subject of extensive ecological survey efforts over the past 17 years, resulting in a well refined understanding of environmental values;
- The Project is co-located with the DRM Tailings Storage Facility which limits the usability of land in the area for agricultural purposes;
- Constructability factors including natural topographical benefits, reduced risk of natural impacts (e.g. flooding) and anticipated underlying ground conditions;
- The DRM has an existing Accommodation Camp (the DRM Accommodation Camp) and Fly Camp (DRM Fly Camp) which can service the projected construction and operational workforce requirements for the Project to mitigate impacts on the Cloncurry Township and Council assets;
- The Project can access a significant volume of fill material associated with waste rock from the DRM for use in construction (concrete batching and earthworks) which will reduce, the need for bulk material to be won locally or imported from off-site quarries;
- The DRM has an existing connection to Chumvale Power Station which provides power to the NWPS. This provides the opportunity for future export of energy from the Project to support other energy consumers in the region and via the NEM once the CopperString Project is completed;
- A completed and registered Indigenous Land Use Agreement (ILUA) with the Kalkadoon People is in place and is specific to the Project; and
- Existing Road Infrastructure is in place providing access from the Port of Townsville to the DRM for the movement of Project components.
- A Community Benefit Agreement is in place with the Cloncurry Shire Council and letter of support provided has been provided by the Mount Isa City Council.

Considering the above factors, the Knapdale Range is highly considered and suited to the Project. Additionally, the Project will result in the following environmental and community benefits:

- Securing the long-term future of the DRM which has a significant positive economic impact on the local area including the Township of Cloncurry;
- Servicing the DRM, with additional generation of clean energy being sold into the NWPS and the NEM (pending CopperString);
- Contributing towards Queensland's Energy Road Map objectives of providing delivering affordable, reliable and sustainable energy and supporting economic development in the North West; and

- Provision of employment opportunities – Both direct and indirect. The Project is anticipated to create up to 100 full-time-equivalent jobs during construction and have varying requirements for operations and maintenance.

## 2. PROJECT SETTING

### 2.1 LOCATION

The Project is located on the Knapdale Range, approximately 63 km north-east of the Township of Cloncurry and within the Cloncurry Shire Local Government Area. The Knapdale Range is located within the mapped Rural Zone of the Cloncurry Shire Council, with the predominate land use being for low-intensity cattle grazing and mining.

The DRM is located to the east with the DRM Tailings Storage Facility, pipeline infrastructure and exploration pads located on the Knapdale Range. An existing overhead connection services the DRM from the NWPS and will be used to export excess energy to the local grid.

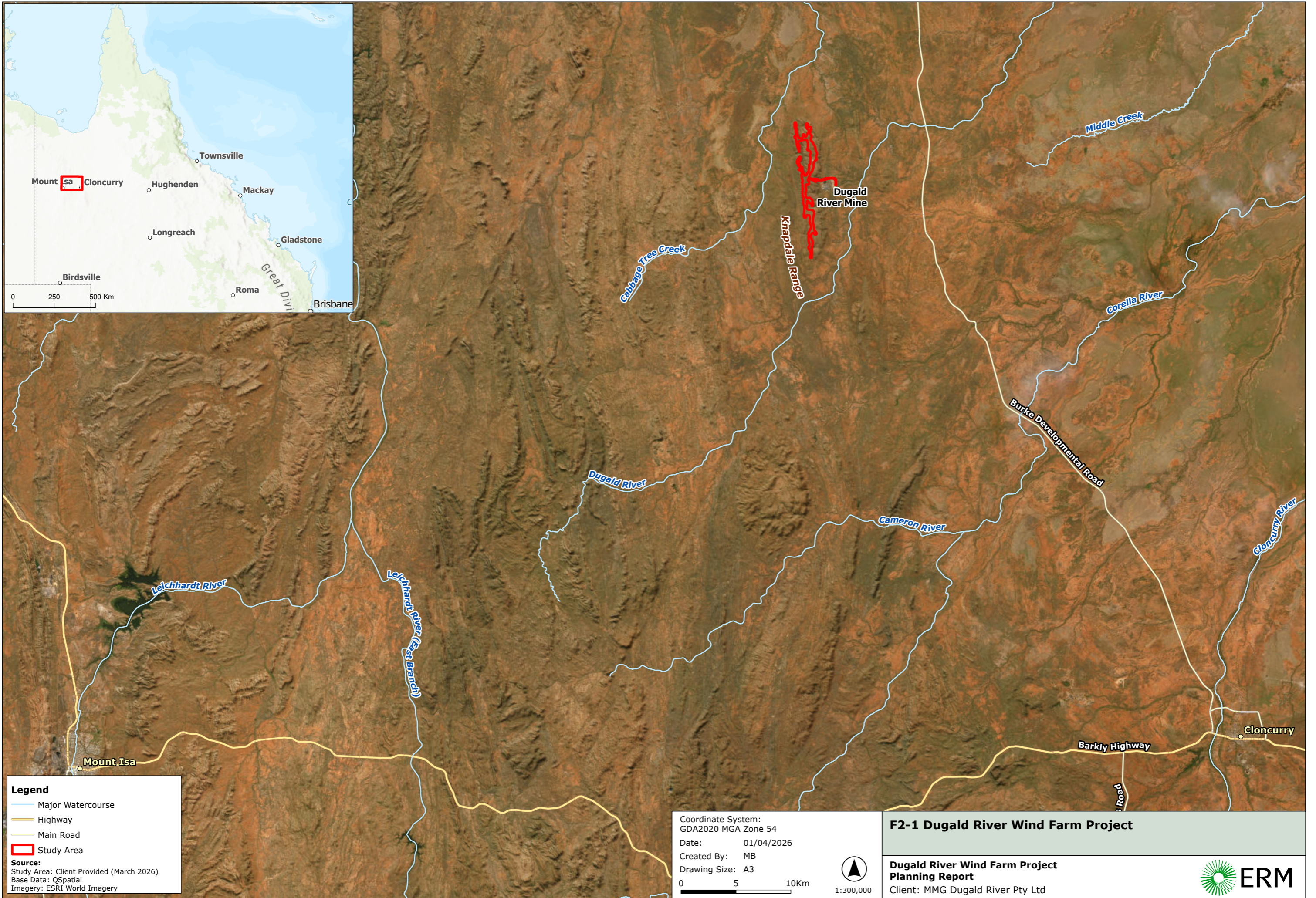
### 2.2 LOCAL AREA CHARACTERISTICS

A description of the Project regional and local context is outlined in Table 2-1, and illustrated in Figure 2-1 and Figure 2-2.

**TABLE 2-1 PROJECT AREA CHARACTERISTICS**

Characteristics	Description
<b>Existing Land Use</b>	The Project is within the Rural Zone of the Cloncurry Shire Council Planning Scheme and is predominately used for low-intensity cattle grazing and mining.
<b>Existing Structures</b>	<p>A single residential dwelling (the McMillan Homestead) is located approximately 3.5 km to the closest WTG (WTG S8). The McMillan Homestead is located on a Host Lot.</p> <p>The DRM Accommodation Camp is located within the Study Area and provides accommodation and amenities for workers at the DRM.</p> <p>The DRM Fly Camp is located within the DRM itself and is used periodically for supporting the DRM with project works and major shutdown maintenance.</p>
<b>Access</b>	<p>Primary access to the Project will be via the existing access road which services the DRM (the Dugald River Mine Access Road) via the Burke Developmental Road.</p> <p>There are several off-road tracks which provide partial secondary access to the Knapdale Range. These tracks are used by the Landholder for grazing and by MMG mining and mineral exploration purposes.</p>
<b>Topography and Views</b>	The Knapdale Range is located within the Northwest Highlands bioregion and includes a range of ecological and landscape features due to a mix of subregions with various geological histories.
<b>Existing Vegetation</b>	The Knapdale Range is situated within the Mount Isa subregion, which is characterized by tilted metamorphic hills and ranges, low open woodlands with <i>Eucalyptus spp.</i> , <i>Corymbia spp</i> and moderate to sparse Spinifex dominant grasslands with <i>Acacia spp.</i> dominant shrub layers throughout.

Characteristics	Description
	Soil types range from rocky, skeletal soil types to shallow-moderate sandy loam towards the eastern base of the range.
<b>Existing Waterways</b>	<p>There are several low-order, unnamed waterways (Category 1 and 2) located across the Knapdale Range. There are no wetlands of international importance within the Study Area.</p> <p>Cabbage Tree Creek is located to the west of the Knapdale Range whilst Dugald River is located to the east.</p>
<b>Surrounding Land Uses</b>	<p>Land uses in proximity to the Knapdale Range primarily comprises low-intensity cattle grazing, mining and mineral exploration activities.</p> <p>The DRM is the primary land use in proximity of the Project whilst the Eva Copper Mine Project (under-development) is located to the north.</p>



**Legend**

- Major Watercourse
- Highway
- Main Road
- Study Area

**Source:**  
 Study Area: Client Provided (March 2026)  
 Base Data: QSpatial  
 Imagery: ESRI World Imagery

Coordinate System:  
 GDA2020 MGA Zone 54  
 Date: 01/04/2026  
 Created By: MB  
 Drawing Size: A3

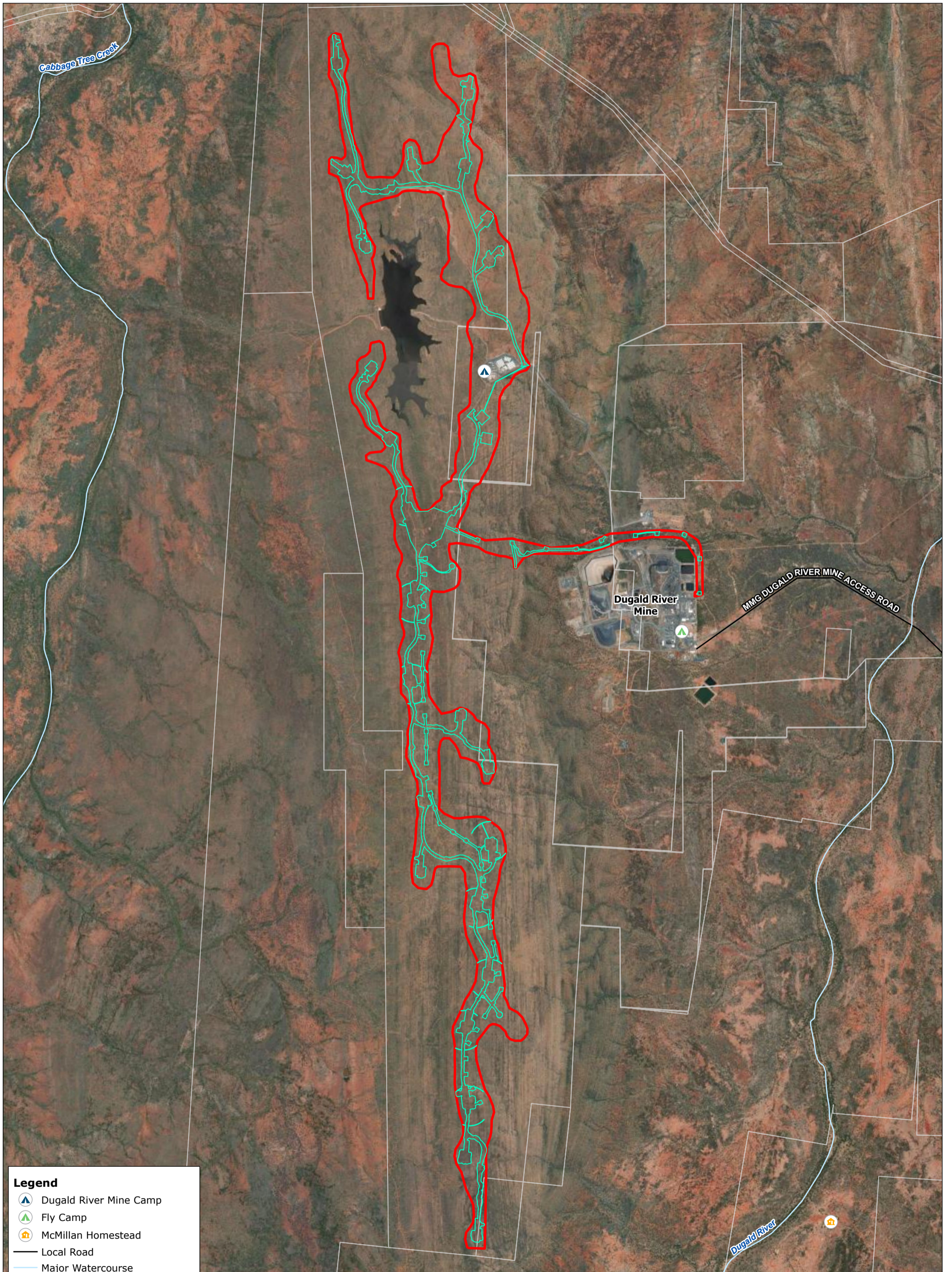
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**F2-1 Dugald River Wind Farm Project**

**Dugald River Wind Farm Project  
 Planning Report**

Client: MMG Dugald River Pty Ltd



**Legend**

-  Dugald River Mine Camp
-  Fly Camp
-  McMillan Homestead
-  Local Road
-  Major Watercourse
-  Cadastre (Lot)
-  Study Area
-  Total Disturbance Footprint

**Source:**  
 Boundary: Client Provided (March 2026)  
 Base Data - QSpatial  
 Imagery - ESRI World Imagery


Coordinate System:  
 GDA2020 MGA Zone 54

Date: 01/04/2026

Created By: MB

Drawing Size: A3


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**F2-2 Project Locality Context**

**Dugald River Wind Farm Project  
 Planning Report**

Client: MMG Dugald River Pty Ltd



## 2.3 LAND TENURE

The Project is located on State Land, described as Lot 92 on SP353339, Lot 93 on SP353339, and Lot 36 on AP 23793 as shown in Figure 2-3. A recent endorsement of a Survey Plan by the Queensland Government for Lots in proximity to the Project has resulted in an update to the Lot on Plan descriptions pertaining to the Project. The previously referenced Lot on Plans, as per the original Planning Application.

Lot 93 on SP835339 is subject to a Rolling Term Lease (TL243706) and was created as a result of a subdivision completed under the *Land Act 1994*, which took effect on 14 October 2025, and which resulted in the cancellation of Lot 92 on SP303378. For the purpose of this Development Application, the relevant Lots are identified above and include the recently subdivided parcel subject to the Rolling Term Lease.

As the Application relates to a Material Change of Use and Operational Works on State Land, Owners Consent from the State of Queensland has been obtained. A copy of the Owners Consent is provided in **Appendix A**. The Owners Consent remains current as it was granted at a point in time when the previous Lot on Plan descriptions were current.

## 2.4 SENSITIVE LAND USES

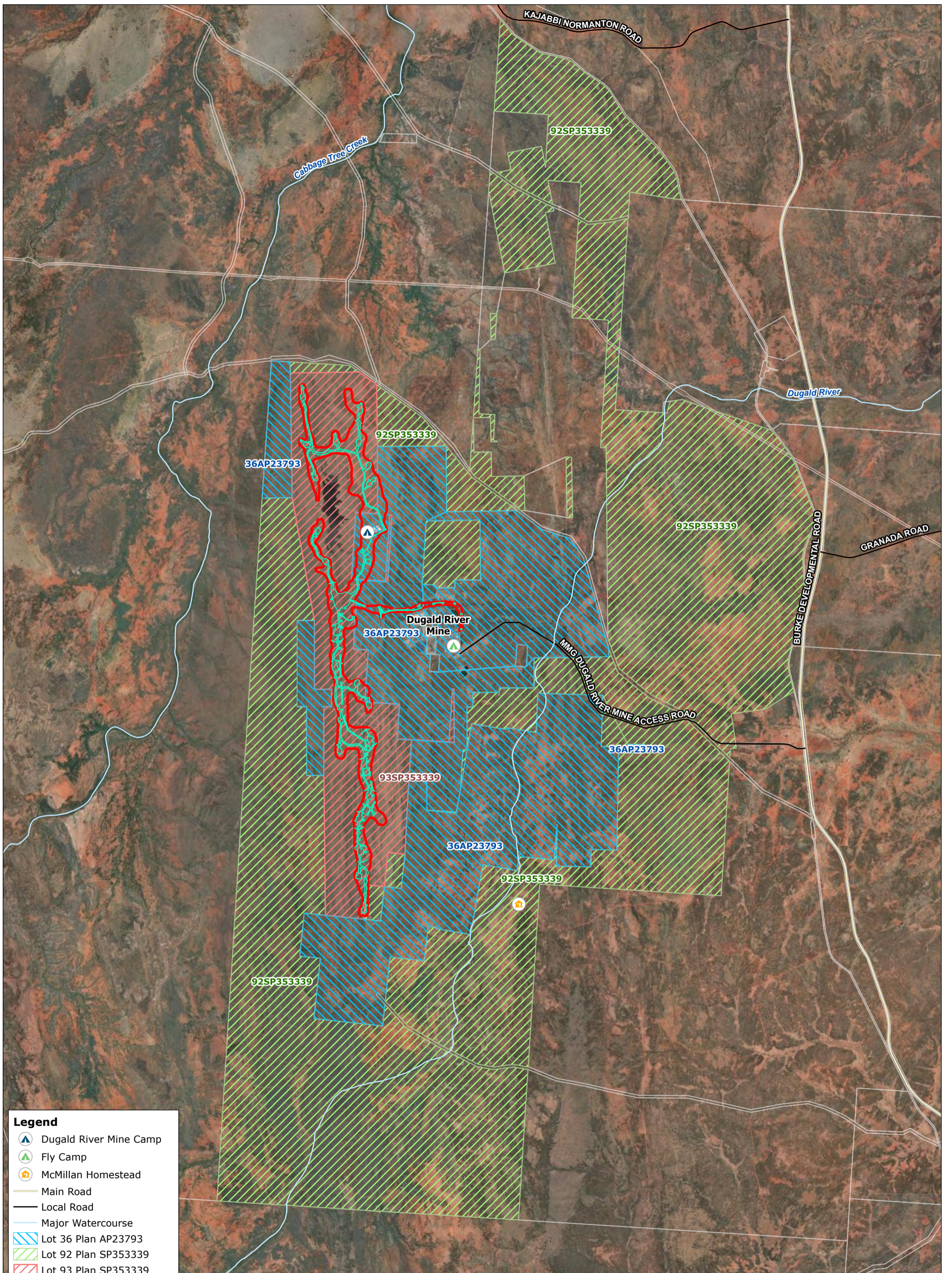
A single sensitive receptor, the McMillan Residence, is located approximately 3.5 km east of the closest WTG (WTG S8). The DRM Accommodation Camp is located approximately 970 m south of the closest WTG (WTG N7) whilst the DRM Fly Camp is located approximately 2.4 km east, north-east of the closest WTG (WTG S4). These sensitive receptors are detailed within Table 2-2.

The McMillan Residence is a true sensitive receptor in accordance with the requirements of the Planning Act. The DRM Accommodation Camp, and DRM Fly Camp operate as part of the single consolidated mine approval issued for the DRM under the *Environmental Protection Act 1994* (Environmental Authority) and the *Mineral Resource Act 1989* (Mining Lease) and is therefore not a sensitive receptor for purposes relating to the Planning Act or the Planning Regulation 2017. The Environmental Authority does not distinguish the land uses between the DRM and the accommodation elements.

Notwithstanding the above position, MMG has taken a conservative approach during the completion of technical impact assessments and included both the McMillan Residence and both the DRM Accommodation Camp and DRM Fly Camp. Whilst this approach is highly conservative, it ensures that impacts associated with the Project is captured and assessed.

**TABLE 2-2 SENSITIVE LAND USES IN PROXIMITY OF THE PROJECT**

Sensitive Land Use	Tenure Description	Status	Distance to closest WTG
McMillan Residence	Lot 92 on SP353339	Host Lot	3.5 km (WTG S8)
DRM Accommodation Camp	Lot 36 on SP23793	Host Lot	970 m (WTG N7)
DRM Fly Camp	Lot 36 on AP23793	Host Lot	2.4 km (WTG S4)



- Legend**
- Dugald River Mine Camp
  - Fly Camp
  - McMillan Homestead
  - Main Road
  - Local Road
  - Major Watercourse
  - Lot 36 Plan AP23793
  - Lot 92 Plan SP353339
  - Lot 93 Plan SP353339
  - Cadastre (Lot)
  - Study Area
  - Total Disturbance Footprint

**Source:**  
 Boundary: Client Provided (March 2026)  
 Base Data - QSpatial  
 Imagery - ESRI World Imagery


Coordinate System:  
 GDA2020 MGA Zone 54  
 Date: 01/04/2026  
 Created By: MB  
 Drawing Size: A3

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**F2-3 Project Tenure**

**Dugald River Wind Farm Project  
 Planning Report**

Client: MMG Dugald River Pty Ltd



## 3. CONSULTATION ACTIVITIES

### 3.1 STAKEHOLDER ENGAGEMENT APPROACH

Targeted consultation to inform relevant stakeholders about the Project has been proactively undertaken by MMG prior to lodgement of the Development Application.

Detailed stakeholder engagement has occurred for the Project since February 2024 and is anticipated to be an ongoing process through the detailed design, construction and operational phases. Consultation and engagement will be ongoing aspect of the Project during the operational phase.

### 3.2 RELEVANT STAKEHOLDERS

Stakeholders relevant to the Project include:

- The State of Queensland (Ultimate landowner of the Knapdale Range);
- The McMillan Family (leaseholder over part of the Knapdale Range);
- The Cloncurry Shire Council (relevant Local Government);
- The Kalkadoon People (Traditional Owners); and
- The Broader Community and other Local Government Areas.

### 3.3 SUMMARY OF STAKEHOLDER ENGAGEMENT

#### 3.3.1 THE STATE OF QUEENSLAND AND FEDERAL GOVERNMENT

A pre-lodgement meeting for the Project was held with the Department of State Development, Infrastructure, and Planning, MMG and ERM on 19 November 2024. The purpose of the meeting was to introduce the Project, discuss the unique Project attributes (particularly the Study Area, geotechnical requirements and tenure), confirm technical study requirements and confirm approval requirements. A record of the pre-lodgement meetings is provided in **Appendix B**.

Other State/Federal Government engagements included the following:

- **June 2025** – Engagement with the Bureau of Meteorology in relation to electromagnetic interference considerations;
- **May 2025** – Owner's consent sought/received from the Department of Natural Resources and Mines, Manufacturing and Regional and Rural Development;
- **December 2024 to July 2025** – Engagement with the Department of Natural Resources and Mines, Manufacturing and Regional and Rural Development in relation to the Relevant Purpose Determination;
- **November 2024** – Regulator Briefing with the Department of Climate Change, Energy, the Environment and Water; and
- **May 2024** – Engagement with the Department of Natural Resources and Mines, Manufacturing and Regional and Rural Development in relation to the subdivision over part of the Mount Roseby Station.
- **November to December 2025** – Various meetings and discussions regarding the Information Request and State Code 27 requirements with SARA.

### 3.3.2 THE MCMILLAN FAMILY

The McMillan Family holds property rights (Pastoral Lease) over a large portion of the Knapdale Range and is the relevant landholder for engagement purposes. Engagement specific to the Project has included the following:

- **7 February 2024** – Initial meeting and introduction to the Project;
- **4 March 2024** – Early negotiations and discussions relating to the Project;
- **24 August 2024** – Negotiations and discussions relating to the Project;
- **11 September 2024** – Informal catchup and discussions on the Project;
- **20 November 2024** – Finalisation and signing of Landholder agreement for sublease;
- **19 March 2025** – Project update and presentation of Project visuals;
- **19 March 2026** – Project update and general catchup with MMG; and
- **Ongoing** – Engagement for access and tenure agreements.

In addition to Project specific engagement, the DRM continues to provide regular support to the landholder, including assistance with road upgrades and maintenance, sponsorship of community events and bushfire response support.

The landholder is supportive of the Project having already signed a Landholder agreement for sublease and agreed to subdivide a portion of the existing Pastoral Lease to enable an additional purpose determination to be made in support of the Project.

### 3.3.3 THE CLONCURRY SHIRE COUNCIL

MMG has had regular engagement with the Cloncurry Shire Council. The primary purpose of this engagement has been to review the Project in consideration of regional development strategies and to ensure alignment with long-term visions for the region. Engagement has included the following:

- **20 July 2024** – Engagement with Cloncurry Shire Council's Chief Executive Officer and Mayor regarding the Project and the proposed subdivision over part of the Mount Roseby Station (the McMillan Pastoral Lease) with preliminary endorsement of the Project provided.
- **12 September 2024** – Collaboration with Cloncurry Shire Council and presentation of the Project to the Meeting of the Mines Forum held in the Cloncurry. Comprehensive questions and answers session was held with representatives of the local community and the resources sector.
- **December 2024** – Engagement with Cloncurry Shire Council as part of the Exemption Application relating to the temporary construction and operation of Met Masts for the Project.
- **26 March 2025** – Provided a comprehensive Project update to Cloncurry Shire Council as well as the Mount Isa City Council, McKinlay Shire Council, Richmond Shire Council and Flinders Shire Council; and
- **17 July 2025** - Engagement with Cloncurry Shire Council's Chief Executive Officer and Mayor to provide a Project update and present the Project Social Impact Assessment and proposed Community Benefit Agreement;

- **20 August 2025** – Receipt of a Letter of Support from Mount Isa City Council confirming a Community Benefit Agreement is not required for the Project; and
- **7 October 2025** – Execution of a Community Benefit Agreement with the Cloncurry Shire Council.
- **19 March 2026** – Engagement with Cloncurry Shire Council to provide a Project update and discuss opportunities for government support to enable delivery.

In addition to Project specific engagement, MMG maintains regular communication with local councils to support broader community development and infrastructure goals. This includes:

- Regular meetings and liaison with Cloncurry Shire Council representatives to provide updates on mining operations at the DRM and address regional concerns;
- Sponsorship of local events and initiatives, reinforcing MMG's commitment to social investment and regional vibrancy;
- Active participation in community events coordinated or supported by a broad range of Councils across the region;
- Assistance on projects led by regional Council's, including infrastructure improvements, planning support, and logistical coordination;
- Ongoing support from the DRM, including coordination on services, emergency response, and environmental matters; and
- Road User Agreements, developed and maintained collaboratively to manage traffic impacts, road maintenance, and safety associated with both the Project and broader mining activities.

Cloncurry Shire Council is highly supportive of the Project having granted Exemption requests for the construction and operation of Met Masts. MMG and Cloncurry Shire Council have a long-standing, long-term partnership which has advanced the region and ensured benefits are spread to the broader community. This positive relationship is reflected by the executed Community Benefit Agreement between MMG and Cloncurry Shire Council.

### 3.3.4 THE KALKADOON PEOPLE

Engagement with Traditional Owners is an important aspect for a project of this scale and complexity. The Kalkadoon People are the registered Native Title holders (pursuant to Native Title determination QU579/2005 Kalkadoon People #4 (QCD2011/007) as determined by the Federal Court of Australia on 12 December 2011) of the Study Area and surrounding areas.

MMG and the Kalkadoon People have agreed to an ILUA for the Project which was signed by both parties on 29 November 2024 and registered on 14 April 2025. A copy of the ILUA Registration is provided in **Appendix C**.

A summary of engagement with the Kalkadoon People specific to the Project includes:

- **8 July 2024** – Informal engagement during National Aborigines and Islanders Day Observance Committee (NAIDOC) Week Celebrations;
- **21 October 2024** – Discussions during cultural heritage walker coordination;
- **2 September 2024** – Further discussions during cultural heritage walker coordination;
- **13 November 2024** – Engagement during the Mount Isa Jobs Fair;
- **24 November 2024** – Signing of the ILUA; and

- **Ongoing** – Engagement as part of the cultural heritage agreements for the Project.

In addition to engagement on the Project, MMG works closely with the Kalkadoon People across a range of areas to foster genuine partnerships and long-term benefits, including:

- Support for apprenticeship and traineeship programs, creating meaningful employment pathways for young Indigenous people;
- Sponsorship of Kalkadoon-led events and initiatives;
- Assistance with NAIDOC Week activities, including funding, participation, and logistical support across local events;
- Cultural Heritage Survey Works across the DRM, undertaken in partnership with Kalkadoon representatives to ensure respect for cultural values, sites, and protocols; and
- Ongoing engagement with the Kalkadoon Native Title Aboriginal Corporation to support governance, planning, and project alignment.

### 3.3.5 THE BROADER COMMUNITY

MMG is committed to building strong, transparent, and collaborative relationships with the broader community and industry stakeholders. These efforts extend beyond the Project and are part of our long-term approach to regional development, advocacy, and community support established as part of the DRM. Engagement specific to the Project has included:

- **12 September 2024** – Presentation of the Project at the Meeting of the Mines Forum in Cloncurry, offering an overview of the Project and inviting questions from the local mining sector and associated stakeholders;
- **16 March 2026 to 20 March 2026** – Engagement with Townsville City Council, McKinlay Shire Council, Flinders Shire Council, Richmond Shire Council, Mount Isa City Council and Charters Towers City Council to discuss the Over-size and Over-mass (OSOM) Construction Concept Strategy and to provide a broader Project update; and
- **27 March 2026** – Letter of Support from the Mount Isa to Townsville Economic Zone in partnership with the Mayors of Local Government Areas across the North West Minerals Province to the Honourable David Kanetzki and the Honourable Brent Mickelberg requesting the State formally approve a Townsville to Cloncurry OSOM Transport Corridor to enable economic investment in North West Queensland.
- **9 April 2026 to 1 May 2026** – Formal Public Notification period for the Project.

Furthermore, MMG has a long history of providing direct and indirect support to the local community which has included:

- Industry partnerships with regional and peak bodies such as:
  - MITEZ (Mount Isa to Townsville Economic Zone) – contributing to regional economic planning and infrastructure advocacy.
  - Townsville Enterprise – supporting strategic investment initiatives and regional development agendas.
  - Queensland Resources Council – active involvement in policy discussions, regulatory engagement, and industry advancement.
- Regular meetings with government and industry stakeholders, including:
  - Queensland Treasury.

- Department of Natural Resources and Mines, Manufacturing and Regional and Rural Development and The Department of Environment, Tourism Science and Innovation.
- Local and state Members of Parliament.
- Infrastructure and planning agencies.
- Other mining and energy companies across the North West Minerals Province.
- Support for local not-for-profit organisations, including financial sponsorships, in-kind support, and assistance with events and fundraising activities.
- Partnerships with community sporting groups, including sponsorship of local teams, provision of equipment, and volunteer participation.
- Support for regional education initiatives, including:
  - Sponsorship and engagement with local schools.
  - Science, Technology, Engineering and Mathematics engagement activities and career pathway promotion.
  - Collaboration with tertiary education and training providers to support regional skills development.
- Support for regional capacity-building initiatives, including education, training opportunities, and local employment readiness schemes, local business capacity building.

## 4. THE PROJECT

### 4.1 OVERVIEW

The Project ultimately comprises the construction and operation of a Wind Farm comprising up to 24 X 6 MW WTGs and BESS comprising an ultimate capacity of 120 MW / 240 MWh. The Project will comprise a staged approach delivered through an IPP.

Construction of the Project will be staged, with Stage 1 comprising eight (8) WTGs and Stage Two comprising an additional (up to) 16 WTGs. Stage 1 of the BESS will comprise 18 X Battery Units and 9 X Medium Voltage Power Stations (MVPS) which will provide a connected capacity of 45 MW/ 90 MWh. Stage Two of the BESS will comprise an additional 48 X Battery Units and 24 X MVPS with a total connected capacity of 120 MW/ 240 MWh. The BESS will be located adjacent to the proposed 220/ 33kV switchyard.

Further ancillary aspects of the Project comprise the following:

- Electrical infrastructure including above ground and below ground wiring;
- A collection substation and 220/ 33 kV switchyard;
- Access tracks and hardstand areas;
- Two Material laydown and storage areas; and
- Two Permanent Met Masts;
- An operations and maintenance facility.

### 4.2 PROJECT LAYOUT AND DISTURBANCE FOOTPRINT

Development of the Project Layout has occurred progressively since inception of the Project and has been refined in response to Technical Assessment outcomes and progression of the detailed design process. The Project, which initially considered the entirety of the Knapdale Range, was refined to a Study Area of 631.20 ha, and finalised as comprising a Disturbance Footprint of 136.82 ha for Stage 1 and Stage 2.

The Project's Disturbance Footprint reflects the ultimate disturbance required for construction and includes areas for earthworks, stormwater management and stability controls. The Disturbance Footprint does not consider existing disturbance within the Project Layout and is therefore, conservative. The total disturbance area reflects the combination of permanent and temporary disturbance requirements for the Project.

Key considerations relevant to the finalised Disturbance Footprint include:

- Topographical and geotechnical considerations;
- Constructability requirements and costings;
- Ecological constraints including known and suspected, Purple-necked rock-wallaby dens;
- Avoidance of multiple disturbance corridors resulting in ecological fragmentation;
- The Life of Mine Plan and layout for the DRM including the Tailings Storage Facility;
- Electrical reticulation and connection to both the DRM and the NWPS; and
- Retention of flexibility in design for Stage 2 of the Project.

The Project Layout, as shown on Figure 4-1 includes a defined Study Area which forms the basis of Technical Studies completed for the Project. At a granular level, Technical Studies have

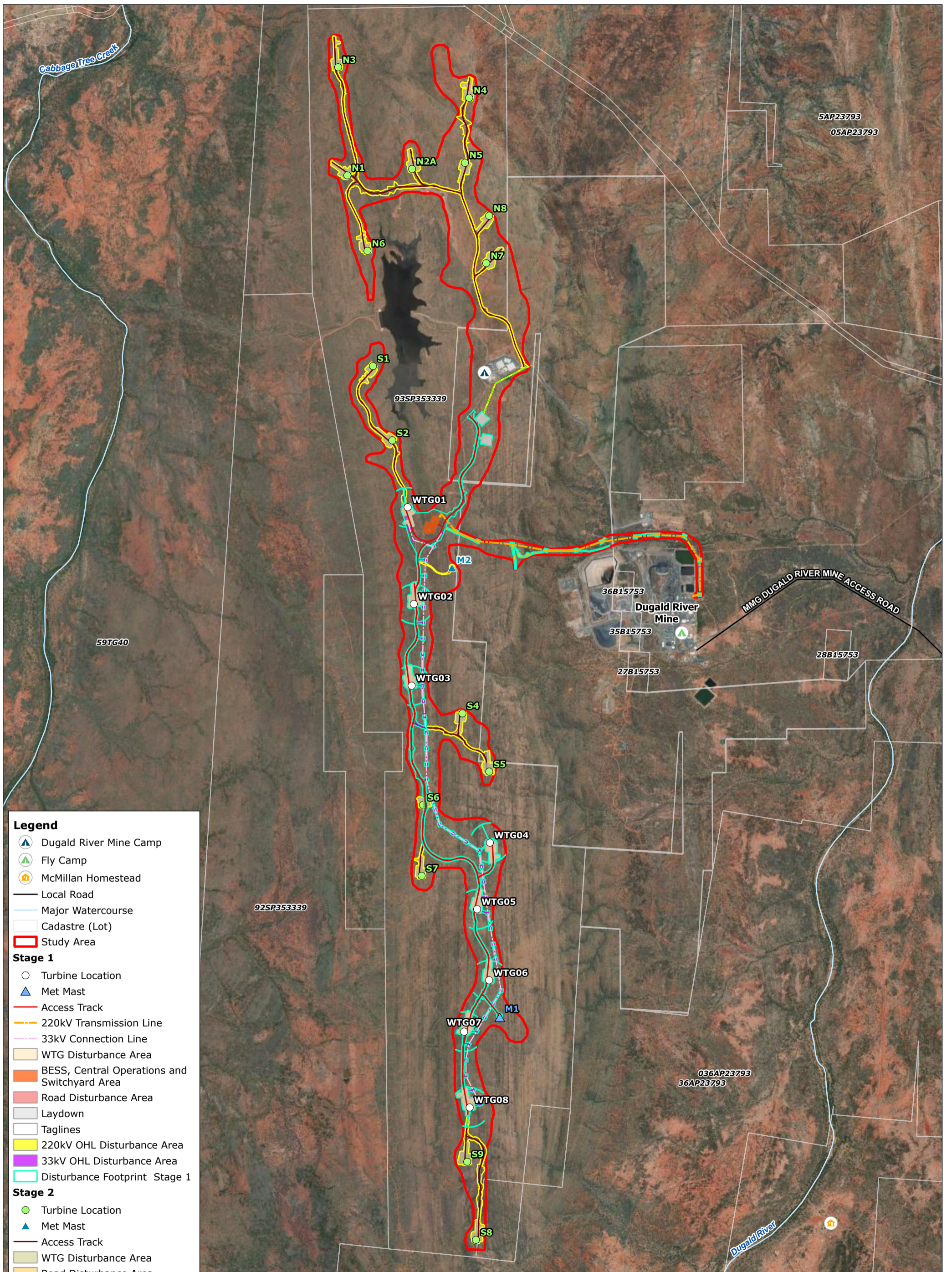
been completed using the Study Area to reflect a worst-case scenario for impacts associated with the Project which is a highly conservative approach. Where additional clarity is required, Technical Studies have been completed using the Disturbance Footprint.

Whilst any changes to the Project Layout and the associated Disturbance Footprint would be subject to an amendment application, it is noted that environmental values across the Knapdale Range, particularly within the Study Area, are well understood and defined. Subject to completion of revised Technical Studies, it is anticipated that changes to the Project Layout would form a Minor Change under the provisions of the Planning Act.

The Project Layout Plan is included in **Appendix D**, and supported by electronic spatial files. A summary of the Project's Disturbance Footprint is provided in Table 4-1.

**TABLE 4-1 PROJECT SPECIFICATIONS**

Feature	Details	Area (ha)
<b>Stage One</b>		
WTG Construction Areas	8 X WTGs	21.67
Central Operations and Switchyard Area	<ul style="list-style-type: none"> <li>18 X Battery Units</li> <li>9 X MVPS</li> <li>Substation and Switching Infrastructure</li> <li>Operations Facility</li> </ul>	2.29
Access Tracks	Access Tracks	30.09
Met Mast 1	Stage 1 Met Mast	0.28
33 kV Powerline	Stage 1 Overhead Powerline which links each WTG to the Central Switchyard Area. This area includes the underground power corridors between each WTG and the closest power pole	11.34
220 kV Powerline	Overhead Powerline linking the Central Operations and Switchyard Area to the DRM	4.69
Laydowns	2 X Laydown areas for storage and construction purposes	2.42
Taglines	Temporary Taglines used during construction of each WTG	1.26
<b>Stage One Disturbance Area</b>		<b>74.09</b>
<b>Stage Two</b>		
WTG Construction Areas	Up to 16 X WTGs	31.5
Central Operations and Switchyard Area	<ul style="list-style-type: none"> <li>48 X Battery Units</li> <li>24 X MVPS</li> </ul>	Nil additional disturbance
Access Tracks	Access Tracks	30.64
Met Mast 2	Stage 2 Met Mast	0.28
Stage 1 and 2 Link	Easement between Stages 1 and 2	0.27
<b>Stage Two Disturbance Area</b>		<b>62.73</b>
<b>Total Disturbance Footprint</b>		<b>136.82</b>



- Legend**
- Dugald River Mine Camp
  - Fly Camp
  - McMillan Homestead
  - Local Road
  - Major Watercourse
  - Cadastre (Lot)
  - Study Area
- Stage 1**
- Turbine Location
  - Met Mast
  - Access Track
  - 220kV Transmission Line
  - 33kV Connection Line
  - WTG Disturbance Area
  - BESS, Central Operations and Switchyard Area
  - Road Disturbance Area
  - Laydown
  - Taglines
  - 220kV OHL Disturbance Area
  - 33kV OHL Disturbance Area
  - Disturbance Footprint Stage 1
- Stage 2**
- Turbine Location
  - Met Mast
  - Access Track
  - WTG Disturbance Area
  - Road Disturbance Area
  - Stage 1 to Stage 2 Connection Easement
  - Disturbance Footprint Stage 2

Coordinate System:  
GDA2020 MGA Zone 54  
Date: 01/04/2026  
Created By: MB  
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**F4-1 Project Layout**

**Dugald River Wind Farm Project Planning Report**  
Client: MMG Dugald River Pty Ltd

### 4.2.1 WIND TURBINE GENERATORS

The Project will utilise the Goldwind GW165-6.0MW as the WTG candidate model. Features associated with the candidate WTG model are provided in Table 4-1.

**TABLE 4-2 CANIDATE WTG MODEL SPECIFICATIONS**

Feature	Statistic*
Estimated generation capacity	144 MW
WTG electrical output (each)	6 MW
Number of Wind Turbines	Stage One: 8 X WTGs Stage Two: Up to 16 WTGs (maximum)
Hub height	Up to 130 m
Rotor diameter*	Up to 165 m
Tip height	Up to 300m above ground level (AGL)

*\*The maximum specifications listed in the table provided represent a "worst case scenario for impact assessment" and provides flexibility for any innovation in turbine design between now and the time of detailed design and construction.*

### 4.2.2 BATTERY ENERGY STORAGE SYSTEM

The BYD – MC Cube-T Energy Storage System BESS has been selected as the BESS module to be used for Stage 1 works. Stage Two proposed to use the BYD XN Batteries, which have the potential to storage more energy (up to 14 MWh). The candidate models selected for use in the Project will be housed in containers with local control loops, battery management, liquid cooling, and an alarmed fire detection system. Each BESS unit houses Li-Ion (Lithium Ion) battery nodules totalling two modules per rack with up to four racks per unit. The internal configuration may differ slightly for the proposed Stage 2 BYD XN Batteries; however, such differences present negligible effects on unit energy storage or safety.

The BESS is proposed to be installed at the central switchyard and will be connected to the dedicated 220 / 33 kV overhead powerline. Features associated with the candidate BESS model are provided in Table 4-3.

**TABLE 4-3 BESS UNIT SPECIFICATIONS**

Feature	Statistic*
Estimated storage capacity	<ul style="list-style-type: none"> <li>• Stage One: 45 MH / 90 MWh</li> <li>• Stage Two: 120 MW / 240 MWh</li> </ul>
Battery Units	<ul style="list-style-type: none"> <li>• Stage One: 18 units</li> <li>• Stage Two: 48 units</li> </ul>
Medium Voltage Power Stations	<ul style="list-style-type: none"> <li>• Stage One: 9 MVPs</li> <li>• Stage Two: 24 MVPs</li> </ul>

*\*The maximum specifications listed in the table provided represent a "worst case scenario for impact assessment" and provides flexibility for any innovation in turbine design between now and the time of detailed design and construction.*

### 4.2.3 WTG CONSTRUCTION AREAS

Each WTG will be constructed within in a dedicated construction area which provides for Over-sized and Over-Mass (OSOM) vehicle access, temporary WTG laydown and construction, WTG foundations, bushfire management and earthworks.

The proposed WTG Construction Areas have been designed in consideration of the underlying topography and in consideration of clearing for bushfire mitigation. Construction requirements including temporary vegetation stockpiles, temporary topsoil stockpiles and stormwater management infrastructure will be located within the defined disturbance area. Given the unique topography of the Knapdale Range, the WTG Construction Areas have been designed to allow for works to be undertaken at each WTG location to limit replicated vehicle movements to and from the Project.

Each WTG requires a dedicated foundations and a mass concrete footprint. WTG foundations may vary in size depending on the WTG location, imposed loadings, geotechnical requirements, ground conditions, construction methodology and the drainage design. The top of the foundations will be finished, so that the top of the foundation is close to flush with the surrounding ground level. The detailed design of the foundations will be undertaken prior to construction of the Project by the civil contractor.

On completion of earthworks and construction of the WTG, disturbance areas, particularly earthwork embankments will be rehabilitated. Rehabilitation of the construction areas will be completed using the vegetation and topsoil temporarily stockpiled at each location.

### 4.2.4 CENTRAL OPERATIONS AND SWITCHYARD AREA

A Central Operations and Switchyard Area will be constructed to facilitate the distribution of electricity from Stage 1 and Stage 2 of the Project via an overhead powerline which is linked to existing electrical infrastructure at the DRM. The operational infrastructure for the Project will include a central management office, workshop, storage, and warehousing facilities. Clearing and associated earthworks for the ultimate Central Operations and Switchyard will be completed as part of Stage 1.

A BESS for the storage of electricity is proposed to be installed at the Central Operations and Switchyard Area and will be connected to the dedicated overhead powerline. The BESS comprises battery containers, MVPS, and electrical equipment including harmonic filters. The proposed battery storage technology with suitable outdoor rated housing will comprise of lithium-ion phosphate cells.

### 4.2.5 ACCESS TRACKS

The Project will be accessed via a network of access tracks located on the Knapdale Range and linked to the existing road network supporting the DRM. The access tracks are designed and located in consideration of topographical limits to allow for the movement of OSOM components to each WTG Pad. To limit disturbance, the Project has been designed with a linear access track configuration with minimal spurs to limit fragmentation.

Existing light vehicle tracks will be used where practicable, with the existing tracks being widened and graded to accommodate transport of turbine components. Where track widening and/or new track establishment is required, vegetation and topsoil will be cleared and stockpiled for use in rehabilitation in accordance with the Project's Management Plans.

Disturbance associated with the Access Tracks includes the access track itself (nominal width of approximately 7m) as well as the constructability corridor. The constructability corridor is required to accommodate earthworks as well as environmental controls including stormwater management, sediment and erosion control, and the stockpiling of vegetation and topsoil.

#### 4.2.6 PERMANENT METEOROLOGICAL MASTS

Two Permanent Met Masts will be installed to monitor wind conditions for the operation of the Project. The first Met Mast (Met Mast 1) will be located to the south of proposed WTG 06 and east of proposed WTG 07, whilst the second Met Mast (Met Mast 2) will be located to the south of the Central Operations and Switchyard Area. For clarity, MMG has secured approval from Cloncurry Shire Council for two Temporary Met Masts, which will be decommissioned and the area rehabilitated once the Permanent Met Masts are constructed.

#### 4.2.7 ELECTRICAL CONNECTIONS AND SUBSTATIONS

An internal reticulation network comprising overhead and underground powerlines will connect the Stage 1 WTGs to the Central Operations and Switchyard Area. On terminus at the central switchyard, energy from the Project will be stepped up via a substation and transmitted via a dedicated 220 kV overhead powerline to the existing Dugald River Switchyard. Stage 2 of the Project is currently planned to utilise below ground powerlines and therefore does not require a dedicated 33 kV powerline corridor.

The Dugald River Switchyard is connected to the NWPS via the Chumvale Powerline and therefore, no additional clearing or surface disturbance is required for this feature. Additional electrical infrastructure is likely to be installed at the Dugald River Switch Yard to enable connection of the Project to the existing Chumvale Powerline. This infrastructure will be located adjacent to the existing assets in the Switch Yard and will not require any additional clearing to be undertaken to support delivery.

#### 4.2.8 LAYDOWN AREAS

The Project includes two dedicated hardstand areas for the temporary storage of WTG components, construction materials and construction management. The hardstand areas are located centrally to the Project to enable WTG components and materials to be dispersed evenly across the Knapdale Range as required for both stages of the Project.

#### 4.2.9 TAGLINES

A temporary disturbance allowance for Taglines has been included in Stage 1. The proposed Taglines are a constructability requirement from Goldwind as the WTG manufacturer and are necessary to allow for the safe erection of the Stage 1 WTGs. The Taglines will be used by construction equipment to anchor wires to the WTGs through construction to manage wind loading and ensure worker safety.

The Tagline disturbance footprints are conservative and reflect uncertainties associated with wind loading and therefore provide optionality for Stage 1. Taglines for Stage 2 are not considered to be required for Stage 2 as sufficient wind-data will be provided to the manufacturer and construction team to determine anchorage points.

### 4.3 VEGETATION CLEARING

The Project will involve clearing of vegetation to facilitate construction and operation of the proposed WTGs. The Disturbance Footprint has a maximum area of up to 136.82 ha and will be located entirely within the proposed Study Area. A Preliminary Cleared Vegetation Management Plan (**Appendix E**) has been prepared to outline how vegetation cleared as part of the Project will be stored, managed, and reused.

Almost the entirety of the Study Area, and the entirety of the Disturbance Footprint is mapped as Category B Regulated Vegetation. As such, MMG has obtained a 'Relevant Purpose Determination' under Section 22A of the *Vegetation Management Act 1999* with the Project considered to be for relevant infrastructure activities.

The Disturbance Footprint represents the maximum extent of disturbance associated with the Project, with the final location to be confirmed through the detailed design stage. Whilst the Disturbance Footprint may be subject to further refinement, the total area of clearing will not exceed a maximum of 136.82 ha of Regulated Vegetation as detailed in Table 4-4.

**TABLE 4-4 PROPOSED DISTURBANCE TO REGULATED VEGETATION**

Regional Ecosystem Status	Disturbance Footprint
Category B Regulated Vegetation	136.82 ha
Regulated Vegetation – within the defined distance of a watercourse	0.74 ha
Regulated Vegetation – Essential Habitat	135.70 ha
Wildlife Habitat*	135.62 ha

*\*Wildlife habitat is comprised of potential denning and foraging dispersal habitat for the Purple-necked rock-wallaby*

The Project has been developed through a consideration of environmental design philosophy, with the proposed alignment responding to known environmental values obtained through 17 years of on-ground ecological surveys. The Development Footprint has been refined through a rigorous design process to ensure there is minimal vegetation disturbance to known environmental factors. This process included the following steps:

1. Identification of environmental constraints including Matters of State Environmental Significance (MSES) and Matters of National Environmental Significance;
2. Consultation with affected landowners and leaseholders;
3. Assessment of the available wind resource on the Knapdale Range;
4. Completion of impact assessments in accordance with the requirements of State Code 16, State Code 23 and State Code 27; and
5. Optimisation of the design through the environmental mitigation hierarchy, including avoidance of impacts where practicable, minimisation where avoidance is not possible and management of impacts that cannot be avoided or further reduced.

Both the Study Area and Disturbance Footprint have been developed with regard to known environmental values and provides the smallest possible footprint whilst maintaining allowances for constructability as required by the Project. The Study Area reflects

consideration of the available working area on the Knapdale Range, topographic constraints, constructability, landowner and network considerations. The Disturbance Footprint is a further refinement of the working area within the Study Area.

The Knapdale Range has been extensively studied for its ecological values since 2008 as part of the DRM. Notwithstanding the extent of the mapped Regulated Vegetation (which occurred as a result of desktop based mapping changes made by the State in late 2023), the Disturbance Footprint and Study Area are located on the plateau of the Knapdale Ranges which is noted as having the least applicable habitat for the Purple-necked rock-wallaby and Short-beaked Echidna.

Where practicable, the Disturbance Footprint has considered and utilised existing tracks and areas of disturbance resulting from the operations at the DRM and the existing low-intensity cattle grazing. Project infrastructure, including access tracks and power infrastructure will be located on flat areas to the ridgeline of the Knapdale Range where possible to mitigate erosion potential and to limit impact on known environmental values specific to the Knapdale Range.

The final access track designs will consider the earthworks required and will select a pathway which exhibits the least amount of vegetation clearing and disturbance, informed by the extensive ecological studies completed for the Study Area.

The overarching intent of the environmental design philosophy applied when developing the Project was to avoid, minimise and manage impacts where practicable. The ground-truthed ecological values reporting for the Study Area were used as a basis for the Project's design and were adapted and amended following a detailed review of the available ecological datasets.

In consideration of potential harm to environmental values, an EPBC Act referral (reference EPBC 2024/10090) was lodged with the Department of Climate Change, Energy, the Environment and Water. The Department determined the Project to be Not a Controlled Action under the EPBC Act, being approved to proceed following the relevant State and local government approvals.

## 4.4 CONSTRUCTION DETAILS

### 4.4.1 CONSTRUCTION METHODS

The chosen contractors will be responsible for the detailed construction methodology for the Project. A Preliminary Construction Environmental Management Plan (PCEMP) has been prepared for the Project (refer to **Appendix F**) and will be revised, refined and implemented prior to the commencement of works.

The PCEMP has been prepared in consideration of the Technical Studies completed for the Project and provides a consolidated approach to managing actual or potential environmental impacts associated with the Project. The PCEMP will include details of the construction program, construction techniques to be employed, mitigation measures to control construction impacts, and contact details for queries and reporting incidents.

#### 4.4.2 EQUIPMENT AND MACHINERY

It is anticipated that the construction work for both stages of work (subject to detailed design and geotechnical conditions), is likely to include the following:

- Removal of vegetation;
- Earthworks and excavation;
- Equipment and material haulage;
- Crushing and/or screening of materials;
- Construction of roads and hardstand areas;
- Concrete batching, formwork and pouring;
- Construction of BESS;
- Assembly of WTG components;
- Erection of WTG components;
- Installation of sediment control measures and environmental controls; and
- Construction of auxiliary infrastructure, powerlines and switchyard.

Noise emissions from construction can be reduced by fitting exhaust mufflers, using reversing alarms that emit a broadband noise (e.g. white noise) rather than a beep, maintaining plant in good working order and following industry standard construction methodologies.

Noise will be generated by mobile plant such as excavators, bulldozers, mobile cranes, and the movement of heavy vehicles. It is expected that the following typical equipment will be used:

- **Site mobilisation** – Road loaders, graders, backhoes, trucks, small crane, and generators;
- **Access tracks and hardstands** – Road loaders, bulldozers, excavators, graders, scrapers, rollers, articulated dump trucks, belly dumper trucks, rock crushing plant, semi-trailers, tractors water carts and hydroseed trucks;
- **Wind Turbine Generators** – Excavators, rock breaker, concrete trucks, flat-bed trucks, vacuum trucks, large crawler/all-terrain heavy lift cranes, small/medium crawler cranes, generators, tele-handlers and elevated work platforms;
- **BESS** – Rock breaker, concrete trucks, flat-bed trucks, large crawler/all-terrain heavy lift cranes;
- **Electrical reticulation works** – Trenchers, backhoes, excavators, graders, tractors, cable laying machines, and small terrain cranes;
- **Concrete batching plants** – Concrete mixing plant, batching equipment, conveyors, stackers, storage bins and silos;
- **Site services** – Option for vans or buses to transport staff around site and water delivery and effluent removal trucks (if required); and
- **Transmission line and towers** – Earthmoving equipment, elevated work platforms, concrete trucks, borers, cranes, and other heavy machinery.

Other equipment and machinery may be required, depending on the nominated construction techniques.

### 4.4.3 WATER SUPPLY

The provision of water is essential for the construction of the Project. The construction activities likely to require water are:

- Bulk earthworks and material conditioning;
- Cleaning of WTG components prior to assembly;
- Dust suppression;
- Concrete pours; and
- Water for ablution facilities.

Water demand will vary over time, depending on the stages of the work. The total expected water requirement will be further refined during the detailed design process.

Water demands for the Project will require different water quality standards. A water sourcing strategy will be developed by MMG so that water used during the construction phase does not cause issues to adjacent landowners or other stakeholders. The quality of water will be confirmed prior to use to ensure compliance with environmental requirements.

Potable water fit for human consumption will be required at the site offices, while both medium (suitable for use in the concrete batching) and low-quality raw water (for earthworks and dust suppression) may be used for construction purposes. Potable water will be sourced from the existing Sunwater pipeline which services the DRM. The existing water storage facilities around the DRM may be used for the provision of lower quality water where water quality testing confirms suitability for construction.

Construction water supply options will be determined during the detailed design of the Project and confirmed prior to construction. Appropriate permits and approvals will be sourced to ensure compliance where required.

### 4.4.4 WORKFORCE AND ACCOMMODATION

The Project is anticipated to have a 2-year construction timeframe and at its peak, is expected to create approximately 100 Full-time-equivalent Jobs. Maintenance crews will vary in size and will range from small teams of 3-5 people for regular maintenance and between 15-20 people during major refurbishments and uplift.

Operations at the DRM are benefitted by the DRM Accommodation Camp and the DRM Fly Camp which provides accommodation and amenities to the DRM workforce. These accommodation assets will be used to accommodate the construction and decommissioning as well as major uplift workforces associated with the Project. Consequently, a temporary workforce accommodation setup either on-site or off-site is not required to service the Project.

## 4.5 REHABILITATION AND DECOMMISSIONING

### 4.5.1 POST CONSTRUCTION REHABILITATION

On completion of the construction phase, areas of disturbance which are not required for operational purposes will be rehabilitated, where it is practical and safe to do so. Rehabilitation activities will be strategically timed to ensure earthworks are completed prior to wet-season rainfall occurring and to improve stabilisation of disturbed areas and promote maximum opportunity for flora germination.

A Preliminary Rehabilitation Management Plan (**Appendix G**) has been prepared which identifies areas of disturbance associated with the Project which may be progressively rehabilitated. Rehabilitation objectives have been developed with consideration for the existing condition of the Knapdale Range, potential ongoing direct and indirect impacts, the need to maintain setbacks to reduce bushfire risk, and the need for disturbance to undertake decommissioning and maintenance activities.

### 4.5.2 END OF LIFE DECOMMISSIONING AND REHABILITATION

At the end of the wind farm's economic life, the WTGs towers and other above ground infrastructure will be removed, and the area rehabilitated in accordance with the regulatory framework applicable at the time and in consultation with the landowner.

Similar rehabilitation activities will be undertaken for the decommissioning of the BESS facility and will adhere to the requirements imposed by the appropriate governing authorities.

Rehabilitation activities will be undertaken at the post-construction phase as well as at end-of-life decommissioning phase. A detailed Rehabilitation and Decommissioning Plan will be prepared during the operational phase as a part of the post-construction activities, and will include overarching principles for the decommissioning phase, to be reviewed prior to decommissioning of the Project.

A Preliminary Rehabilitation Management Plan and Decommissioning Security Report has been provided as **Appendix G** and **Appendix H** respectively to provide further detail on proposed rehabilitation activities for the Project.

## 5. LEGISLATIVE FRAMEWORK

### 5.1 THE PLANNING ACT 2016

The Planning Act provides the overarching statutory framework for planning and development assessment in Queensland.

#### 5.1.1 ASSESSMENT MANAGER

Pursuant to Part 4, Division 2 of the Planning Regulation 2017, the Assessment Manager for a Material Change of Use (Wind Farm and BESS) is the Chief Executive. Schedule 10, Part 21, Division 2 of the Planning Regulation 2017 specifies that the assessment benchmark for a Wind Farm projects is the State Development Assessment Provisions. Schedule 10. Part 2, Division 2 of the Planning Regulation 2017 specifies the assessment benchmark for BESS to also be the State Development Assessment Provisions.

#### 5.1.2 LEVEL OF ASSESSMENT

The Planning (Wind Farms) Amendment Regulation 2025 amends the Planning Regulation 2017 to make all Wind Farms applications in Queensland subject to Impact Assessment.

Furthermore, the Planning (Battery Storage Facilities) and Other Legislation Amendment 2025 amends the Planning Regulation 2017 to make all BESS applications, including those for ancillary use, with a maximum instantaneous electricity output of 50MW or more to be subject to Impact Assessment.

The Project is therefore subject to Impact Assessment and triggers the requirement for Public Notification.

#### 5.1.3 PUBLIC NOTIFICATION

As per Section 53 of the Planning Act, given that the Application is Impact Assessable, Public Notification is required. The Development Application is required to be publicly notified for a minimum period of 15 days as per the Planning Regulation 2017 and the Development Assessment Rules.

Public Notification allows any person to make a submission for or against the application and creates an avenue for third-party appeal rights. A third-party appeal may only be made by a third-party that provided a submission in relation to the Project.

### 5.2 STATE DEVELOPMENT ASSESSMENT PROVISIONS

The State Development Assessment Provisions provides the assessment framework for matters of State Interest that require referral to the State for assessment as part of the development assessment process under the Planning Act.

In accordance with Schedule 10 of the Planning Regulation 2017, the Project requires assessment against the following Codes:

- State Code 16: Native Vegetation Clearing;
- State Code 23: Wind Farm Development; and
- State Code 27: Battery Storage Facility Development.

### 5.2.1 STATE CODE 16: CLEARING NATIVE VEGETATION

The Project includes the clearing of Regulated Vegetation for assessable development associated with a Material Change of Use and therefore, requires obtainment of a Development Permit for Operational Works (Vegetation Clearing).

An application involving Operational Works for vegetation clearing may only be properly lodged under the Planning Act where a Relevant Purpose Determination has been made by the State of Queensland through the Department of Natural Resources and Mines, Manufacturing and Regional and Rural Development as the administering authority for the *Vegetation Management Act 1999*. A Relevant Purpose Determination has been provided by the Department of Natural Resources and Mining, Manufacturing and Regional and Rural Development and is provided in **Appendix I**.

The Project has been assessed against the assessment benchmarks provided within State Code 16. A copy of the assessment is provided in **Appendix J**. As demonstrated within the assessment, the Project is considered to achieve the overarching purpose and objectives associated State Code 16.

### 5.2.2 STATE CODE 23: WIND FARM DEVELOPMENT

The Project involves the development of a Wind Farm and therefore, requires obtainment of a Development Permit for a Material Change of Use (Wind Farm). Wind Farms have the potential to create adverse impacts on individuals, communities and the natural environment as a result of their construction and operation and must therefore demonstrate that impacts have been adequately assessed and mitigated to the greatest extent possible.

The Project has been assessed against the assessment benchmarks provided within State Code 23. The assessment benchmarks relevant to State Code 23 have been specifically designed to ensure these risks are adequately identified, assessed and where appropriate, mitigated and/or managed. The purpose of State Code 23 is to:

- Set out the minimum parameters of assessment necessary to demonstrate that a wind farm development can satisfactorily mitigate any unacceptable adverse impacts on individuals, communities and the environment;
- Ensure that the impacts arising from the design, siting (including proximity to sensitive land uses), construction, operation and decommissioning of wind farms do not result in unacceptable adverse impacts on individuals, communities and the environment; and
- Ensure that the assessment of wind farm developments is informed by community and local government engagement.

The Project has been assessed against the assessment benchmarks provided within State Code 23. A copy of the assessment is provided in **Appendix K**. As demonstrated within the assessment, the Project is considered to achieve the overarching purpose and objectives associated State Code 23.

### 5.2.3 STATE CODE 27: BATTERY STORAGE FACILITY DEVELOPMENT

The Project involves the development of a BESS and therefore requires obtainment of a Development Permit for a Material Change of Use (Battery storage facility). BESS facilities have the potential to create adverse impacts on individuals, communities and the natural environment during their construction and operation and must therefore demonstrate that impacts have been adequately assessed and mitigated to the greatest extent possible.

The Project has been assessed against the assessment benchmarks provided within State code 27. The assessment benchmarks relevant to State Code 27 have been specifically designed to ensure these risks are adequately assessed and where appropriate, mitigated or managed. The purpose of State Code 27 is to:

- Avoid and/or appropriately integrate risk mitigation strategies and responsive design measures to address potential fire hazards, and other environmental risks, ensuring long-term safety and resilience for people, surrounding land uses and the environment;
- Minimise the loss or fragmentation of high quality agricultural land;
- Ensure the development does not result in unacceptable adverse impacts on individuals, communities, the environment, adjacent sensitive land uses and sensitive receptors, landscape values and infrastructure and services; and
- Ensure the development is decommissioned in a timely and efficient manner that reuses, recycles, and/or repurposes materials to the greatest extent possible and rehabilitates the environment.

The Project has been assessed against the assessment benchmarks provided within State Code 27. A copy of the assessment is provided in **Appendix L**. As demonstrated within the assessment, the Project is considered to achieve the overarching purpose and objectives associated State Code 27.

### 5.3 TECHNICAL AND ADVICE AGENCIES

Schedule 10 of the Planning Regulation 2017 outlines the following triggers that are applicable for the Project and are addressed as part of this Report.

- Schedule 10, Part 3, Division 1, Item 4(1) – Clearing native vegetation on prescribed land;
- Schedule 10, Part 21, Division 2, Table 1 – Material Change of Use (Wind Farm); and
- Schedule 10, Part 2, Division 2, Table 1 – Material Change of Use (BESS).

Whilst part of the Study Area is on the Environmental Management Register, it is noted the Project does not propose a sensitive land use as per the Planning Regulation 2017 and therefore, does not require further consideration or assessment against Schedule 10, Part 4, Division 1.

## 5.4 STATE PLANNING POLICIES AND INTERESTS

The State Planning Policy (SPP) dated July 2017 outlines the guiding principles and State interests that underpin the delivery of local and regional plans, and development that will advance the social, economic and environmental needs of Queensland.

The purpose of the SPP and the State Interest Policies is to secure a liveable, sustainable and prosperous Queensland. It requires that State interests are integrated in local planning instruments, regional plans and development decisions to strengthen the Queensland economy, promote strong communities, protect the environment, wisely manage resources and inform and respond to investment in infrastructure.

The SPP recognises that mitigating and adapting to climate change is also an important consideration for planning at all levels. It ensures that State interests are applied and considered in the context of a changing climate to support Queensland's people, economy and the environment.

In accordance with the Planning Regulation 2017, matters within the SPP apply to the extent where relevant, as the assessment manager is SARA.

Where the SPP Mapping has identified a state interest within the Study Area (refer to **Appendix M**), the Project has been assessed against the applicable State Interests with regard to Part C Purpose and Guiding Principles and Part D State Interest Statements of the SPP. An assessment of how the Project responds to and complies with the assessment benchmarks within the SPP complies with each applicable State Interest is provided in Table 5-1 below.

TABLE 5-1 ASSESSMENT OF STATE PLANNING POLICY

State Interest	State Interest Statement	State Policy Mapping Triggers	Response
<b>Environment and Heritage</b>			
Biodiversity	Matters of environmental significance are valued and protected, and the health and resilience of biodiversity is maintained or enhanced to support ecological processes.	<ul style="list-style-type: none"> <li>• MSES – Regulated vegetation (Category B)</li> <li>• MSES – Regulated vegetation (intersecting a watercourse)</li> <li>• MSES – Regulated vegetation (essential habitat)</li> <li>• MSES – Wildlife habitat (endangered or vulnerable)</li> <li>• MSES – Wildlife habitat (special least concern animal)</li> </ul>	<p>The Project is located on the Knapdale Range which has been subject to 17 years of on-ground ecological survey effort. As a result of the survey effort, the environmental values associated with the Knapdale Range, particularly those within the Study Area are well understood, documented and ground-truthed.</p> <p>The Study Area has been designed using environmental design principles with the overarching intent being to avoid and/or minimise, as well as manage impacts on known environmental values. The Disturbance Footprint builds on this understanding and focuses on avoiding and minimising impacts to environmental values including, most notable, the Purple-necked rock-wallaby.</p> <p>Matters of environmental significance are identified and assessed in the MSES Impact Assessment Report provided in <b>Appendix N</b>. The Report provides a Significant Residual Impact Assessment for 17 Endangered, Vulnerable or Near Threatened (EVNT) species, and 1 Special Least Concern Species.</p> <p>With the exception of the Purple-necked rock-wallaby, the Report concludes there are no Significant Residual Impact’s that will occur to known environmental values. The Report conservatively concludes that a Significant Residual Impact may occur to the Purple-necked rock-wallaby as a result of the potential for interaction between the species and the Project.</p> <p>On-ground ecological surveys confirm there are no known, Purple-necked rock-wallaby Dens within the Disturbance Footprint. Habitat within the Disturbance Footprint largely comprises dispersal habitat, with only minor areas of foraging habitat present.</p> <p>Based on the broad-scale mapping relevant for the Knapdale Range, Regulated vegetation will be cleared for the construction of the Project. The Disturbance Footprint has been refined to demonstrate</p>

State Interest	State Interest Statement	State Policy Mapping Triggers	Response
			<p>avoidance and mitigation measures by responding to environmental values, avoiding areas of sensitive vegetation and negating habitat fragmentation.</p>
Cultural Heritage	<p>The cultural heritage significance of heritage places, including places of Aboriginal and Torres Strait Islander cultural heritage, is conserved for the benefit of the community and future generations.</p>	N/A	<p>MMG is committed to respecting cultural heritage values and the ongoing co-creation of benefits that support cultural and economic aspirations. As part of the Project, MMG has worked closely with the Kalkadoon People, who are the Traditional Owners of land on the Knapdale Range.</p> <p>The Kalkadoon People are the registered Native Title holders (pursuant to Native Title determination QUD579/2005 Kalkadoon People #4 (QCD2011/007) as determined by the Federal Court of Australia on 12 December 2011).</p> <p>MMG and the Kalkadoon People have agreed to an ILUA for the Project which was signed by both parties on 29 November 2024 and registered on 14 April 2025.</p>
Water Quality	<p>The environment values and quality of Queensland waters are protected and enhanced.</p>	N/A	<p>The Knapdale Range contains various unnamed low-order waterways (Category 1 and 2) and mapped drainage lines. The Disturbance Footprint has been developed to avoid entirely, to the greatest extent possible, mapped waterways and drainage lines. Where interactions with these features is required, impacts are generally minimised through minor areas of interaction only. There are no major waterways within the Study Area or the Disturbance Footprint.</p> <p>Potential impacts to water quality have been assessed within the Stormwater Impact Assessment Report provided in <b>Appendix P</b>. The Report uses RULSE modelling to predict impacts on water quality as a result of the Project.</p> <p>The Report concludes that there is a very low risk that the Project will result in a degradation of water quality. Additionally, the Report notes a broad range of mitigation and management measures which are reflected in the PCEMP, and which will be implemented during the life of the Project.</p>

**Economic Growth**



State Interest	State Interest Statement	State Policy Mapping Triggers	Response
Agriculture	The resource that agriculture depends on are protected to support the long-term viability of the agricultural sector.	N/A	<p>The Knapdale Range is not located within a mapped area of Class A or B agricultural land, is not within a state significant cropping zone and does not contain a stock-route. By extension, neither the Study Area or the Disturbance Footprint contain mapped agricultural land use values.</p> <p>A desktop Agricultural Land Assessment was conducted (refer to Section 6.3) and confirms that there will be no impacts or impediments to the existing low-density grazing activities undertaken in proximity to the Project. The Project is effectively located such that coexistence with existing land uses associated with the Knapdale Range can be maintained.</p>
<b>Safety and Resilience to Hazards</b>			
Natural Hazards, Risk and Resilience	The risk associated with natural hazards, including the projected impacts of climate change, are avoided or mitigated to protect people and property and enhance the community’s resilience to natural hazards.	<ul style="list-style-type: none"> <li>• Flood hazard area – level 1 – Queensland floodplain assessment overlay</li> <li>• Flood hazard area – local government flood mapping area</li> <li>• Bushfire prone area (high potential bushfire intensity, medium potential bushfire intensity)</li> </ul>	<p>The Knapdale Range is mapped as being subject to bushfire risks and is noted as a Bushfire Prone Area. The Study Area, and by extension the Disturbance Footprint consider bushfire risk and have been designed to reduce where practicable interactions with high-risk areas. A Natural Hazard Risk Assessment (NHRA) was undertaken for the Project and is provided in <b>Appendix Q</b>.</p> <p>The NHRA confirms that bushfire has the potential to impact the Project through its operational life. Whilst impacts have the potential to occur, the Project does not increase the vulnerability or exposure of people or property to bushfire impacts. Importantly, the NHRA considers the nature of fire behaviour relevant to the Knapdale Range, considers and stipulates vegetation setbacks for asset protection purposes and outlines actions the Project can take during construction and operations.</p> <p>The NHRA is supported by a Preliminary Bushfire Management Plan which formalises management actions to be undertaken during all phases of the Project. The Preliminary Bushfire Management Plan will be developed and implemented prior to the Project’s commencement and will cover all aspects of the Project including construction, operation and decommissioning.</p>

State Interest	State Interest Statement	State Policy Mapping Triggers	Response
			<p>To support and facilitate the development of the proposed BESS facility, a Risk Management Assessment Report (<b>Appendix R</b>), Fire Safety Study (<b>Appendix S</b>), Emergency Response Guide (<b>Appendix T</b>) and Bushfire Management Plan (<b>Appendix U</b>) have been prepared to ensure the facility has adequate fire prevention, detection, alarm and suppression systems for the site whilst assessing fire risk both to and from the BESS.</p> <p>As the site is located within bushfire prone land, the site will maintain appropriate housekeeping activities, included vegetation management, to prevent the accumulation of combustible loads. These measures, combined with the sparse vegetation present throughout the Project Area, is anticipated to result in minor grass fire events where a fire event occurs. Grass fires, whilst quick-moving in nature, are short-lived as the combustible load becomes exhausted. Subsequently, sustained radiant heat impacts at the BESS site are not anticipated and are unlikely to result in a sufficient heat impact to the BESS or surrounding infrastructure such that incident propagation occurs.</p> <p>Furthermore, the assessment determined that in the event a fire originates on site, such an event is considered unlikely to escalate to a level that threatens developments surrounding the BESS facility. The assessments therefore concluded that the proposed design and existing fire protection measures within the Project Area will adequately manage credible fire risks at the site.</p>
<b>Infrastructure</b>			
Energy and Water Supply	The timely, safe, affordable and reliable provision and operation of electricity and water supply infrastructure is supported, and renewable energy development is enabled.	<ul style="list-style-type: none"> <li>• Pipelines and channels (Sunwater)</li> <li>• Electricity substation (Ergon)</li> </ul>	<p>Potential impacts on existing water or energy supply infrastructure will be managed during construction, operation and decommissioning through the PCEMP and Operational Environmental Management Plan prepared for the Project.</p> <p>The Project involves the development of a utility-sized Wind Farm which will contribute to the energy needs of the adjacent DRM with excess electricity contributing to the growing energy needs of the region providing a clean energy source.</p>

State Interest	State Interest Statement	State Policy Mapping Triggers	Response
Transport Infrastructure	The safe and efficient movement of people and goods is enabled, and land use patterns that encourage sustainable transport are supported.	N/A	<p>A Traffic and Pavement Impact Assessment, and Oversize Overmass Construction Concept Strategy have been undertaken for the Project and are provided as <b>Appendix V</b> and <b>Appendix W</b> respectively.</p> <p>The TPIA identified that there are no intersection works identified for traffic capacity requirements and there are no seal, pavement or formation width deficiencies for the traffic volumes or capacity requirements. The TPIA will be revised prior to construction of each stage of the Project.</p> <p>No pavement upgrades have been identified or recommended for the Project. A Traffic Management Plan will be developed and all escort and permitting requirements will be met.</p> <p>The proposed transport haulage route has been assessed, considering requirements for both construction and operational phases of the development. Through engagement with necessary stakeholders, it is expected that the proposed OSOM route is maintained to continue road loads proposed for the Project.</p>

## 5.5 NORTH WEST QUEENSLAND PLAN

The North West Queensland Regional Plan 2010 (Regional Plan) is a mechanism for managing change and shaping the future prospects of the communities in the North West Region.

Specifically, the Regional Plan aims to achieve this by:

- Addressing key economic, social and environmental issues;
- Identifying infrastructure and service needs;
- Maximizing of benefits and managing impacts of major projects;
- Diving innovation and productivity;
- Mobilising public, private and community sectors; and
- Aligning efforts across agencies and all levels of Government.

These are supported by eight strategic directions contained within the Regional Plan. Strategic directions relevant to the Proposed Development include:

- Creating a more sustainable future;
- Protecting regional landscapes and supporting regional production values;
- Promoting a dynamic, robust and diversified economy;
- Providing infrastructure and services; and
- Adapting to climate change.

The Proposed Development is consistent with the above strategic directions as demonstrated in Table 5-2 below.

**TABLE 5-2 COMPLIANCE WITH REGIONAL PLAN**

Desired Regional Outcomes and Policies	Response
<p>Creating a more sustainable future</p>	<p>The Project promotes the co-location of renewable energy and mining assets on underutilised land in a sparsely populated rural locality which is benefitted by an existing powerline to the NWPS.</p> <p>The Project provides an alternative source of energy for the region which increases the capacity and resilience of the NWPS and assists in achieving outcomes of the Queensland Governments Renewable Energy Roadmap. Stage 2 of the Project is designed to directly bolster available supply in the NWPS.</p> <p>The Project will secure the long-term energy demands of the DRM owned and operated by MMG and ensure mining operations can continue for the entirety of the Life of Mine Plan.</p> <p>MMG is committed to developing base metal projects that achieve a low carbon future. Additionally, the Project provides a diversification of land uses which provide employment opportunities through the renewable energy sector.</p>

Desired Regional Outcomes and Policies	Response
Protecting regional landscapes and supporting regional production values	<p>The Project is located on the Knapdale Range which features an underutilised wind resource that has the potential to directly benefit North West Queensland.</p> <p>The Project Layout is located within a defined Disturbance Footprint which has been carefully developed from a broader Study Area to avoid and minimise impacts on production values associated with low-density cattle grazing in proximity to the Knapdale Range.</p> <p>A desktop Agricultural Land Assessment was conducted (refer to Section 6.3) and confirms that there will be no impacts or impediments to the existing low-density grazing activities undertaken in proximity to the Project. The Project is effectively located such that coexistence with existing agricultural activities can be maintained.</p>
Promoting a dynamic, robust and diversified economy	<p>The primary purpose of the Project is to provide long-term energy security to the DRM. The DRM is a major source of employment and provides significant economic benefit to the region.</p> <p>The Project will support the long-term security of the DRM through providing a cost-effective and sustainable energy.</p> <p>The Project is anticipated to have a 2 year construction timeframe, and at its peak, is expected to create 100 Full Time Equivalent Jobs. The Project is anticipated to have variably sized maintenance crews which will range from small teams of 3-5 people for regular maintenance and between 15-20 during major refurbishments and uplift.</p> <p>A Social Impact Assessment (refer <b>Appendix X</b>) confirms that positive economic benefits will flow to the region including the Cloncurry and Mount Isa Local Government Areas.</p>
Providing infrastructure and services	<p>Power which is not utilised by the DRM will be transferred in the NWPS which services the region, and potentially the NEM in the future on completion of the planned CopperString Project.</p> <p>The Project provides additional power supply from a renewable source and increases the long-term resilience of the NWPS to the direct benefit of the region.</p>
Adapting to climate change	<p>The Project is for a renewable energy asset which supports the long-term decarbonisation of the DRM, increases the resilience of the NWPS and positively benefits North West Queensland more broadly.</p> <p>The Project will displace an additional 40% of electricity related emissions from the DRM, which will contribute to their commitment to achieving net zero Scope 1 and 2 emissions by 2050.</p>

## 5.6 CLONCURRY SHIRE PLANNING SCHEME 2016

The Cloncurry Shire Council Planning Scheme 2016 (the Planning Scheme) provides the framework for managing development in a way that advances the Planning Act and to meet the needs of the Cloncurry Shire.

### 5.6.1 STRATEGIC OUTCOMES

The Strategic Framework within the Planning Scheme sets the policy direction for the scheme and forms the basis for ensuring appropriate development occurs in the Cloncurry Local Government Area. An assessment of how the Project complies with the relevant sections of the Strategic Framework is provided in Table 5-3.

TABLE 5-3 APPLICABLE STRATEGIC OUTCOMES

Strategic Outcomes	Response
<p><b>Natural Environment:</b> Cloncurry’s natural environment comprises a diverse range of natural values and assets including soils, waterways, vegetation, biodiversity and other land based features that maintain ecological processes and regional landscape values.</p>	<p>The Project has been developed through a consideration of environmental design philosophy with the proposed alignment responding to known environmental values obtained through 17 years of on-ground ecological surveys.</p> <p>Developed within the Study Area, the Project’s Disturbance Footprint provides the smallest possible impact area whilst responding to construction requirements as well as limiting fragmentation of natural vegetation.</p> <p>Notwithstanding the extent of the mapped Regulated Vegetation (which occurred as a result of desktop based mapping changes made by the State in late 2023), the Project is generally located on the plateau of the Knapdale Range which is noted as having the least useable habitat for the Purple-necked rock-wallaby and Short-beaked Echidna.</p>
<p><b>Natural Resources:</b> Cloncurry is a region rich with natural resources, agricultural resources and scenic amenity values.</p>	<p>The Project is designed to be co-located with the existing mining operations and low-intensity cattle grazing land uses.</p> <p>The Disturbance Footprint is located to respond to the current and future needs of the DRM and will not impact on mining operations.</p> <p>A desktop Agricultural Land Assessment was conducted (refer to Section 6.3) and confirms that there will be no impacts or impediments to the existing low-density grazing activities undertaken in proximity to the Project. The Project is effectively located such that coexistence with existing agricultural activities can be maintained.</p> <p>A Landscape and Visual Impact Assessment (LVIA), provided in <b>Appendix Y</b>, was undertaken to assess the visual impact of the Project. The LVIA concludes that the existing</p>

Strategic Outcomes	Response
	landscape has the ability to incorporate the Project with a very-low degree of visual impact.
<p><b>Economic Development:</b> Cloncurry Shire has a growing and prosperous economy, supported by the Major Rural Activity Centre of the Cloncurry Township.</p>	<p>The primary purpose of the Project is to provide long-term energy security to the DRM. The DRM is a major source of employment and provides significant economic benefit to the region.</p> <p>The Project will support the long-term security of the DRM through providing a cost-effective power options. Additional energy generated by the Project will be supplied into the NWPS which enables ongoing economic activity within the Cloncurry area.</p> <p>The Project is anticipated to have a 2 year construction timeframe and at its peak is expected to create 100 Full Time Equivalent Jobs. The Project is anticipated to have variably sized maintenance crews which will range from small teams of 3-5 people for regular maintenance and between 15-20 during major refurbishments and uplift.</p>
<p><b>Infrastructure:</b> Cloncurry Shire has a well-planned, coordinated, safe and efficient network of infrastructure, which is readily available to the majority of the Cloncurry Township residents.</p>	<p>The Project supports the strategic outcome for Infrastructure by providing a renewable energy facility consistent with the low carbon targets in Queensland which ultimately supports the North West region.</p>

### 5.6.2 ZONING

The Project is located within the mapped Rural Zone of the Planning Scheme. The purpose the Rural Zone as per the Planning Scheme is noted below:

*The purpose of the Rural Zone is to:*

- a) Provide for rural uses and activities; and*
- b) Provide for other uses and activities that are compatible with –*
  - i) Existing and future rural uses and activities; and*
  - ii) The character and environmental features of the zone; and*
- c) Maintain the capacity of land for rural uses and activities by protecting and managing significant natural resources and processes.*

An assessment of the Project against applicable assessment benchmarks within the Rural Zone Code is provided in Table 5-4. The Project is considered to achieve the purpose and outcome of the Rural Zone, as the Project will have a minimal impact on the existing rural land uses.

Furthermore, the Project has been designed to be response to environmental constraints on the land and minimize the amount of clearing required to facilitate the WTGs and associated infrastructure.

TABLE 5-4 APPLICABLE OVERALL OUTCOMES

Overall Outcome		Response
(a)(i)	Areas used for primary production are conserved and fragmentation avoided.	<p><b>Complies with (a)(i).</b> The Project is designed to be co-located with the existing mining operations and existing low-intensity cattle grazing land uses.</p> <p>The Project will not result in the fragmentation or loss of areas used for primary production activities.</p>
(a)(ii)	Uses that require greater separation distances from the township's urban areas as consequence of their impacts, such as noise, odour and the like, are located where land-use conflicts are minimized, separation distances are maximized and protected from future intrusion of non-compatible uses and where the development will not compromise the use of the subject or adjoining land for rural purposes.	<p><b>Complies with (a)(ii).</b> The Project is for the construction and operation of a Wind Farm and BESS. The nearest sensitive receptor, being the McMillan Residence, is located approximately 3.5km from the closest WTG (WTG S8).</p> <p>The Project will not result in impacts from noise, odour or another means on the McMillan Residence.</p>
(b)(ii)	Built form and intensity of development achieved the efficient use of land generally for rural purposes, at an appropriate scale and intensity that is supported by suitable setbacks and landscaping.	<p><b>Complies with (b)(ii).</b> The Project is designed to be co-located with the existing mining operations and existing low-intensity cattle grazing land uses.</p> <p>An LVIA was undertaken to assess the visual impact of the Project and concludes that the existing landscape has the ability to incorporate the Project with a very-low degree of visual impact.</p> <p>The existing landscape can accommodate the Project without the need for additional setbacks or formalised landscaping.</p>
(c)(i)	Development layout and design provides for protection of rural activities from encroachment by inappropriate and sensitive land uses.	<p><b>Complies with (c)(i).</b> The Project is designed to be co-located with the existing mining operations and existing low-intensity cattle grazing land uses.</p>
(c)(ii)	Development layout and design provides for incorporation of sustainability measures and land management practices, including maximizing energy efficient and water conservation.	<p><b>Complies with (c)(ii).</b> The Project is for a Wind Farm and BESS which will provide renewable energy to the DRM and more broadly, the NWPS.</p>
(c)(iii)	Development layout and design provides for site-specific responses to constraints, including topography, bushfire and flooding.	<p><b>Complies with (c)(iii).</b> A NHRA was undertaken for the Project and confirms that bushfire has the potential to impact the Project through its operational life. Whilst impacts have the potential to occur, the Project does not increase the vulnerability or exposure of people or property to bushfire impacts.</p>

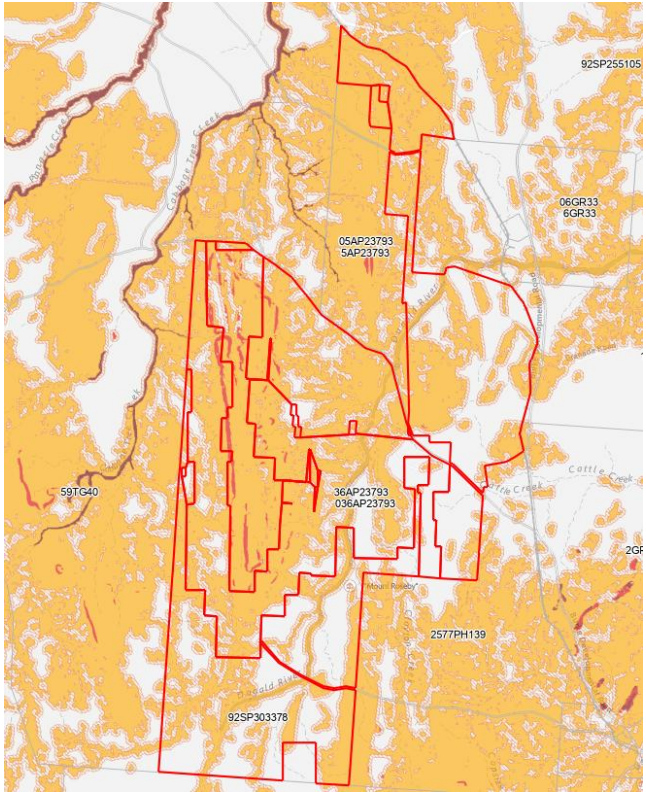




Overall Outcome		Response
		<p>Moreover, a Risk Management Assessment Report (<b>Appendix R</b>), Fire Safety Study (<b>Appendix S</b>) and Emergency Response Guide (<b>Appendix T</b>) have been undertaken to support the development of the BESS facility.</p> <p>The proposed development is strategically located on the Knapdale Range, which offers spare vegetation. Whilst it has been identified that the site is located within a medium bushfire risk area and can be subjected to grass fires, such fires are typically short-lived as the combustible load becomes exhausted. The design of the Project, including the BESS facility has considered the existing landscape and fire risk. Consequently, the Disturbance Footprint will generally be located on areas of relatively level topographic variance and co-located to align with existing access tracks.</p> <p>The various risk assessments completed for the Project unanimously concluded that the proposed Project design and existing fire protection measures within the Project Area will adequately manage any credible fire risks at the site.</p>
(c)(iv)	<p>Development layout and design provides for natural features such as creeks, gullies, waterways, wetlands, habitat, vegetation and bushland to be retained, enhanced and buffered, with unavoidable impacts to be minimized through location, design, operation and management requirements.</p>	<p><b>Complies with (c)(iv).</b> The Project has been developed through a consideration of environmental design philosophy with the proposed alignment responding to known environmental values obtained through 17 years of on-ground ecological surveys.</p> <p>The Study Area reflects consideration of the available wind resource on the Knapdale Range, topographic constraints, constructability, landowner and network considerations. The Disturbance Footprint is refined from the Study Area and considers the applicable environmental constraints and the Project’s construction requirements.</p> <p>Notwithstanding the extent of the mapped Regulated Vegetation (which occurred as a result of desktop based mapping changes made by the State in late 2023), the Project is generally located on the plateau of the Knapdale Range which is noted as having the least applicable habitat for the Purple-necked rock-wallaby and Short-beaked Echidna.</p>
(c)(v)	<p>Development layout and design provides for the visual impacts of clearing, building design and construction, material, accessways and other aspects of</p>	<p><b>Complies with (b)(ii).</b> An LVIA was undertaken to assess the visual impact of the Project and concludes that the existing landscape has the ability</p>

Overall Outcome	Response
development to be consistent with the rural character of the zone.	to incorporate the Project with a very-low degree of visual impact.

### 5.6.3 OVERLAY MAPPING

A review of the Planning Scheme mapping was undertaken with the applicable Overlays identified in Table 5-5.

TABLE 5-5 APPLICABLE OVERLAYS

Overlay	Planning Scheme Overlay Mapping	Legend	Project Relevance
<p>Bushfire Hazard Overlay</p>	 <p>The map displays a planning scheme overlay for bushfire hazards. It features several zones: a central area outlined in red (High Potential Bushfire Intensity), a larger area shaded in yellow (Medium Potential Bushfire Intensity), and a hatched area (Potential Impact Buffer). Various planning scheme codes are labeled on the map, including 92SP255105, 06GR33, 6GR33, 05AP23793, 5AP23793, 59TC40, 36AP23793, 036AP23793, 2577PH139, and 92SP303378. The map also shows geographical features like 'Cattle Creek' and 'Dugald River'.</p>	<p><b>Bushfire prone area</b></p> <p>CLASS</p> <ul style="list-style-type: none"> <li> Very High Potential Bushfire Intensity</li> <li> High Potential Bushfire Intensity</li> <li> Medium Potential Bushfire Intensity</li> <li> Potential Impact Buffer</li> </ul>	<p>A Natural Hazard Risk Assessment was undertaken for the Project and confirms that bushfire has the potential to impact the Project through its operational life. Whilst impacts have the potential to occur, the Project does not increase the vulnerability or exposure of people or property to bushfire impacts.</p> <p>The assessment proposes various mitigation and management measures which have been integrated into a Bushfire Management Plan.</p> <p>A Risk Management Assessment Report (<b>Appendix R</b>) and Fire Safety Study (<b>Appendix S</b>) have been prepared to appropriately assess the risk of fire to and from the proposed BESS. It has been concluded that hazard risks are sufficiently managed by the inherent safety features of the BESS units themselves and existing safety precautions for the site.</p> <p>A Bushfire Management Plan (<b>Appendix U</b>) has been developed and details bushfire risk and mitigation measures. These measures are further detailed with Section 6.5.3.</p>

## 5.7 OTHER RELEVANT LEGISLATION

Table 5-6 below outlines the other relevant legislation that is applicable to the Project.

**TABLE 5-6 OTHER RELEVANT LEGISLATION**

Legislation	Description	Project Applicability
<b>Commonwealth</b>		
<p><i>Environment Protection and Biodiversity Conservation Act 1999</i></p>	<p>The <i>Environment Protection and Biodiversity Conservation Act 1999</i> is the Australian Government’s central piece of environmental legislation which protects Matters of National Environmental Significance.</p> <p>The Act provides the framework to protect and manage nationally and internationally important flora, fauna, ecological communities and heritage places.</p>	<p>The Knapdale Range is mapped to contain listed threatened species, ecological communities and migratory species which form Matters of National Environmental Significance under the <i>Environmental Protection, Biodiversity and Conservation Act 1999</i>.</p> <p>The Project was referred to the Department of Climate Change, Energy, the Environment and Water on 20 December 2024 (Reference: 2024/1090) and was determined as ‘Not a Controlled Action’ on 12 March 2025, with no further assessment required.</p>
<p><i>Native Title Act 1993</i></p>	<p>Under the <i>Native Title Act 1993</i>, where Native Title has not been extinguished, Native Title claimants can make an Application to the Federal Court to have their Native Title recognised by Australian law.</p> <p>Native Title recognises the traditional rights and interests to land and waters of Aboriginal and Torres Strait Islander people.</p> <p>Native Title is generally extinguished in relation to all freehold land or any land dedicated for a public purpose, such as public road reserves.</p>	<p>The Kalkadoon People are the registered Native Title holders (pursuant to Native Title determination QUD579/2005 Kalkadoon People #4 (QCD2011/007) as determined by the Federal Court of Australia on 12 December 2011).</p> <p>MMG and the Kalkadoon People have agreed to an ILUA for the Project which was signed by both parties on 29 November 2024 and registered on 14 April 2025.</p>
<b>State</b>		
<p><i>Aboriginal Cultural Heritage Act 2003</i></p>	<p>The <i>Aboriginal Cultural Heritage Act 2003</i> requires anyone who carries out a land-use activity to exercise a duty of care.</p> <p>Section 23 of the Act provides that a person who carries out an activity must take all reasonable measures to ensure the activity does not harm</p>	<p>The Project includes activities that may disturb land containing unrecorded Aboriginal cultural heritage. MMG and the Kalkadoon People have agreed to an ILUA for the Project which includes cultural heritage management protocols. The ILUA was signed by both parties on 29 November 2024 and registered on 14 April 2025.</p>

Legislation	Description	Project Applicability
	<p>Aboriginal cultural heritage (the cultural heritage duty of care).</p>	
<p><i>Environment Protection Act 1994</i></p>	<p>The <i>Environmental Protection Act 1994</i> provides protection policies is the principal environmental legislation in Queensland.</p> <p>The Act specifies the 'General Environmental Duty', outlining that a person must not perform their duties in a manner which will cause, or is likely to cause, environmental harm unless the person takes all reasonable and practical measures to prevent or minimise the harm.</p>	<p>The Project is required to comply with the General Environmental Duty and will implement a PCEMP.</p> <p>Importantly, it is noted that the DRM operates under an Environmental Authority issued in accordance with the <i>Environmental Protection Act 1994</i>. MMG therefore has an existing regulatory obligation to comply with the Conditions imposed on the Environmental Authority.</p>
<p><i>Fisheries Act 1994</i></p>	<p>The <i>Fisheries Act 1994</i> provides the principal legislative framework for the regulation of activities and areas that are within a mapped fish passage area.</p> <p>All waters are protected against degradation by direct or indirect impacts associated with development activities. Measures designed to protect fisheries resources include the declaration of fish habitat areas, protection of marine plants and designation of waterways for fish passage.</p> <p>A Waterway Barrier Works approval is required for the construction of access crossings for watercourses identified under the Act.</p>	<p>Several low-order watercourses relevant to the <i>Fisheries Act 1994</i> are present within the Study Area. The Disturbance Footprint is generally designed to avoid interaction with mapped watercourses.</p> <p>Once the detailed design for the Project is completed, further consideration of the Waterway Barrier Work Approval requirements will be completed. Where the works are inconsistent with the Accepted Development Code, an application for Operational Works (Waterway Barrier Works), will be required.</p>
<p><i>Nature Conservation Act 1992</i></p>	<p>The <i>Nature Conservation Act 1992</i> provides the legislative basis for the conservation of nature through the protected plants framework and species management program requirements. Restrictions apply to impacts to native species and their breeding places (for animals).</p>	<p>The Knapdale Range contains potential habitat for multiple Endangered, Vulnerable, or Near Threatened (EVNT) species under the <i>Nature Conservation Act 1992</i>.</p> <p>One EVNT species, the Purple-necked rock-wallaby (<i>Petrogale purpureicollis</i>) and two Special Least Concern species, the Short-beaked Echidna (<i>Tachyglossus aculeatus</i>) and Glossy ibis (<i>Plegadis falcinellus</i>) are known to occur within the Study Area.</p>

Legislation	Description	Project Applicability
		<p>The following categories of MSES were identified within the Project’s Disturbance Footprint:</p> <ul style="list-style-type: none"> <li>• <u>Regulated Vegetation (Category B)</u>: 631.20 ha of the Study Area is mapped as Regulated Vegetation. MMG has committed to having a maximum impact to 136.82 ha of Regulated Vegetation.</li> <li>• <u>Regulated Vegetation (Intersecting a Watercourse)</u>: Ground-truthing confirmed there is 0.74 ha of Regulated Vegetation intersection a watercourse within the Study Area. The assessment considered the entire Study Area, noting the Disturbance Footprint is significantly smaller in size.</li> <li>• <u>Regulated Vegetation (Essential Habitat)</u>: Ground-truthed surveys and records of Purple-necked rock-wallaby within the Knapdale Range confirm the presence of values meeting the criteria for essential habitat. Whilst there is 612.63 ha of Essential Habitat for Purple-necked rock-wallaby within the Study Area, the Project will have a maximum impact to Essential Habitat of 135.70 ha.</li> <li>• <u>Protected Wildlife Habitat</u>: Multiple ENVT species under the Act have been mapped as potentially occurring within the Study Area. One EVNT species, the Purple-necked rock-wallaby is known to occur. Furthermore, two special least concern species, the Short-beaked Echidna and Glossy Ibis are known to occur within the Study Area.</li> <li>• <u>Waterways Providing Fish Passage</u>: In accordance with the Development Assessment Mapping System mapping, there are several unnamed low-order waterways with Fish Passage within the Study Area.</li> </ul>
<p><i>Water Act 2000</i></p>	<p>The <i>Water Act 2000</i> limits the taking or interference with water, clearance of riparian vegetation, and excavation or placing fill in waterbodies.</p>	<p>Once the detailed design for the Project is completed, further consideration of the requirements under the <i>Water Act 2000</i> will be required. A Riverine Protection Permit may be required for the access crossings of watercourses identified under the <i>Water Act 2000</i>.</p> <p>Should the Project require the use of water from local water sources within the Knapdale Range, a permit for this activity will be sought. Depending on the amount of water to be taken, a water license may be required, and an application may need to be lodged for taking and interfering with water.</p>

Legislation	Description	Project Applicability
<i>Vegetation Management Act 1999</i>	Clearing of native vegetation communities is regulated by this legislation, which is assessed as part of the Development Application.	The Project involves the clearing of native vegetation, as discussed in Section 4.3. As part of the Application process, a Relevant Purpose Determination was sought (refer to <b>Appendix I</b> ), which demonstrates that any clearing associated with this Development Application is for the purpose of installing infrastructure.
<i>Planning Act 2016 Cloncurry Shire Planning Scheme 2016 (Version 2)</i>	<p>The Planning Scheme outlines the future land use development decisions within the Cloncurry Shire Local Government Area.</p> <p>The Planning Scheme sets out the preferred land uses for each property and identifies which areas should be protected to facilitate the support of long-term population and economic growth in the region.</p>	<p>This Application seeks a Development Permit for a Material Change of Use (Wind Farm) and Operational Works (Clearing Native Vegetation).</p> <p>Once the detailed design for the Project is completed, further consideration of secondary approval requirements may also be required. Potential secondary approvals are likely to include the following:</p> <ul style="list-style-type: none"> <li>• Development Permit for a Material Change of Use (medium or high impact industry) for the establishment of a concrete batching plant;</li> <li>• Development Permit for Operational Works (filling and excavation &amp; waterway barrier works); and</li> <li>• Development Permit for Building Works.</li> </ul>

## 6. STATE CODE IMPACT ASSESSMENT

### 6.1 OVERVIEW

Detailed technical assessments have been undertaken for the Project to inform the design and to identify any potential impacts and associated management and mitigation measures that will be required in accordance with the requirements contained within State Code 16, State Code 23 and State Code 27.

The technical assessments were conservatively undertaken with reference to the Study Area to enable a broader understanding the Project to be achieved. Where a more detailed level of impact assessment was required, technical assessments were specific to the Project Layout as represented by the Disturbance Footprint.

Table 6-1 summarises the technical studies that have been completed in support of the Project and which are referenced within this Report.

**TABLE 6-1 SUMMARY OF ASPECTS AND TECHNICAL STUDIES**

Aspect	Technical Study	Consultant	Location Reference	State Code 16	State Code 23	State Code 27
Protected Wildlife and Associated Habitats and areas of high ecological value	Matters of State Environmental Significance Impact Assessment	Wulguru Technical Services	<b>Appendix N</b>	PO1 – PO4, PO7, PO9, PO12, PO14, PO80 -PO85, PO88, PO89	PO1 – PO4	PO1
	Preliminary Vegetation and Fauna Management Plan	Wulguru Technical Services	<b>Appendix O</b>			
	Bird and Bat Management Plan	Wulguru Technical Services	<b>Appendix Z</b>			
Agricultural Land	Agricultural Land Assessment	ERM	Section 6.3	-	PO5	PO9 - PO12
Natural drainage patterns, water quality and erosion control	Stormwater and Erosion Risk Assessment	ERM	<b>Appendix P</b>	PO7 – PO8, PO10, PO86	PO6 – PO9	PO16-PO19
Natural hazards and extreme weather events	Risk Management Assessment Report	Riskcon	<b>Appendix R</b>	-	-	PO2 – PO7
	Natural Hazard Risk Assessment	Covey Associates	<b>Appendix Q</b>	-	PO10, PO11	PO13- PO15
	Bushfire Management Plan		<b>Appendix U</b>	-	-	
	Emergency Response Guide	Riskcon	<b>Appendix T</b>	-	-	
	Fire Safety Study	Riskcon	<b>Appendix S</b>	-	-	
Acoustic amenity	Noise Impact Assessment	APA Group	<b>Appendix AA</b>	-	PO12, PO13	PO20, PO21
Electromagnetic interference	Preliminary Telecommunications Impact Assessment	Middleton Group	<b>Appendix BB</b>	-	PO14	-
Shadow flicker	Shadow Flicker Assessment	Moir Studio	<b>Appendix Y</b>	-	PO15	-
Social Impacts	Community Benefit Agreement	N/A	Refer to Section 3.3 of this Report outlining Consultation Activities and	-	PO16	PO8

Aspect	Technical Study	Consultant	Location Reference	State Code 16	State Code 23	State Code 27
			<b>Appendix X</b> for Social Impact Assessment			
Visual Impacts	Landscape and Visual Impact Assessment	Moir Studio	<b>Appendix Y</b>	-	PO17	PO22, PO23
Transport networks	OSOM Concept Strategy	MMG	Refer to Section 6.11 of this Report and <b>Appendix V</b> and <b>Appendix W</b> for Traffic and Pavement Impact Assessment and OSOM Concept Strategy	-	PO18 – PO21	PO24 – PO28
	Traffic and Pavement Impact Assessment	Harrison Infrastructure Group		-		
Aviation safety, integrity and efficiency	Aviation Impact Assessment	Aviation Projects Australia	<b>Appendix CC</b>	-	PO22, PO23	-
Decommissioning	Preliminary Rehabilitation Plan	ERM	<b>Appendix G</b>	-	PO24 – PO27	-
	Decommissioning Security Report and Preliminary Battery Recycling Strategy	ERM	<b>Appendix H</b>	-	-	PO31 – PO35

## 6.2 PROTECTED WILDLIFE AND ASSOCIATED HABITATS

PO1, PO2, PO3 and PO4 of State Code 23 require that:

- Development is located and designed to ensure that:
  - protected wildlife and associated habitats; and
  - areas of high ecological value
  - are protected from adverse impacts.
- Development is constructed to ensure that:
  - protected wildlife and associated habitats; and
  - areas of high ecological value
 are protected from adverse impacts.
- Development operations ensure that protected wildlife and birds and bats are protected from adverse impacts.
- Areas cleared for the construction of a wind farm are progressively rehabilitated to the maximum extent practicable following construction without impeding the safe and efficient operations and maintenance of the wind farm.

PO1 of State Code 27 requires that:

- Development is located, sited and designed to ensure that the following are protected from adverse impacts:
  - Protected wildlife and associated habitats;
  - Areas of high ecological value.

### 6.2.1 ASSESSMENT

A MSES Impact Assessment (refer to **Appendix N**) has been prepared for the Project and assesses impacts associated with the Project on Flora and Fauna. The Report was informed by both desktop investigations, and field surveys conducted since 2008 to describe the environmental values and MSES within the Study Area.

The Project is located on the Knapdale Range within the Mount Isa Inlier subregion of the Northwest Highlands bioregion which is largely characterized by the tilted metamorphic hills and ranges. The Study Area is located on the boundary of the Leichhardt Basin and the Flinders Basin. Drainage from the Knapdale Range flows to stream order five watercourse Dugald River of the Cloncurry River sub-basin to the east and south.

The rolling hills of the Knapdale Range reach maximum elevations of approximately 310 m AHD, declining in all directions into grassy plains. The Study Area is located at elevations between 210 – 310 AHD, largely comprising *Eucalyptus leucophloia* low open woodland.

Vegetation within the Study Area consists of low open woodland and open Spinifex dominant grasslands, with moderate to sparse Acacia dominant shrub layers throughout. Soil types range from rocky, skeletal soil types to shallow-moderate sandy loam towards the eastern base of the range.

The Study Area has been classified into six ground-truthed Regional Ecosystems:

- 1.3.7b - *Eucalyptus camaldulensis* fringing woodland, usually with *Lophostemon grandiflorus* and *Melaleuca bracteata* and/or *M. dissitiflora*. Occurs on recent levees and channel deposits of medium and smaller tributaries which are dry for most of the year; alluvial soils. Riverine.
- 1.5.4 - *Eucalyptus leucophylla* and/or *Corymbia terminalis* low open woodland to low woodland over annual grasses with areas of *Triodia* spp. Occasional *Corymbia aparrerinja*, *Atalaya hemiglauca* and *Grevillea striata* and small areas of *Acacia cambagei* and *Eucalyptus leucophloia*. Occurs on plains and valley bottoms; red earths, shallow loams, clays and skeletal soils.
- 1.7.7b - *Corymbia capricornia* and/or *Eucalyptus miniata* low open woodland often with *Eucalyptus herbertiana*, *Eucalyptus leucophloia* and/or *Corymbia ferruginea*. *Eucalyptus tetradonta* may be present in the far north. A second tree layer of *Terminalia canescens* may be present. The shrub layer is mixed and includes *Petalostigma quadriloculare*, *Grevillea dryandri*, *Terminalia canescens* and *Acacia calligera*. Ground layer of *Triodia* spp. and tussock grasses. Occurs on silcrete and lateritic surfaces.
- 1.11.2a - *Eucalyptus leucophloia* low open woodland or low woodland, sometimes with *Eucalyptus leucophylla*, *Corymbia terminalis*, *Corymbia aparrerinja* or *Eucalyptus normantonensis* usually with an *Acacia* spp. dominated shrub layer and *Triodia* spp. and/or tussock grass understorey. Treeless areas common. Occurs on hills and ranges on strongly folded metamorphic pre-Cambrian rocks; soils skeletal, some red earths.
- 1.11.3a - Low open woodland of *Corymbia terminalis* and/or *Eucalyptus leucophylla* with *Acacia* spp. dominated shrub layer and ground layer of *Triodia* spp. and/or tussock grasses. Includes areas of *Acacia* spp. shrubland and *Triodia* spp. grassland. Occurs on metabasalts and dolerites; some felsic metavolcanics; skeletal soils, some shallow loams.
- Non-remnant.

## 6.2.2 POTENTIAL IMPACTS

The Project has the potential to have both direct and indirect impacts on the ecological values within the Study Area during the construction, operation, and decommissioning phases. In general, potential direct impacts from the construction phase relate to habitat loss and disturbance. Potential direct impacts from the operations phase are largely limited to possible bird and bat collisions with WTGs. Potential decommissioning impacts correspond with those that might occur during the construction phase, however, are likely to be of a much lower magnitude as there is no additional vegetation clearing.

Direct impacts are likely to be habitat loss and degradation, which arise from disturbance to native vegetation. Indirect impacts will likely include impacts to species behaviour through creating barriers to movement and dispersal, impacts to adjacent habitat areas as a result of noise, blasting, dust, runoff and erosion, introduction or spread of weed and pest species, and fragmentation of connectivity areas.

The ground-truthed Regional Ecosystems provide context on the habitat within the Study Area and have been used to inform the Significant Residual Impact Assessments. The Study Area has been development to consider the availability of the wind resource and with regard to known environmental values. The Study Area referenced within the MSES and Matters of National Environmental Significance Reporting for the Project initially utilised a more

conservation consideration to known environmental values, being proposed at 659.6 ha. This area has since been refined and reduced to be 631.20 ha.

Utilising a conservative approach, in total, three MSES categories were identified as present within the Study Area and required assessment for a significant impact as a result of the Project. These are:

- Regulated Vegetation (Category B): 631.20 ha of the Study Area is mapped as Regulated Vegetation. MMG has committed to having a maximum impact to 136.82 ha of Regulated Vegetation. MMG has obtained a Relevant Purpose Determination under Section 22A of the *Vegetation Management Act 1999* with the Project deemed consistent with the relevant infrastructure designation.
- Regulated Vegetation (Intersecting a Watercourse): Ground-truthing confirmed there is 0.74 ha of Regulated Vegetation intersecting a watercourse within the Study Area. The significant impact assessment considered the entire Study Area, noting that the Disturbance Footprint is significantly smaller in size. There is a potential for a Significant Residual Impact, however, as the majority of identified areas will be avoided following completion of the detailed design stage, actual impacts will be reduced.
- Regulated Vegetation (Essential Habitat): Ground-truthed surveys and records of Purple-necked rock-wallaby within the Knapdale Range confirm the presence of values meeting the criteria for essential habitat. There is 612.6 ha of essential habitat for Purple-necked rock-wallaby within the Study Area. MMG has committed to maximum impact to essential habitat of 135.7 ha. There is potential for the Project to have a Significant Residual Impact on Purple-necked rock-wallaby habitat.
- Protected Wildlife Habitat: Multiple ENVT species under the Act have been mapped as potentially occurring within the Study Area. One EVNT species, the Purple-necked rock-wallaby is known to occur. Furthermore, one special least concern species, the Short-beaked Echidna is likely to occur within the Study Area.

As the Projects impacts have the potential to result in a Significant Residual Impact to MSES, each will require appropriate Offsets as set out in the Environmental Offsets Regulation 2014, and the Queensland Environmental Offsets Policy 2014.

In addition, the Project was referred to the Department of Climate Change, Energy, the Environment and Water on 20 December 2024 (Reference: 2024/1090). The Project was determined as 'Not a Controlled Action' on 12 March 2025, with no further assessment or approvals required.

Vegetation clearing for permanent and temporary construction infrastructure of the Project has the potential to impact flora and fauna. The consequences of this impact may include:

- Direct loss of native flora and fauna habitat;
- Injury and mortality to fauna during clearing of fauna habitat;
- Fragmentation of connectivity areas;
- Introduction and spread of priority weeds and pathogens that impact flora and fauna;
- Disturbance to habitats within fallen timber, dead wood and bush rock; and
- Indirect impacts on flora and fauna identified include risks of soil and water contamination, creation of barriers to fauna movement, and the generation of dust, light and/or noise.

## Bird and Bat Collision

A Bird and Bat Collision Risk Assessment has been completed and forms part of the Bird and Bat Management Plan (**Appendix Z**). The assessment considers the likelihood of a bird or bat colliding with a WTG, and the consequence should this occur.

Through calculating the likelihood and the consequence, an overall risk rating is assigned to each species and is the risk of potential impact to a species as a result of the Project. Potential impacts include direct collisions with WTGs, as well as indirect impacts such as the deterrence of migratory flightpaths.

The assessment determined all listed threatened species have a low collision risk. Analysis of the collision risks for non-listed birds and bats, identified the following species as having a medium collision risk:

- Black Kite (*Milvus migrans*);
- Whistling Kite (*Haliastur sphenurus*);
- Black-faced Woodswallow (*Artamus cinereus*);
- Little Woodswallow (*Artamus minor*);
- Masked Woodswallow (*Artamus personatus*); and
- Rainbow Bee-eater (*Merops ornatus*).

Each species with a medium collision risk demonstrates a collision consequence of minor due to their large distributions and prevalence.

Further potential impacts of the proposed development to birds and bats within the operational phase of the Project includes the following:

- Wind turbine structures, primarily rotor blades and associated RSA, causing;
  - Collisions between flying fauna and wind turbine rotor blades or other structures, or barotrauma as a result of flight close to rotor blades, resulting in injury or fatality. The likelihood of a collision is dependent on a range of factors, including:
    - Design characteristics, such as:
      - The type of wind turbine; and
      - The layout of the wind farm;
    - Site characteristics, including:
      - The ecosystems on the wind farm site;
      - Proximity to bird concentrations;
      - The numbers of birds moving across the wind farm site;
      - The behaviours of birds and bats (e.g. Soaring at rsa height); and
      - Weather conditions (Brett Lane & Associates Pty Ltd, 2005).
- Displacement and barrier effects resulting in greater energetic cost to fauna flying through the area;
- Noise pollution, pressure, and vibrations from the operation of the wind turbines;
  - Light confusing/disorientating aerial fauna increasing risk of collision (risk has been nullified by design adjustments – lighting will not be present on the turbines); or

- Disturbing surrounding habitat making it less preferable for native species or conditioning avoidance and affecting normal distribution patterns.

### 6.2.3 MITIGATION MEASURES

The following mitigation measures will be implemented to mitigate both direct and indirect impacts associated with the Project:

- Ongoing fauna monitoring and recording of aerial fauna moving through the Project;
  - This includes the use of data collated from carrion monitoring and BBUS, with the addition of behaviour monitoring, to adapt management practices or intensity.
- Implementation of the following Management Plans:
  - Bird and Bat Management Plan;
  - Vegetation and Fauna Management Plan;
  - Weed and Pest Species Management Plan;
  - Preliminary Rehabilitation Plan;
  - Preliminary Construction Environmental Management Plan; and
  - Operational Environmental Management Plan.

#### **Preliminary Construction Environmental Management Plan**

A PCEMP (refer to **Appendix F**) has been prepared for the Project and will be revised and implemented prior to the commencement of works. The PCEMP includes a broad range of mitigation and management measures to address impacts associated with the Project, particularly as they relate to vegetation clearing.

The chosen contractors will be responsible for the detailed construction methodology for the Project. The PCEMP will include details of the construction program, construction techniques to be employed, mitigation measures to control construction impacts, and contact details for queries and reporting incidents. Key control measures in the PCEMP include:

- Implementation of a Vegetation and Fauna Management Plan;
- Implementation of a Species Management Plan;
- Vegetation clearing will only be undertaken within clearly marked boundaries and in accordance with approvals.
- Adjacent vegetation will be protected to avoid unnecessary damage;
- Pre-clearing surveys will be undertaken to document all threatened flora and fauna with clearing to avoid areas of environmental value;
- Large hollow-bearing or dead trees will be retained where practicable, and if removal is necessary, a fauna spotter-catcher will inspect for threatened species and ensure safe relocation;
- Natural rehabilitation of access tracks will occur in accordance with the Preliminary Rehabilitation Plan.

#### **Bird and Bat Management Plan**

The Bird and Bat Management Plan outlines how potential impacts associated with birds and bats will be managed through operation of the Project:

- Bird and Bat Utilisation Surveys will be conducted throughout the construction of the Project, and for the first 24 months of the operation phase, in accordance with the Bird and Bat Management plan;
- Carrion searches will be undertaken at each WTG once per month, on a random day, until searches are satisfied they have confirmed what is present. Information on each carcass will be recorded. Carrion searches will occur for the first 48 months of the operation phase, and if a significant level of bird or bat mortality is measured, monitoring will continue in line with the Bird and Bat Management Plan.
- Impact triggers and adaptive management measures specific to species with a medium collision risk have been defined in **Appendix Z**.

It is considered that the Project complies with PO1 to PO4 of State Code 23, PO1 of State Code 27, and the applicable POs of State Code 16 as outlined within Table 6-1, with further detail provided in **Appendix J**, **Appendix K** and **Appendix L**.

## 6.3 AGRICULTURAL LAND

PO5 of State Code 23 requires that:

- Development is located and designed to ensure that there is no significant loss of high-quality agricultural land values.

PO9 to PO12 of State Code 27 requires that:

- Development is located and designed to ensure there is no unacceptable loss of high-quality agricultural land.
- Development does not fragment high-quality agricultural land in a way that restricts connectivity of agricultural land necessary to ensure its ongoing productivity and operation.
- Development is constructed to maintain the fertility and soil attributes of high-quality agricultural land and to enable decommissioning at the end of operations to return the land to pre-construction agricultural land productive value.
- Development on or adjacent to the stock route network maintains its operational efficiency and ongoing integrity and function.

### 6.3.1 ASSESSMENT

Agricultural Land Classifications in Queensland align with a basic hierarchical scheme that is applicable across the State. The hierarchy follows the presentation of interpreted land evaluation data to indicate the location and extent of agricultural land that can be used for wide range of land uses with minimal land degradation.

- Class A – Crop Land.
  - A1 – Suitable for a wide range of current and potential broadacre and horticultural crops.
  - A2 – Suitable for a wide range of current and potential horticultural crops only.
- Class B – Limited Crop Land.
- Class C – Pasture Land.
  - C1 – Suitable for grazing sown pastures requiring ground disturbance for establishment; or native pastures on higher fertility soils.
  - C2 – Suitable for grazing native pastures, with or without the introduction of pasture species, and with lower fertility soils than C1.
  - C3 – Suitable for light grazing of native pastures in accessible areas and includes steep land more suited to forestry or catchment protection.
- Class D – Non-agricultural land.

The Agricultural Land Class implies a decreasing range of land use choice, and an increase in the severity of land use limitations and/or land degradation hazards. Class A land has the greatest potential for producing the widest array of crops whilst class D land is generally unsuitable for any agricultural land use.

A desktop Agricultural Land Assessment was completed for the Project using publicly available land resource data and in consideration of the *Guidelines for Agricultural Land Evaluation in Queensland*. The assessment concluded that the Study Area comprises Class C Agricultural Land, which indicates land use is for pasture and/or low intensity grazing.

The *Regional Planning Interests Act 2014* regulates impacts from resources and other regulated activities on identified areas of regional interest. Strategic cropping land is 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 Study Area is not identified as being within an area of mapped strategic cropping land.

### 6.3.2 POTENTIAL IMPACTS

No potential impacts have been identified due to the absence of any high-quality agricultural land values within the Study Area. The existing Rolling Term Lease (PPH 13/3692) arrangement over Lot 92 on SP303378 has been subdivided and the Project will result in the formalised cessation of cattle grazing arrangements over the subdivided area.

The Project is designed to be co-located with the existing mining operations, with low-intensity cattle grazing operations to cease in the area subject to the sub-lease to be held by MMG over the subdivided area. It is noted however that cattle grazing does not currently occur on the Knapdale Range directly.

The Project will not result in a net loss of agricultural land and will maintain the current land use which is consistent with Class C land.

### 6.3.3 MITIGATION MEASURES

The Project does not require the implementation of mitigation measures for the preservation of high-quality agricultural land noting that none existing within the Study Area with the Project able to return the land to existing use for low-intensity cattle grazing on completion.

It is considered that the Project complies with PO5 of State Code 23 and PO9 to PO12 of State Code 27 as outlined within Table 6-1, with further detail provided in **Appendix K** and **Appendix L**.

## 6.4 DRAINAGE PATTERNS, PROTECTION OF WATER QUALITY AND EROSION CONTROL

PO7, PO8, PO10 and PO86 of State Code 16 requires that:

- Clearing of vegetation within a watercourse and/or drainage feature and/or within the relevant distance of a watercourse and/or drainage feature, maintains the composition, structure and function of the regional ecosystem associated with the watercourse and/or drainage feature.
- Where clearing of vegetation in a regional ecosystem associated with a watercourse and/or drainage feature does not maintain the composition, structure and function of the regional ecosystem, and cannot be avoided and has been mitigated, an offset is provided for any acceptable significant residual impact.
- Clearing of vegetation does not result in accelerated soil erosion within or outside the land the subject of the development application.

PO6 to PO9 of State Code 23 requires that:

- The wind farm, including ancillary infrastructure, is designed and sited to minimise crossings of and interference with natural drainage lines, waterways and wetlands.
- Development is designed to avoid areas of high erosion risk, where failure of erosion management devices would result in permanent and/or adverse impacts on receiving waterways or wetlands.
- Development is constructed to maintain or improve the water quality of receiving waters, waterways and wetlands by:
  - Minimising erosion and run off;
  - Managing drainage control; and
  - Preserving the bank stability of affected waterways and drainage lines.
- Areas cleared for construction are progressively stabilised during construction to ensure that erosion and run off to the surrounding landscape and waterways is minimised to the greatest extent possible.

PO16 to PO19 of State Code 27 requires that:

- Development:
  - Minimises the disturbance of high risk soils; and
  - Manages the release of soil based contaminants.
- Development maintains the water quality of receiving waters, waterways and wetlands by:
  - Avoiding locating in waterways and wetlands;
  - Minimising crossings of and interference with natural drainage lines, farm drainage and irrigation infrastructure;
  - Minimising erosion and sediment run off;
  - Managing drainage control; and
  - Preserving the bank stability of affected waterways and drainage lines avoiding non-essential hardening or unnatural modification of the waterway.

- Development prevents the release of contaminants to surface water or groundwater in the event of an incident, including a fire or explosion.
- Development minimises interference with overland flow paths.

### 6.4.1 ASSESSMENT

A Stormwater and Erosion Risk Assessment Report (refer to **Appendix P**) has been prepared for the Project. The report identifies Revised Universal Soil Loss Equation (RUSLE) classification of erosion risk throughout the Disturbance Footprint. Approximately 72% of the Disturbance Footprint is classified as Very Low to Low erosion risk. A small area of the Disturbance Footprint is mapped as high to very high erosion risk however this will not impact the BESS infrastructure. The report has considered the potential stormwater and erosion related risks during the construction, operation and decommissioning phases of the Project.

The predominant soil type present throughout the Knapdale Range includes the Knapdale Soil (Rudosols), with small areas of Dale Soil present. These identified soil types are non-sodic, making them non-dispersive and resistant to erosion. No mapped sodosols have been identified within the Project's Disturbance Footprint or surrounding region.

The Project is located along a ridge line at the headwaters of the Leichhardt and Flinders Basins, with four waterways present that either cross or are within the Disturbance Footprint. Two of these waterways are stream order 1 watercourses, being tributaries of the Dugald River, part of the Flinders Basin. These waterways are observed at the southern and central portion of the Disturbance Footprint, with ephemeral tributaries flowing east and converging into stream order 2 waterways prior to discharging into the Dugald River. The remaining two are tributaries of Cabbage Tree Creek, apart of the Leichhardt Basin. These crossings are located in the northern and central area of the Disturbance Footprint, with ephemeral tributaries flowing west and converging into stream order 2 watercourses prior to discharging into Cabbage Tree Creek.

Several ephemeral tributaries and overland flow paths within the northern part of the Disturbance Footprint are likely to flow into the topographic depression within the footprint of the DRM Tailings Storage Facility, located adjacent to the northern portion of the Disturbance Footprint within the Leichhardt Basin.

There are no mapped internationally important wetlands (RAMSAR) or wetlands of national importance (Directory of Important Wetlands in Australia) within the standard buffer distance of 5 km from a central point within the Disturbance Footprint, or any of the tenure areas reviewed for the Project.

A review of flood risk found that based on the elevation of the Project on the Knapdale Range relative to the surrounding landscape, infrastructure is located significantly above the Queensland Floodplain Assessment Overlay flood extent.

### 6.4.2 POTENTIAL IMPACTS

The Project has the potential to have both direct and indirect impacts on the water quality and erosion. The Report identifies potential impacts the Project will have on surface water from the following elements:

- Proposed infrastructure types and their potential impacts;

- Alternation to natural drainage pathways;
  - Flooding; and
  - Impervious surfaces and watercourse crossings.
- Water quality and erosion control during construction, operation and decommissioning phases.

#### 6.4.2.1 PROJECT ELEMENTS WITH POTENTIAL TO CAUSE IMPACT

Hardstand pads required for the construction of the WTGs and BESS facility are likely to result in the disturbance of the surface and possibly shallow soils, dependent upon the level of earthworks required. It should be noted that some hardstand pads to facilitate WTG construction may require additional earthworks to make the site level, however finished site levels are unknown at this time.

Other Project infrastructure required including the collection substation (and future expanded BESS), roads and access tracks, ancillary infrastructure, underground cabling and temporary facilities are likely to disturb surface and shallow soils. Of note, it has been identified that a waterway crossing at the southern portion of the Disturbance Footprint is required and is to be constructed in a manner which minimises disturbance extent and vegetation clearing requirements.

#### 6.4.2.2 DRAINAGE RELATED IMPACTS

Changes to the drainage behaviour of the existing catchments have the potential to result in impacts on downstream receptors due to changes in flow regime. Changes in catchment hydrology would typically be associated with a change in the imperviousness characteristics of the catchment, or as a result of substantial diversion of overland flows. Changes may occur throughout all phases of the Project, from construction, during operations and through to the decommissioning phase. Disturbance to watercourses through the construction of watercourse crossings may also present a potential impact on flow behaviour and flooding.

Impacts that have the potential to result in changes to existing drainage behaviour include:

- **Impervious Areas** – Hardstand areas required to support the proposed WTGs, BESS and collection substation are anticipated to represent the largest proportion of impervious surface associated with the Project. Overall, the Project is expected to have minimal impact on stormwater flows and natural drainage patterns. Impacts are expected to be manageable through the implementation of best practice drainage controls
- **Flooding** – Given the location of the Disturbance Footprint atop of the Knapdale Range, it is unlikely that the Project will be impacted by an extreme flood event. The Queensland Flood Assessment Overlay flood zones are largely confined to the 190 to 200 m AHD contours, considerably below the lowest point (approximately 250 m AHD) within the Disturbance Footprint.
- **Watercourse Crossings** – Ephemeral and intermittent tributaries are present within the Disturbance Footprint. Given the location of the Project across the boundary of two drainage basins, these ephemeral streams do not typically flow through the whole Disturbance Footprint. Rather, the source point of most of these streams is near the boundary of the Disturbance Footprint, with flows occurring outward from the Project. The Disturbance Footprint will be designed to minimise impacts to mapped watercourses for all

non-linear infrastructure. Where linear infrastructure is proposed to impact mapped watercourses, detailed design will further refine the level of disturbance to ensure potential impacts to the natural drainage patterns of watercourses are minimised, with the crossing to be constructed to minimise the extent of disturbance and vegetation clearing. While some localised short-term impacts may be realised, long term impacts downstream are not expected.

#### 6.4.2.3 WATER QUALITY AND EROSION CONTROL

Unmitigated discharges of stormwater from disturbed or cleared areas could result in adverse impacts through the transportation of constituents of concern downstream. During all phases of the Project, activities may be undertaken which could result in an impact to water quality.

#### **Construction Phase**

Potential impacts to surface water quality during the construction phase include:

- Increased risk of erosion and subsequent sedimentation from construction activities and land clearing works.
- Site traffic during the construction phase has the potential to compact soil surfaces resulting in increased run off and the mobilisation of sediments downstream.
- Earthworks resulting in exposed soil areas that can lead to increased sedimentation loading in waterways.
- Features such as stockpiles and tracks could be eroded by rainfall or inappropriate site practices, increasing the amount of sediment entering into surface water features.
- The use and storage of fuel for construction vehicles could lead to drainage to local waterways if not appropriately managed.
- If water of poor quality is used in dust suppression activities, this water can cause an impact to downstream surface water quality.
- Leakage or accidental spillage of oil, fuel or other liquids associated with Project infrastructure, with potential to migrate off site if not appropriately managed.
- Release of concrete based pollutants resulting in an increase in the pH of surface waters. Construction activities that may result in the release of concrete based pollutants include the following:
  - Concrete batching, cutting, and disposal;
  - Spills of wet concrete;
  - Dampening of freshly laid concrete;
  - Cleaning of equipment (e.g. machinery, vehicles, tools) without appropriate controls;
  - Concrete dust released into waterways; and
  - Failure of erosion and sediment control measures (sediment fencing and inspections).

#### **Operational Phase**

Potential impacts to surface water quality during the operational phase include:

- Stormwater runoff from impervious surfaces such as hardstand areas and access roads resulting in increased flows and transport of contaminants on hardstand surface.
- Spills or leaks from chemicals stored on site and used for maintenance.

- Newly excavated drains and surface dressings on roads may be prone to erosion as any vegetation would not be established or have matured.
- Sedimentation and erosion risks are elevated due to operational activities along linear features on steeper slopes, such as the use of access tracks and equipment maintenance, where drainage channel velocities also tend to be higher; and
- Increase risk of sediment mobilisation downstream if drainage, erosion and sediment control measures are not properly maintained throughout the life of the Project.

### **Decommissioning Phase**

Potential impacts to surface water quality during the decommissioning phase include:

- Earthworks associated with decommissioning of Project infrastructure such as:
  - WTG, substation, hardstands, construction compound and laydown area construction; and
  - Drainage works.
- Spills or leaks of fuels, oils and chemicals used in the demolition and decommissioning process; and
- Runoff from disturbed areas that have not been rehabilitated or appropriately stabilised.

### **6.4.3 MITIGATION MEASURES**

The Project will implement the following measures to mitigate and manage impacts on water quality and erosion within the Study Area:

- Implementation of a Preliminary Construction Environmental Management Plan;
- A site-specific Erosion and Sediment Control Plan will be developed in line with best practice management measures and will be developed in conjunction with the construction contractor;
- A surface water monitoring program is to be implemented prior to and during construction, and if appropriate during the operational phase of the Project; and
- Progressive rehabilitation of disturbed areas will be guided by and undertaken in line with best practice management measures.

It is considered that the Project complies with PO7, PO8, PO10 and PO86 of State Code 16, PO6 to PO9 of State Code 23, and PO16 to PO 19 of State Code 27 as outlined within Table 6-1, with further detail provided in **Appendix J**, **Appendix K** and **Appendix L**.

## 6.5 NATURAL HAZARDS

The Proposed Development has been designed and sited, and will be constructed to ensure:

- Responsiveness; and
- Safety of people in the event of natural hazards or extreme weather events.

Development operations ensure that people are protected from natural hazards and risks.

An assessment against the relevant PO of State Code 23 and State Code 27 is required (refer to **Appendix K** and **Appendix L**). PO10 and PO11 of State Code 23, and PO2 through to PO7, and PO13 through to PO15 of State Code 27 focus on natural hazards and extreme weather events. As such, a Natural Hazard and Risk Assessment Report, Fire Safety Study, Risk Management Assessment Report and Emergency Response Plan have been completed for the Project to adequately identify potential impacts to these matters and identify mitigation measures where applicable.

### 6.5.1 ASSESSMENT

The NHRA was completed by Covey Associates (refer to **Appendix Q**) and assesses the impacts associated with the Proposed Development to Natural Hazards and Risks within the Project Area, demonstrating compliance with the relevant aspects of State Code 23. The NHRA was informed by desktop investigations and provides a preliminary flood hazard assessment and analyses the potential bushfire constraints to the Project.

A Risk Management Assessment Report, Fire Safety Study, Emergency Response Guide, and Bushfire Management Plan (refer to **Appendix R**, **Appendix S**, **Appendix T**, and **Appendix U** respectively), have been undertaken to assess potential impacts of the proposed BESS component of the Project.

### 6.5.2 POTENTIAL IMPACTS

#### **Flood Hazard**

The Proposed Development does not contain any mapped flood hazard areas as per State Planning Policy, or the Cloncurry Shire Council mapping overlays, however, Dugald River to the east and Cabbage Tree Creek west of the Proposed Development are mapped as Flood Hazard Area – Level 1 – Queensland floodplain assessment overlay and Interim Flood Plain Assessment for the SPP and Planning Scheme mapping respectively. Three areas of interest were identified as potentially vulnerable locations that may experience a level of inundation during a rainfall event and advised that a detailed flood assessment be undertaken to accurately assess the flood extent and impact on the site.

#### **Bushfire Hazard**

The SPP Bushfire Prone Area mapping indicated the following overlays within the Proposed Development:

- There is medium and high potential bushfire intensity around areas of woody vegetation
- There is very high potential bushfire intensity typically observed in gullies to the north and west of the project area

Additionally, a potential radiant heat flux analysis was undertaken and recommends a setback distance of 10 m between wind farm infrastructure and vegetation prone to bushfire hazards.

Furthermore, the Bushfire Management Plan (**Appendix U**) analysed Radiant Heat Flux to assess the potential impacts of bushfires on the proposed infrastructure of the Project. Radiant Heat Flux is measured as the amount of energy/ heat, that is emitted through a given area at a given time. Radiant Heat Flux (RHF) analysis are undertaken to observe and inform sufficient setback distances of Project infrastructure from vegetation. This ultimately informs the sizing of Asset Protection Zones, with the assessment ensuring proposed infrastructure is appropriately sited as to not be impacted by unacceptable levels of Radiant Heat Flux from potential bushfires. Subsequently, the analysis concluded the following:

- **Wind Turbine Generators:**

- WTGs are constructed of non-flammable exterior materials that are highly unlikely to be ignited.
- The likelihood of loss of life is considered very rare given that limited personnel will be present once the Project is operational. It is anticipated that personnel only onsite for periodic maintenance undertaken at a scheduled and as needed basis.
- Based on the above, the target RHF for proposed WTG of 29 kW/m<sup>2</sup> or lower (at 1090 K flame temperature) is considered appropriate to comply with SPP guidance material and manage the risk of bushfire impact on the WTG.

- **Transformers (Substation and BESS yard):**

- The risk to, and from, transformers is primarily related to potential for over-pressurisation of insulating oil tank resulting in rupture and subsequent pool fire.
- Given the limited likelihood of failure, and the difficulty in igniting the insulating oil, the target Radiant Heat Flux for proposed transformers of 29 kW/m<sup>2</sup> or lower (at 1090 K flame temperature) is considered appropriate.

- **Buildings and Switch-rooms:**

- There are several buildings and switch-rooms proposed in the BESS yard.
- The target RHF for these is 29 kW/m<sup>2</sup> or lower (at 1090 K flame temperature), which is consistent with SPP and Council's Bushfire Hazard Overlay Code requirements.

- **BESS Units:**

- Contain Lithium-ion (Li-ion) battery cells housed in a metal container
- The significant hazard posed by BESS units is primarily associated with thermal runaway occurring in the Li-ion batteries, and the fire and explosion risk that can accompany the release of flammable gases. Thermal runaway describes a process that is accelerated by increasing internal temperature, in turn releasing more energy that further increases temperature.
- While the BESS container itself normally a non-combustible container, given the risk of thermal runaway being triggered by direct flame impingement and RHF impression on the container (albeit noted that internal battery and thermal management systems will operate to prevent this), it is appropriate to provide increased separation from unmanaged classified vegetation to address the thermal runaway risk.
- Based on the above, a target Radiant Heat Flux to such infrastructure of 10 kW/m<sup>2</sup> or lower (at 1200 K flame temperature) is considered appropriate to limit potential thermal runaway, noting that the peak Radiant Heat Flux from a forest or woodland fire is typically 60 to 90 seconds.

- This target Radiant Heat Flux is consistent with SPP requirements for hazardous materials and infrastructure, as well as those defined in Council's Bushfire Hazard Overlay Code.

### Fire Hazard

A Fire Safety Study (**Appendix S**), Risk Management Assessment Report (**Appendix R**) and Bushfire Management Plan (BMP) (**Appendix U**) was undertaken to assess whether fire protection measures at the proposed Project site were adequate to combat the hazards associated with the quantities and types of commodities, including Dangerous Goods and BESS components, being stored on site. Based on the assessment, it was concluded that the designs and existing fire protection adequately managed the credible fire risks at the site associated with BESS facilities.

### 6.5.3 MITIGATION MEASURES

The following measures will be implemented to mitigate the direct and indirect impacts of natural hazards in the Project Area:

- An Operational Bushfire/Land Management Plan will be required to treat residual landscape bushfire risk;
- A site Emergency Management Plan will be established for the construction, commissioning and operation phases;
- The NHRA will be reviewed after a period of 5 years from the date of issue, or if there is a revision to the Project;
- Evidence of UL 9540A testing and LSFT shall be provided to the regulator and SARA upon acquisition and submission for approval;
- All site personnel shall be inducted in site procedures and emergency response protocols relevant to their roles;
- All site personnel who require training must undergo formal training in the required procedures and emergency response protocols relevant to their role;
- Necessary personnel to provide first aid are to be trained in accordance with the QLD Code of Practice for first aid in workplaces 2021– high-risk workplaces;
- Site management to prepare and maintain operational procedures to minimise the number of hazardous incidents and accidents on site and to mitigate the consequences of incidents regarding the handling of dangerous goods and chemicals;
- A site Emergency Management Plan per the requirements of HIPAP No. 1 and State Code 27 shall be prepared and shall include measures to advise neighbouring premises in the event of an emergency with potential offsite impacts;
- Dangerous Goods documentation shall be prepared as required by the Work Health and Safety Regulation 2011 to demonstrate the risks associated with the storage and handling of DGs has been assessed and minimised;
- Any Dangerous Goods stored at the site shall be stored and handled in accordance with the Work Health and Safety Regulation 2011 and any applicable storage and handling standards;

- Establish Asset Protection Zones (APZ) and Non-vegetated Zones (NVZ) across the facility for the following, in accordance with the dimensions and standards detailed in Section 5.1 of this BMP:
- The construction of the facility is to be staged, and as such, establishing the NVZ/APZs will need to accommodate the staging, especially the proposed Stage 1 and 2 of the BESS.
- Construct the internal roads to the proposed BESS, substation envelope, wind turbines and associated firewater tank/s, in accordance with the dimensions and standards.
- Where required, construct the site entrance gates to the standards stated in the BMP, and ensure keys to any locked gates are provided to all relevant staff and onsite personnel, as well as being made available to QFD and local fire brigade.
- Install the static firewater tank for the renewable energy infrastructure in accordance with the requirements detailed in Section 5.3 of this BMP, and relevant Australian Standards.
- Ensure all existing fire appliances and firewater the facility are maintained, filled and fit-for-purpose in accordance with the requirements detailed in Section 5.3.3 of the BMP.
- 1E Incorporate all the renewable energy infrastructure design requirements detailed in Sections 5.4 and 5.5 of the Bushfire Management Plan;
- Incorporate all the renewable energy infrastructure construction, installation and commissioning requirements detailed in Section 5.6 of the Bushfire Management Plan;
- Ensure any facility operation, maintenance and housekeeping requirements are in place prior to operation (as applicable), as detailed in Section 5.7 of this BMP.
- Prepare the Emergency Information Book in accordance with the requirements of Section 5.8 of the Bushfire Management Plan (unless otherwise provided to satisfaction of QFD);
- Conduct the emergency services familiarisation site visit, in accordance with the requirements of Section 5.9 of the Bushfire Management Plan;
- Finalise the site Emergency Management Plan, incorporating the recommendations, detailed in the Bushfire Management Plan.
- Maintain the Asset Protection Zones (APZ) and Non-vegetated Zones (NVZ) across the facility for the following, in accordance with the dimensions and standards detailed in Section 5.1 of the Bushfire Management Plan;
- Maintain internal roads to the proposed BESS, substation envelope, wind turbines and associated firewater tank/s, in accordance with the dimensions and standards detailed in the Bushfire Management Plan;
- Maintain the static firewater tank for the renewable energy infrastructure in accordance with the requirements detailed in Section 5.3 of the Bushfire Management Plan and relevant Australian Standards;
- Ensure all existing fire appliances and firewater the facility are maintained, filled and fit-for-purpose in accordance with the requirements detailed in Section 5.3.3 of the Bushfire Management Plan;
- Ensure the water and fuel tanks remain filled at all times, especially during times of elevated fire danger.
- Maintain all renewable energy infrastructure in accordance with the requirements detailed in Sections 5.4 and 5.5 of the Bushfire Management Plan;

- Ensure ongoing compliance with facility operation, maintenance and housekeeping requirements, as detailed in Section 5.7 of the Bushfire Management Plan;
- Review, and if required update, the Emergency Information Book in accordance with the requirements of Section 5.8 of the Bushfire Management Plan;
- Continue regular emergency services familiarisation site visit, in accordance with the requirements of Section 5.9 of the Bushfire Management Plan;
- Conduct ongoing review of the project Bushfire Management Plan (BMP), to ensure it still accurately reflects the risks posed by the development.

It is considered that the Project complies with PO10 and PO11 of State Code 23 and PO2 through to PO7, and PO13 through to PO15 of State Code 27 as outlined within Table 6-1, with further detail provided in **Appendix K** and **Appendix L**.

## 6.6 ACOUSTIC AMENITY

PO12 and PO13 of State Code 23 require that:

- Development is located, designed, constructed and operated to be responsive to natural hazards and extreme weather events.
- Development is constructed and operated to protect the safety of people in the event of natural hazards or extreme weather events occurring.

PO20 and PO21 of State Code 27 require that:

- Construction, operation, maintenance and decommissioning meets the acoustic quality objectives for sensitive receptors on or adjacent to the site identified in the Environmental Protection (Noise) Policy 2019.
- Construction, operation, maintenance and decommissioning does not cause vibration impacts that adversely affect the operational performance or sensitive receptors within or adjacent to the site.

### 6.6.1 ASSESSMENT

A Noise Impact Assessment Report (refer to **Appendix AA**) has been prepared for the Project and assesses impacts on the acoustic amenity of sensitive receptors within proximity to the Study Area. Three noise sensitive receptors were identified, namely a dwelling house (the McMillan residence), the DRM Accommodation Camp and the DRM Fly Camp. The Report assumes a worst-case scenario with predicted noise levels at each identified sensitive receptor having been assessed against the acoustic criteria defined in the State Code 23 and State Code 27.

### 6.6.2 POTENTIAL IMPACTS

#### 6.6.2.1 WIND FARM IMPACTS

Noise Modelling completed for the Project confirms that noise generation will not exceed the applicable limits specified in State Code 23. Predicted noise levels for Stage 1 and Stage 2 at the identified sensitive receptors located on host lots under Project environmental conditions is as follows:

- **DRM Accommodation Camp:**
  - Stage 1 – 36 dB(A);
  - Stage 2 – 45 dB(A); and
  - Cumulative – 45 dB(A).
- **DRM Fly Camp**
  - Stage 1 – 34 dB(A);
  - Stage 2 – 35 dB(A); and
  - Cumulative – 38 dB(A).
- **McMillan Residence**
  - Stage 1 – 28 dB(A);
  - Stage 2 – 27 dB(A); and
  - Cumulative – 31 dB(A).

### 6.6.2.2 BESS FACILITY IMPACTS

Noise Modelling completed for the Project confirms that noise generation will not exceed the applicable limits specified in State Code 27. Predicted noise levels at the identified sensitive receptors located on host lots under Project environmental conditions is as follows:

- **DRM Accommodation Camp** – 22 dB(A);
- **DRM Fly Camp** – 14 dB(A); and
- **McMillan Residence** - <11 dB(A).

### 6.6.3 MITIGATION MEASURES

Notwithstanding that the Project is expected to comply with the relevant noise limits for Wind Farms and BESS Projects, the following recommendations are provided as safeguards to minimise or reduce noise impacts from the Project if required during operations:

- Mitigation measures such as curtailment, sector management system and the use of sound optimisation modes involving lower WTG power output at key wind speeds and wind sectors may be utilised (if required).
- The acoustic criteria for host lots may also be reviewed (especially at higher hub height wind speeds) by conducting background noise monitoring at the DRM Accommodation Camp. Monitoring will allow for background noise levels ( $L_{A90, 10min}$ ) to be correlated for a range of hub height wind speeds. The results of the correlated data will allow for the acoustic criteria to be derived for a range of hub height wind speeds to reassess WTG related noise levels.
- During operation, a noise monitoring plan will be prepared for the Project.

The noise assessment indicates that at the three noise sensitive receptors, compliance is predicted to be achieved against the Performance Outcomes associated with State Code 23, State Code 27 and the AQO from EPP Noise 2019. No specific noise mitigation measures are required for the Project.

It is considered that the Project complies with PO10 and PO11 of State Code 23 and PO20 and PO21 of State Code 27 as outlined within Table 6-1, with further detail provided in **Appendix K** and **Appendix L**.

## 6.7 ELECTROMAGNETIC INTERFERENCE

PO14 of State Code 23 requires that:

- Development is designed and/or mitigation measures are used to protect pre-existing television, radar and radio transmission and reception from electromagnetic interference.

### 6.7.1 ASSESSMENT

A Preliminary Telecommunications Assessment (refer to **Appendix BB**) has been prepared for the Project and assesses the potential for electromagnetic impacts as a result of the Project using the Study Area as a spatial boundary.

### 6.7.2 POTENTIAL IMPACTS

The Preliminary Telecommunications Assessment concludes that:

#### Point-to-point Links

- No point-to-point links interest the Study Area.

#### Communication Transmissions Sites

- Two active and two inactive communications transmissions sites are located in proximity to the Study Area.
- One of the active communication transmission sites is closer to a WTG than recommended, however the only impact would be to the DRM itself, as the site is for telemetry services. Through stakeholder engagement, MMG, as the owner of the DRM, have confirmed there is no impact.

#### Meteorological Radar

- The closest meteorological radar is 75 km from the Study Area. Stakeholder engagement with the Bureau of Meteorology confirms that a detailed Service Impact Assessment (completed by the Bureau of Meteorology) to determine potential impacts and mitigation measures is required prior to construction and operation of the Project.

#### Mobile Telephone Voice-based Communication

- There is one mobile telephone tower within 2 km of the Study Area. The operator has been contacted and indicated that the Project should not impact the mobile network

#### Wireless and Satellite Internet Services

- No GNSS stations are within 2 km of the Study Area. Consultation with Geoscience Australia has been completed and indicated there is no objection to the site location

#### Broadcast and Digital Radio and Television

- The Study Area is close to an FM transmitter service of the DRM Accommodation Camp. The stakeholder has been contacted and asked for detailed analysis of full power coordination impact of the Project. This will be completed during the detailed design, which the stakeholder has not objected.

### 6.7.3 MITIGATION MEASURES

The assessment indicates there are two potential avenues for electromagnetic impacts resulting from the project. Potential impacts to the communication transmissions site supporting the DRM can be managed given that MMG owns and operates the DRM and is the applicant for the purpose of the Project.

Impacts on meteorological radar have been identified by the Bureau of Meteorology as having the potential to occur based on proximity of the Study Area to the closest radar site. Consistent with the Guideline for Wind Farm Development, it is noted that the detailed assessment will be completed prior to construction and operation of the Project, and appropriate mitigation will be developed in consultation with the Bureau of Meteorology.

It is considered that the Project complies with PO14 of State Code 23 as outlined within Table 6-1, with further detail provided in **Appendix K**.

## 6.8 SHADOW FLICKER

PO15 of State Code 23 requires that:

- Development is designed, constructed and operated so that the modelled blade shadow flicker impacts on existing or approved sensitive land uses do not exceed 30 hours per annum and 30 minutes per day.

### 6.8.1 ASSESSMENT

A Shadow Flicker Assessment (refer to **Appendix Y**) has been prepared for the Project and assesses potential shadow flicker impacts on identified sensitive receptors. The Report concludes that:

- The existing landscape has the ability to incorporate the Project with a relatively low degree of visual impact.
- The Project will be designed, constructed and operated so that the modelled blade shadow flicker does not impact on sensitive receptors for more than 30 hours per annum and 30 minutes per day.
- The Project does not impede on areas deemed as having high scenic amenity.

### 6.8.2 POTENTIAL IMPACTS

The Report concludes that:

- No receiver will exceed the maximum annual threshold of 30 hours of shadow flicker.
- There is a sufficient distance between the Study Area and the McMillan Residence that shadow flicker will not be experienced.

Whilst State Code 23 does not specify acceptable levels of shadow flicker for road users, it is recognised that shadow flicker can potentially cause disruptions. However, there are no publicly used roads that are likely to be affected by shadow flicker associated with the Project.

### 6.8.3 MITIGATION MEASURES

The Project does not require the implementation of mitigation measures to negate Shadow flicker impacts.

It is considered that the Project complies with PO15 of State Code 23 as outlined within Table 6-1, with further detail provided in **Appendix K**.

## 6.9 SOCIAL IMPACTS

PO16 of State Code 23 and PO8 of State Code 27 requires that:

- Development demonstrates that either:
  - A community benefit agreement has been entered into; or
  - Where a community benefit agreement has not been entered into, social impacts of the development, including workforce accommodation, local business and industry impacts, community health and well-being, are identified, managed, mitigated, counterbalanced and monitored.

### 6.9.1 ASSESSMENT

A Social Impact Assessment (refer to **Appendix X**) has been completed for the Proposed Development, having considered the potential social impacts of the Project. The Social Impact provides the necessary information to support the development and execution of a Community Benefit Agreement between MMG and Cloncurry Shire Council which was executed on 7 October 2025 and has been provided under separate correspondence.

### 6.9.2 POTENTIAL IMPACTS

The Applicant has undertaken targeted engagement with key stakeholders including; host lot landowners and leaseholders, immediate neighbours, Aboriginal groups, the broader community, and commercial businesses and organisations. The following potentially positive impacts resulting from the Project were identified:

- Increased demand for labour creating indirect and direct employment opportunities for the local community during the construction and operational phases of the Project;
- Increased potential to secure the long-term operational future of the DRM. This will facilitate sustained economic activity for commercial businesses and organisations, and the broader community within the community;
- Increased demand for goods and services help to stimulate the local economies through greater indirect spend;

One major potential impact from the Project was identified:

- During the construction phase, the transportation of materials and equipment to the Project Area has the potential to cause traffic and safety concerns for road users along the identified haulage routes. These potential impacts have also been identified within the Traffic and Pavement Impact Assessment and the Oversize Overmass Construction Concept Strategy which collectively identify relevant mitigation measures.

### 6.9.3 MITIGATION MEASURES

As a Community Benefit Agreement has been successfully entered into by the Applicant and Council, no further mitigation measures are required.

It is considered that the Project complies with PO16 of State Code 23 and PO8 of State Code 27 as outlined within Table 6-1, with further detail provided in **Appendix K** and **Appendix L**.

## 6.10 VISUAL IMPACTS

PO17 of State Code 23 requires that:

- Development in an area identified by state or local government planning instruments as having high scenic amenity is sited and designed to protect the scenic amenity and landscape values of the locality and region.

PO22 and PO23 of State Code 27 requires that:

- Development is sited and designed to:
  - Minimise visual impacts on sensitive receptors;
  - Protect the landscape values and scenic amenity of the surrounding landscape; and
  - Provide screening and buffering to sensitive receptors the greatest extent feasible.
- Lighting associated with the development provides safe and effective illumination for site operations and maintenance, whilst minimising environmental impacts and visual impacts on sensitive receptors.

### 6.10.1 ASSESSMENT

A Landscape Visual Impact Assessment (refer to **Appendix Y**) has been prepared for the Project and assesses the Projects potential for impacts on scenic amenity. From a visual impact perspective, the Report concludes that:

- The existing landscape has the ability to incorporate the Project with a relatively low degree of visual impact; and
- The Project does not impede on areas deemed as having high scenic amenity.

### 6.10.2 POTENTIAL IMPACTS

The Project will not result in impacts to scenic values as demonstrated in the Report.

### 6.10.3 MITIGATION MEASURES

The proposed layout and location of the Project is the primary mitigation measure in this instance, as the distance between public places and the WTGs is critical to avoiding amenity impacts. The Project does not require the implementation of mitigation measures to address the potential for impacts on scenic amenity.

Conservative mitigation measures to be adopted include:

- Uniformity in the colour, design, rotational speed, height and rotor diameter.
- The use of simple muted colours and non-reflective materials to reduce distant visibility and avoid drawing the eye.
- The WTG blades, nacelle and tower to appear as the same colour.
- Avoidance of unnecessary lighting, signage and logos on the WTGs.

It is considered that the Project complies with PO17 of State Code 23 and PO22 and PO23 of State Code 27 as outlined within Table 6-1, with further detail provided in **Appendix K** and **Appendix L**.

## 6.11 TRANSPORT NETWORKS

PO18 to PO21 of State Code 23 requires that:

- Construction and ongoing activities associated with the development do not adversely impact the efficiency and condition of transport networks and infrastructure nor compromise the safety of users of the transport network.
- Development delivers necessary upgrades to the transport network to ensure construction activities and ongoing maintenance do not adversely impact transport networks and infrastructure.
- Development demonstrates that a safe, viable and practical haulage route can be secured to accommodate the movement of oversize/overmass vehicles during construction and ongoing maintenance activities.
- Development provides safe, efficient, and sustainable vehicular access to the site for all vehicle types anticipated through the construction, operation, maintenance and decommissioning of the wind farm.

PO24 to PO28 of State Code 27 requires that:

- Construction, operation, maintenance and decommissioning activities associated with the development do not adversely impact the efficiency and condition of transport networks and infrastructure.
- Construction, operation, maintenance and decommissioning activities associated with the development do not compromise the safety of users of the transport network.
- Development delivers necessary upgrades to the transport network to ensure construction activities and ongoing maintenance do not adversely impact transport networks and infrastructure.
- Development demonstrates that a safe, viable and practical haulage route can be secured to accommodate the movement of oversize/overmass vehicles during construction and ongoing maintenance activities.
- Development provides safe, efficient, and sustainable vehicular access to the site for all vehicle types anticipated through construction, operation, maintenance and decommissioning.

### 6.11.1 ASSESSMENT

A Traffic and Pavement Impact Assessment (TPIA) and Oversize Overmass Construction Concept Strategy (refer to **Appendix V** and **Appendix W** respectively) has been prepared for the Project and provides a preliminary assessment for the movement of Project components.

In addition to this Report, MMG has, independently of this Application, engaged directly with the Department of Transport and Main Roads and Ergon to identify and agree on a suitable transport route for the Project.

The main transport route is Townsville Port to Dugald River Mine via Flinders Highway. The proposed transport route includes the following bypasses:

- Townsville to Charters Towers – The generators and some tower sections to travel from Townsville to Charters Towers via Hervey Range Road and Gregory Development Road to bypass the Macrossan Burdekin River bridge and Reid River bridge.

- Charters Towers Railway overpass – Loads higher than 5.5m to bypass the railway overpass on Flinders Highway in Charters Towers via New Queen Road and Victory Street.
- Tommy Creek bridge – The generators, hubs and some towers sections to bypass the Tommy Creek bridge via a new crossing to be constructed.

### 6.11.2 POTENTIAL IMPACTS

The civil, electrical and wind turbine materials and facilitating plant and equipment are to be transported from Townsville, Mount Isa, local Cloncurry quarry, Brisbane, Rockhampton, Melbourne, Adelaide and possibly Newcastle. The OSOM components are to be transported from Townsville Port via the Hervey's Range Developmental Road, Gregory Developmental Road, Flinders Highway and the Burke Development Road. A significant quantum of the paving and concrete materials supply is intended to be sourced locally.

The existing DRM Accommodation Camp infrastructure and transit shuttle arrangements between the airport and accommodation are planned to be utilised. Minimal workers will necessitate living off-site.

The proposed haulage routes, road network, and associated intersections are to be from the Port of Townsville to the Project site. The proposed haulage route for the Project requires modifications to allow transport of the OSOM components including:

- Road and intersection widening;
- Minor vegetation clearing;
- Vertical regrading;
- Concrete median and kerb modifications;
- Modifications to signage;
- Lifting and modifications to powerlines; and
- Construction of bypass around Tommy Creek bridge on Burke Developmental Road.

### 6.11.3 MITIGATION MEASURES

The proposed OSOM transport routes have been selected to mitigate impacts by OSOM components bypassing constrained sections of the route.

Preliminary swept path analysis and design of the road modifications have been undertaken and has validated that the works are feasible. Designs will be further developed through detailed design with stakeholder engagement and Department of Transport and Main Roads and Local Government approvals, as required. Upgrade requirements will be confirmed through detailed design and negotiated with the relevant road authorities.

Ergon Energy and Energy Queensland has been engaged to undertake detailed design and scoping of the powerline modifications for the proposed route.

The TPIA identified that there are no intersection works identified for traffic capacity requirements and there are no seal, pavement or formation width deficiencies for the traffic volumes or capacity requirements. The TPIA will be revised prior to construction of each stage of the Project.

No pavement upgrades have been identified or recommended for the Project. A Traffic Management Plan will be developed and all escort and permitting requirements will be met.

The proposed transport haulage route has been assessed, considering requirements for both construction and operational phases of the development. Through engagement with necessary stakeholders, it is expected that the proposed OSOM route is maintained where practicable to continue road loads proposed for the Project.

It is considered that the Project complies with PO18 to PO21 of State Code 23 and PO22 and PO23 of State Code 27 as outlined within Table 6-1, with further detail provided in **Appendix K** and **Appendix L**.

## 6.12 AVIATION SAFETY, INTEGRITY AND EFFICIENCY

PO22 and PO23 of State Code 23 requires that:

- Development does not adversely affect the safety, operational integrity and efficiency of air services and aircraft operations as a result of its:
  1. Location;
  2. Siting;
  3. Design;
  4. Construction;
  5. Operation.
- Development includes lighting and marking measures that ensure the safety, operational integrity and efficiency of air services and aircraft operations.

### 6.12.1 ASSESSMENT

An Aviation Impact Assessment (refer to **Appendix CC**) has been prepared for the Project and provides an assessment of potential aviation impacts.

The Report concludes the Project:

- Will not infringe any aerodrome's Obstacle Limitation Surfaces;
- Will not infringe any aerodrome's Procedures for Air Navigation Services – Aircraft Operations (PANS-OPS) surfaces;
- Will not impact circling areas;
- Will not impact the Minimum Sector Altitude surfaces;
- Will not infringe the Lowest Safe Altitude protection surface for any other air route;
- Will not infringe the Grid Lowest Safe Altitude protection surface;
- Will be wholly contained within Glass G airspace;
- Will be outside the clearance zones associated with civil aviation navigation aids and communication facilities;
- Will be outside the state range of ATC radar systems; and
- Does not require obstacle lighting on WTGs to maintain aviation safety.

### 6.12.2 POTENTIAL IMPACTS

The Report notes that:

- There are two (2) Uncertified Aerodromes within 3 nautical miles of the being the Dugald River Aerodrome and Mount Roseby Aerodrome.
- The WTGs will not impact circuit operations, however, may have minor wake turbulence impacts on aircraft operating at those aerodromes, leading to a change in the airfield's circuit direction.

### 6.12.3 MITIGATION MEASURES

The Aviation Impact Statement has been informed by consultation with the following stakeholders:

- Airservices Australia;
- Cloncurry Shire Council;
- Queensland Ambulance Service;
- Queensland Fire and Emergency Services; and
- Royal Flying Doctor.

The Project was concluded to not affect the normal operation of air transport aircraft. However, the following measures were recommended from stakeholders:

- Airservices Australia and the Department of Defence requires the Vertical Obstacle Notification Form to be submitted as the Project is more than 30 m AGL; and
- Queensland Fire and Emergency Services would like to be informed of Project details including scheduling and confirmation of the coordinates for each turbine.

The Project does not require the implementation of any specific mitigation measures. For conservativity, the Report recommends the following mitigation measures, which will be implemented by MMG.

### **Project Details:**

- Details of WTGs exceeding 100 m AGL must be reported to CASA as soon as practicable after forming the intention to construct or erect the proposed object or structure, in accordance with Civil Aviation Safety Regulations 1998. Final layout and height details of WTG coordinates and elevation should be provided to Airservices Australia prior to construction.
- Any obstacles above 100 m above ground level (including temporary construction equipment) should be reported to Airservices Australia Notice To Airmen office until they are incorporated in published operational documents. With respect to crane operations during the construction of the Project, a notification may include, for example, the planned operational timeframe and maximum height of the crane; and either the general area within which the crane will operate and/or the planned route with timelines that crane operations will follow.
- Details of the Project should be provided to local and regional aircraft operators prior to construction in order for them to consider the potential impact of the WTGs on their operations.
- To facilitate the flight planning of aerial application operators, details of the Project, including the final location and height information of WTGs and overhead transmission lines should be provided to landowners so that, when asked for hazard information on their property, the landowner may provide the aerial application pilot with all relevant information.

### **Marking of WTG's:**

- The WTGs should be painted white, typical of most operational Wind Farms in Australia. No additional marking measures are required for the WTGs.

### **Lighting of WTG's:**

- The Civil Aviation Safety Authority will determine whether obstacle lighting is recommended for the WTGs. It is not a formal requirement to light the WTGs.

**WTG Locations:**

- Movement of WTGs is permitted as part of the Project whereby the relocation occurs within the Study Area.

It is considered that the Project complies with PO22 and PO23 of State Code 23 as outlined within Table 6-1, with further detail provided in **Appendix K**.

## 6.13 DECOMMISSIONING

PO24 to PO27 of State Code 23 requires that:

- Relevant components of development, both after completion of construction and at cessation of operations, are decommissioned in a timely and efficient manner.
- Decommissioning ensures that materials removed from site destined for landfill are minimised while opportunities to reuse, recycle and /or repurpose are deployed to the greatest extent feasible.
- Decommissioning at end of operations ensures disturbance footprints are rehabilitated, and waterways and drainage patterns are reinstated.
- Decommissioning plans are secured by bonds or financial guarantees or other mechanism/s to safeguard timely compliance.

PO31 to PO25 of State Code 27 requires that:

- Relevant components of development, both after completion of construction and at cessation of operations, are decommissioned in a timely and efficient manner.
- Development decommissioning ensures that:
  - Materials removed from site are minimised;
  - Materials that are removed from the site are disposed of at approved disposal facilities capable of receiving the materials; and
  - Opportunities to reuse, recycle and/or repurpose the materials are deployed to the greatest extent possible.
- Decommissioning at end of operations ensures disturbance footprints are rehabilitated, and waterways and drainage patterns are reinstated.
- Decommissioning incorporates design features that enable reuse, recycling, and recovery of battery components and associated infrastructure at end-of-life.
- Decommissioning plans are secured by bonds or financial guarantees or other mechanism/s to safeguard compliance.

### 6.13.1 ASSESSMENT

A Decommissioning Security Report (refer to **Appendix H**) has been prepared for the Project and is supported by a Preliminary Recycling Strategy.

Following completion of the construction phase, areas not required for ongoing operational activities will be rehabilitated and/or regenerated in accordance with good practice at the time and where required for ongoing low-intensity cattle grazing. This will include:

- Temporary use areas, including construction laydown areas, concrete batching plants, temporary site office, and construction site compound. These facilities are not required for the ongoing operation of the Project and will be removed after the construction phase, with disturbed land rehabilitated in line with the rehabilitation standards; and
- All materials removed from the Project footprint will be sorted and packaged for reuse and/or recycled where practicable in accordance with the waste hierarchy and the Preliminary Recycling Strategy.

As per the respective State Code 23 and State Code 27 planning guidelines, an End of Construction Decommissioning Plan will be prepared as a Condition of the Development Permit prior to the finalisation of construction of the Project.

At the end of the Projects economic life, the WTGs towers and other above ground infrastructure will be removed, and the area rehabilitated in accordance with the regulatory framework applicable at the time and in consultation with the landowner per the existing sub-lease agreement.

When the decision is made to decommission the Project, this will include:

- All above ground infrastructure not required for the ongoing agricultural use of the land, including the WTGs, substations, and operation and maintenance facilities, will be removed and the land rehabilitated;
- Any access tracks and hardstands not wanted or required by the landholder will be removed and land rehabilitated and returned to a primary production use;
- Below ground infrastructure, including cabling and the WTG foundations, will be left in situ to avoid further disturbance and minimise clearing of revegetated areas. Rehabilitated areas will be adequately graded to reflect the slope of the surrounding area and to mitigate the risk of soil erosion; and
- All materials removed from the Project will be sorted and packaged for reuse and/or recycled where practicable in accordance with the State Government's waste hierarchy.
- As part of decommissioning the Project, particularly the BESS facility, the reuse, recycling and recovery of battery components will be undertaken. This will encompass a Battery Recycling Strategy as per the State Code 27 Planning Guideline, including but not limited to:
  - Details of a qualified professional to assist with the deinstallation of batteries;
  - Any risks associated with the deinstallation of batteries, in particular management steps necessary to contain harmful and dangerous battery materials and any direction provided from the supplier regarding an 'end-of-life' plan;
  - Whether the battery system contains recycled content and if it is recyclable; and
  - Itemised breakdown of materials to be reused, recycled and/or recovered. Additionally, this should detail what happens to other system components associated with the decommissioned battery storage facility.

As per the respective State Code 23 and State Code 27 planning guidelines, an End of Operation Decommissioning Plan will be prepared for the Project at least six months prior to the cessation of the operational phase.

As required by the Assessment Manager, the provision of financial security arrangements has been outlined within the existing landholder sub-lease arrangement to ensure decommissioning objectives are met in accordance with legislative requirements. As the owner and operator of the DRM, which is subject to the financial security provisions for rehabilitation of mining, MMG is well placed to respond to this requirement.

### 6.13.2 POTENTIAL IMPACTS

Failure to undertake decommissioning and rehabilitation creates an environmental and safety liability for the State of Queensland as the landowner. To mitigate potential impacts, MMG is committed to undertaking decommissioning and rehabilitation of the Project at the Project's end of life.

### 6.13.3 MITIGATION MEASURES

A detailed Rehabilitation and Decommissioning Plan will be prepared during the early stages of operation as a part of the post-construction activities and will include overarching principles for the decommissioning phase.

The Plan will outline actions required to:

- Deconstruct and remove off-site all above ground structures and auxiliary infrastructure including substations, Met Masts and cabling;
- Dismantle turbine bases to a depth of 1 m below surface level and cover with top soil;
- Rip and spread topsoil across all hardstand areas to promote stabilisation and flora regrowth; and
- Reflect any agreements with landowners about on-site conditions.

It is considered that the Project complies with PO14 to PO27 of State Code 23 and PO22 and PO31 to PO35 of State Code 27 as outlined within Table 6-1, with further detail provided in **Appendix K** and **Appendix L**.

## 7. CONCLUSION

This Planning Report has been prepared by ERM on behalf of MMG in support of a combined Development Permit for a Material Change of Use (Wind Farm and BESS) and Operational Works (Vegetation Clearing) in accordance with the Planning Act.

The Project is proposed to be constructed across two stages, with the Project ultimately comprising the construction, operation and eventual decommissioning of up to 24 WTGs, staged BESS, ancillary infrastructure including up to two Met Masts, as well as associated infrastructure including access tracks, foundations, hardstand areas, underground cabling, overhead powerlines, material laydown areas, construction areas and a centralised operations area.

The purpose of the Project is to generate renewable energy using the available wind resource associated with the Knapdale Range. Generated power will service mining operations at the DRM with additional energy generation to be sold into the NWPS.

Following a detailed assessment against the relevant assessment benchmarks for the Project, particularly State Code 16, State Code 23 and State Code 27, it is recommended that the Project be approved, subject to the provision of reasonable and relevant Conditions, for the following reasons:

- The Project proposes a balanced outcome in terms of layout, access and utilisation of the wind resource, economic and constructability requirements, whilst considering environmental and social values and impacts. The Study Area for the proposed development has been refined to 631.20 ha, with a finalised Disturbance Footprint of 136.82 ha.
- The operation of the Project will facilitate the securing of the long-term energy needs for the DRM. The DRM site itself has a direct correlation with economic benefits to the region and the Cloncurry Township.
- The Project will generate clean, renewable energy, contributing towards the Queensland Government's target to reach 70% renewable energy target by 2032.
- The Project will provide economic stimulus and social benefit to the Cloncurry Shire Regional Council through the creation of up to approximately 100 full-time-equivalent jobs during construction and as well as providing indirect socio-economic benefits to local businesses, contractors and suppliers.
- The Project is co-located with the existing land uses (low-intensity cattle grazing and mining) will have a limited impact on land during operations. The land can be readily restored for identical agricultural uses at the cessation of the Project.
- The Project has been subject to environmental design considerations resulting from over 16 years of ecological surveys conducted on the Knapdale Range;
- A suite of technical impact assessments have been prepared on a conservative basis and provide mitigation and management measures (where required) to negate any negative impacts associated with the Project; and
- Project has the full support of key stakeholders, including landholder, native title groups and Council.



APPENDIX A OWNERS CONSENT



APPENDIX B

RECORD OF PRE-LODGEMENT  
MEETINGS



APPENDIX C      INDIGENOUS LAND USE AGREEMENT



APPENDIX D      PROJECT LAYOUT PLAN



APPENDIX E

PRELIMINARY CLEARED VEGETATION  
MANAGEMENT PLAN



APPENDIX F

PRELIMINARY CONSTRUCTION  
ENVIRONMENT MANAGEMENT PLAN



APPENDIX G      PRELIMINARY REHABILITATION PLAN



APPENDIX H      DECOMMISSIONING SECURITY REPORT



APPENDIX I      RELEVANT PURPOSE DETERMINATION



APPENDIX J      ASSESSMENT OF STATE CODE 16



APPENDIX K      ASSESSMENT OF STATE CODE 23



APPENDIX L      ASSESSMENT OF STATE CODE 27



APPENDIX M STATE POLICY MAPPING



APPENDIX N

MATTERS OF STATE SIGNIFICANCE  
IMPACT ASSESSMENT REPORT



APPENDIX O      PRELIMINARY VEGETATION AND FAUNA  
MANAGEMENT PLAN



APPENDIX P      STORMWATER IMPACT ASSESSMENT



APPENDIX Q      NATURAL HAZARD RISK ASSESSMENT



APPENDIX R

RISK MANAGEMENT ASSESSMENT  
REPORT



APPENDIX S FIRE SAFETY STUDY



APPENDIX T      EMERGENCY RESPONSE GUIDE



APPENDIX U      BUSHFIRE MANAGEMENT PLAN



APPENDIX V

TRAFFIC AND PAVEMENT IMPACT  
ASSESSMENT



APPENDIX W

OVERSIZE OVERMASS CONSTRUCTION  
CONCEPT STRATEGY



APPENDIX X      SOCIAL IMPACT ASSESSMENT



APPENDIX Y

LANDSCAPE AND VISUAL IMPACT  
ASSESSMENT



APPENDIX Z BIRD AND BAT MANAGEMENT PLAN



APPENDIX AA NOISE IMPACT ASSESSMENT



APPENDIX BB PRELIMINARY TELECOMMUNICATIONS  
ASSESSMENT



## APPENDIX CC AVIATION IMPACT ASSESSMENT



# ERM

ERM HAS OVER 140 OFFICES ACROSS THE FOLLOWING  
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