

# Chapter 25

## Cumulative Impacts

Oct-2021

Genex Kidston Connection Project - Ministerial Infrastructure Designation Assessment Report

## 25.0 Cumulative Impacts

### 25.1 Existing Environment

Existing environmental, social and economic values of the Project area, and wider region have been discussed throughout this assessment report. Known existing and proposed activities within the vicinity of the Preferred Alignment are provided in Table 25-1, and shown on Figure 25-1. This list is based on publicly accessible information, available at the time of writing.

**Table 25-1 Existing and proposed developments**

Project Name (Proponent)	Location	Status
Kidston Renewable Energy Hub	Adjacent to the Preferred Alignment at Kidston	Under development
66 kV and 132 kV lines (Ergon Energy)	Co-location Mount Fox to Greenvale, and Conjuboy to Kidston	Operational
Hells Gate Dam (Townsville Enterprise)	Upper Burdekin River ~25 km south of Project	Feasibility Study submitted to Government May 2018. Business Case currently underway (due April 2022).
Greenvale Training Area Australia-Singapore Military Training Initiative (ASMTI) (Australian Defence Force)	South of Greenvale.	Defence is currently undertaking design of the Training Area.
Mount Fox Wind Energy Park	South East of Mount Fox switching station.	Currently in approval stage.

#### 25.1.1 Kidston Renewable Energy Hub

The Kidston Renewable Energy Hub is currently under development, with the following key activities either completed or proposed.

- The 50 MW Kidston Solar Project (Stage One) has completed construction and is generating electricity into the National Electricity Market through a connection to Ergon Energy's existing 132 kV transmission line. This line does not have sufficient spare capacity for the following projects.
- The 250 MW Kidston Pumped Storage Hydro Project is currently under construction.
- The 270 MW Kidston Solar Project (Stage Two) has received development approval from Etheridge Shire Council.
- The 150 MW Wind Farm Project (Stage 3) is currently in feasibility stage.

The Project will connect the Kidston Renewable Energy Hub to the existing transmission network at Mount Fox. It is anticipated there will be an overlap of construction time frames between the Project and the Kidston Renewable Energy Hub.

#### 25.1.2 Ergon transmission lines

Existing electricity infrastructure within the area includes an Ergon 66 kV transmission line that runs 90 km west from Mount Fox to Greenvale and Ergon 132 kV transmission line that runs from Ross to Kidston. Co-location with this existing infrastructure is achieved between Mount Fox and Greenvale, and from the vicinity of Conjuboy to Kidston.

### 25.1.3 Hells Gate Dam

A Feasibility Study for the Hells Gate Dam was submitted to the Government in May 2018. The study was funded under the Federal Government's National Water Infrastructure Development Fund and is project managed by Townsville Enterprise.

A Business Case was commissioned in late 2019 and is currently underway. The Business Case is expected to be finalised in April 2022. The Business Case has been funded by the Federal Government through the North Queensland Water Infrastructure Authority and is managed by the State Government through the Department of Regional Development, Manufacturing and Water (TEL, 2021).

The Hells Gate Dam project on the Upper Burdekin River aims to increase the agricultural production of North Queensland, establishing up to 100,000 ha of irrigated agricultural land. The area of the proposed dam is on private property approximately 25km south of the Project (Figure 25-1).

The Business Case currently underway is considering the potential for a pumped hydro power facility north of the Hells Gate Dam location. The location of the proposed upper dam for this potential facility is located within the immediate vicinity of the Preferred Alignment. Further consultation is being undertaken with Townsville Enterprise Limited on this potential Project.

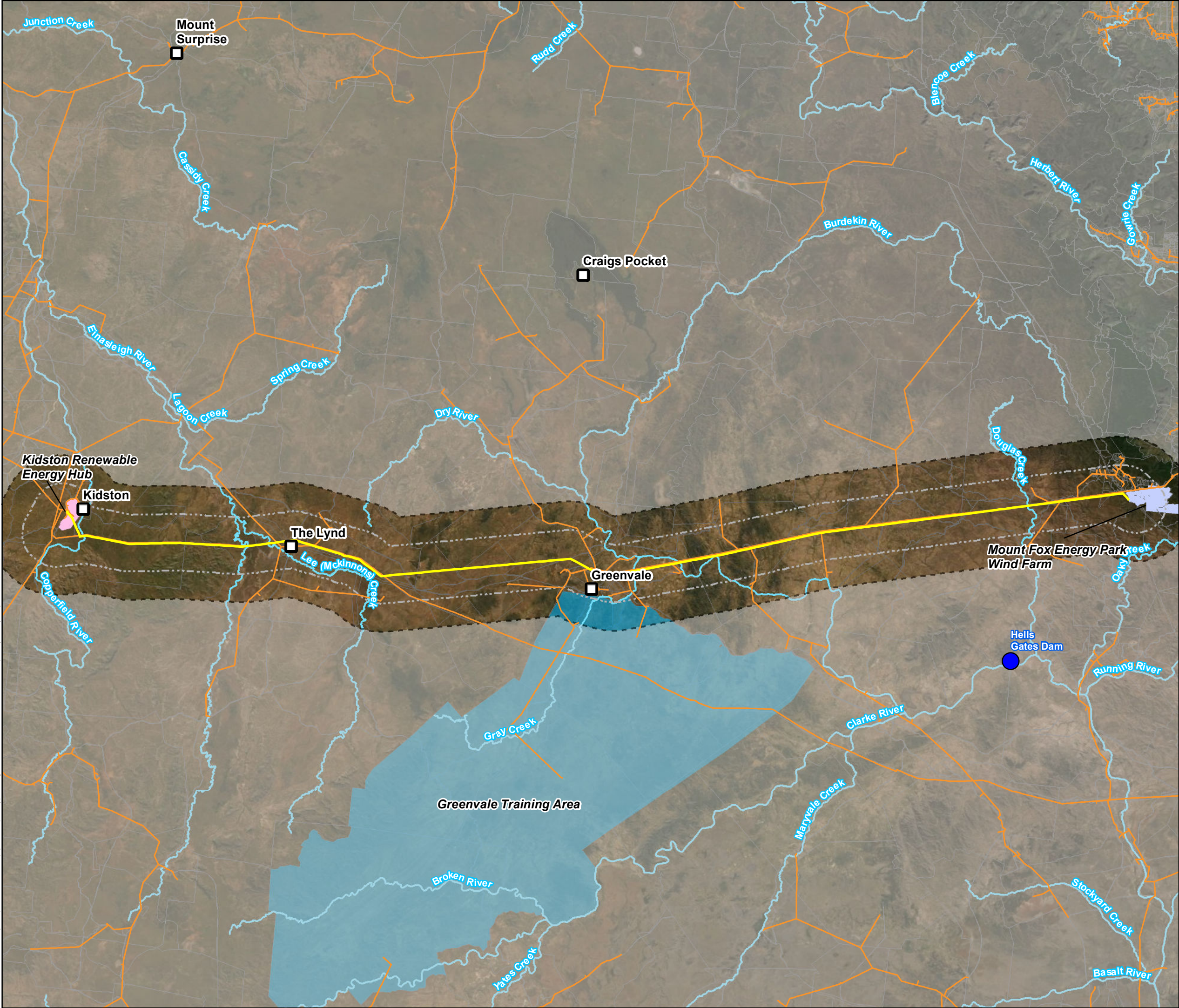
### 25.1.4 Greenvale Training Area

The Department of Defence have acquired land at Greenvale to establish a new advanced training area for the Australian-Singapore Military Training Institute (DoD, n.s). The location of the acquired land is shown in Figure 25-2, and is located on the southern side of the Greenvale township and the Gregory Highway. The Preferred Alignment is located approximately 3.5 km to the north of the Greenvale Training Area. Powerlink undertook consultation with Defence in June 2018, and are currently reengaging with Defence.

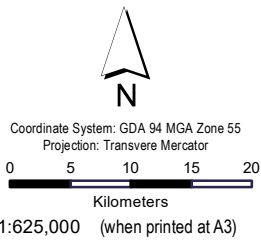
### 25.1.5 Mount Fox Wind Energy Park

The Mount Fox Wind Energy Park is a proposed 350 Mega Watt (MW) wind farm approximately 100km North West of Townsville, near Mount Fox (MFEP, 2020). The Mount Fox Wind Energy Park is located south west of the Mount Fox Switching Station location (Figure 25-3). It is understood that the Project is currently seeking approvals from the State and Commonwealth Government for the Project to proceed. Construction is planned for January 2022, with operations planned to commence in January 2024.

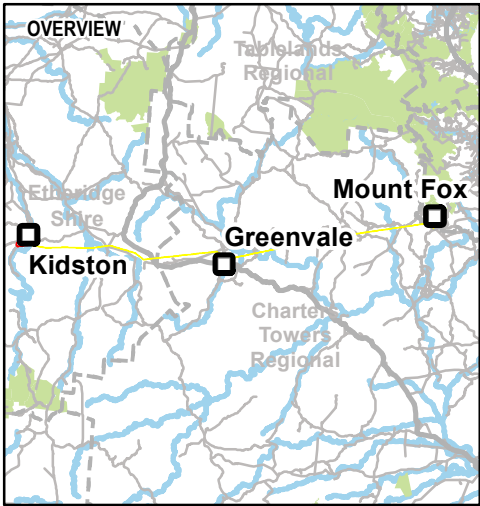




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- Legend**
- Places
  - Dams
  - Preferred Alignment
  - Watercourses
  - Overhead Power Lines
  - Kidston Renewable Energy Hub
  - Greenvale Training Area
  - Mount Fox Energy Park Wind Farm
  - Project 5 km Buffer
  - Project 10 km Buffer



**Data sources:**  
DCDB, Roads, Watercourses - DNRM 2017  
Site Features and Layout - AECOM 2018  
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**Kidston Connection Project**

**Existing and Proposed Developments**

PROJECT ID:	60577456	<b>Figure F25-1</b>
CREATED BY:	JB	
LAST MODIFIED:	AJS - 23/09/2021	
VERSION:	3	



## HELLS GATES DAM ENVIRONS

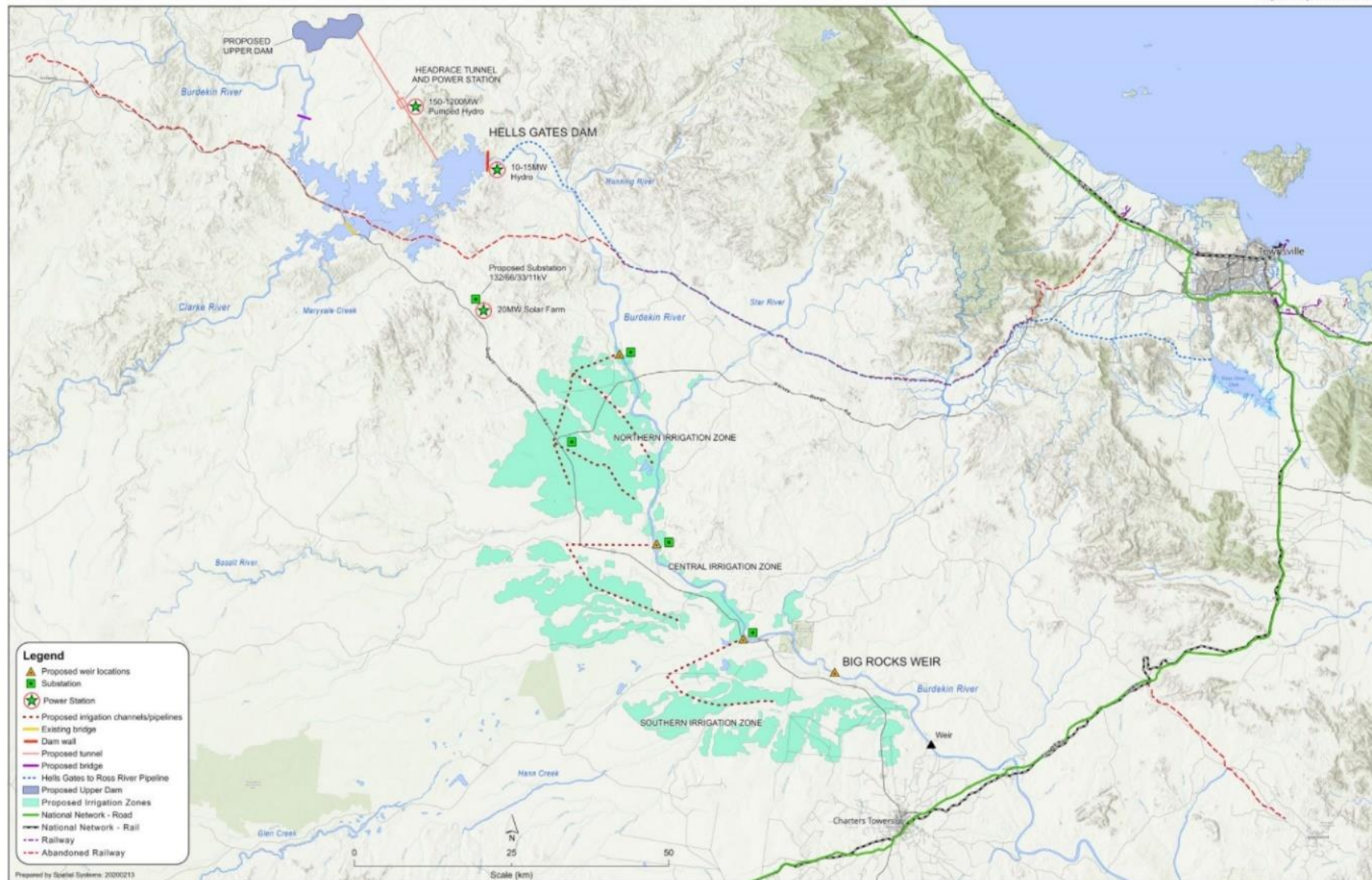


Figure 25-1 Hells Gate Project Location (TEL, 2021)

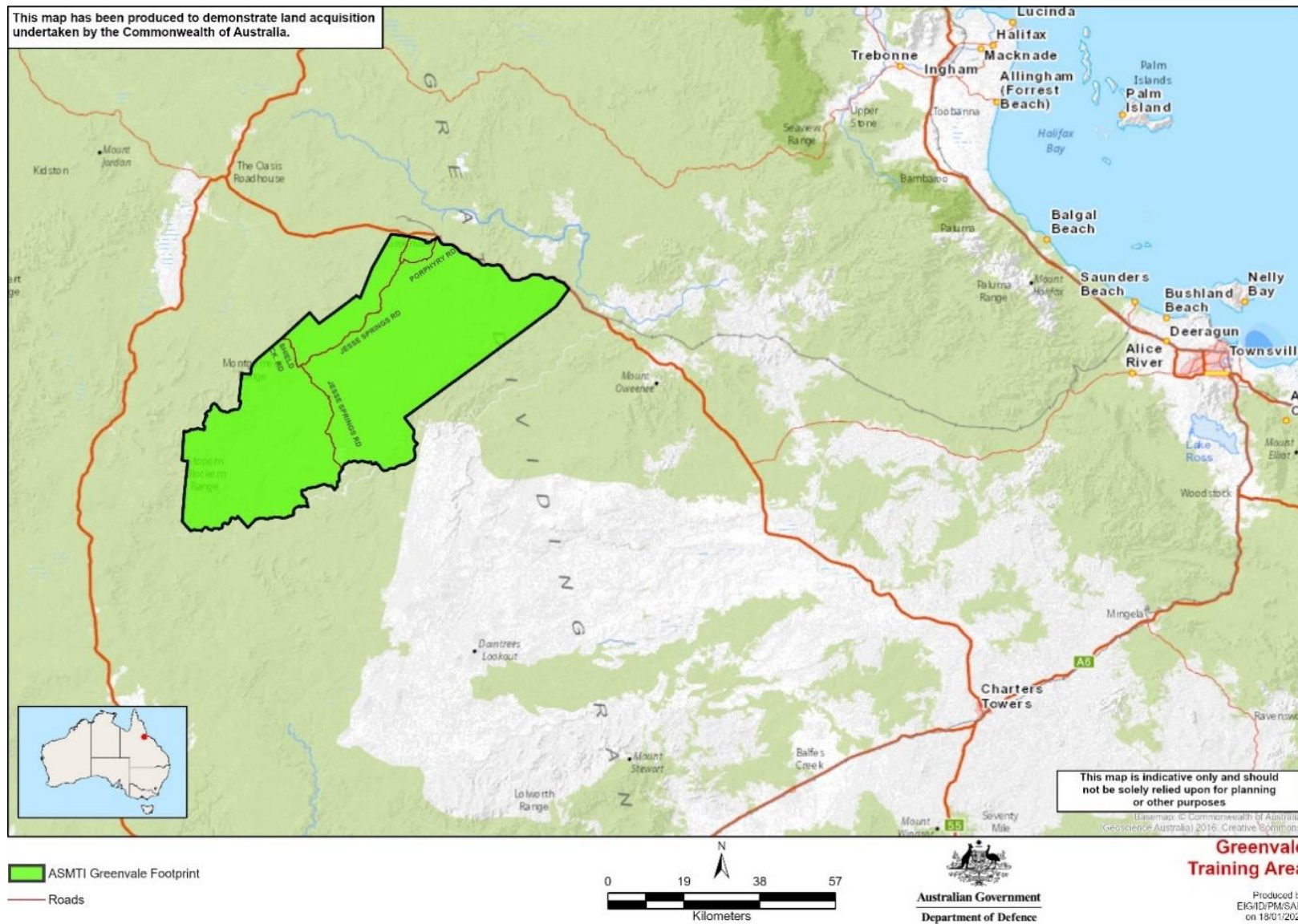


Figure 25-2 Location of Greenvale Training Area (DoD, n.s.)



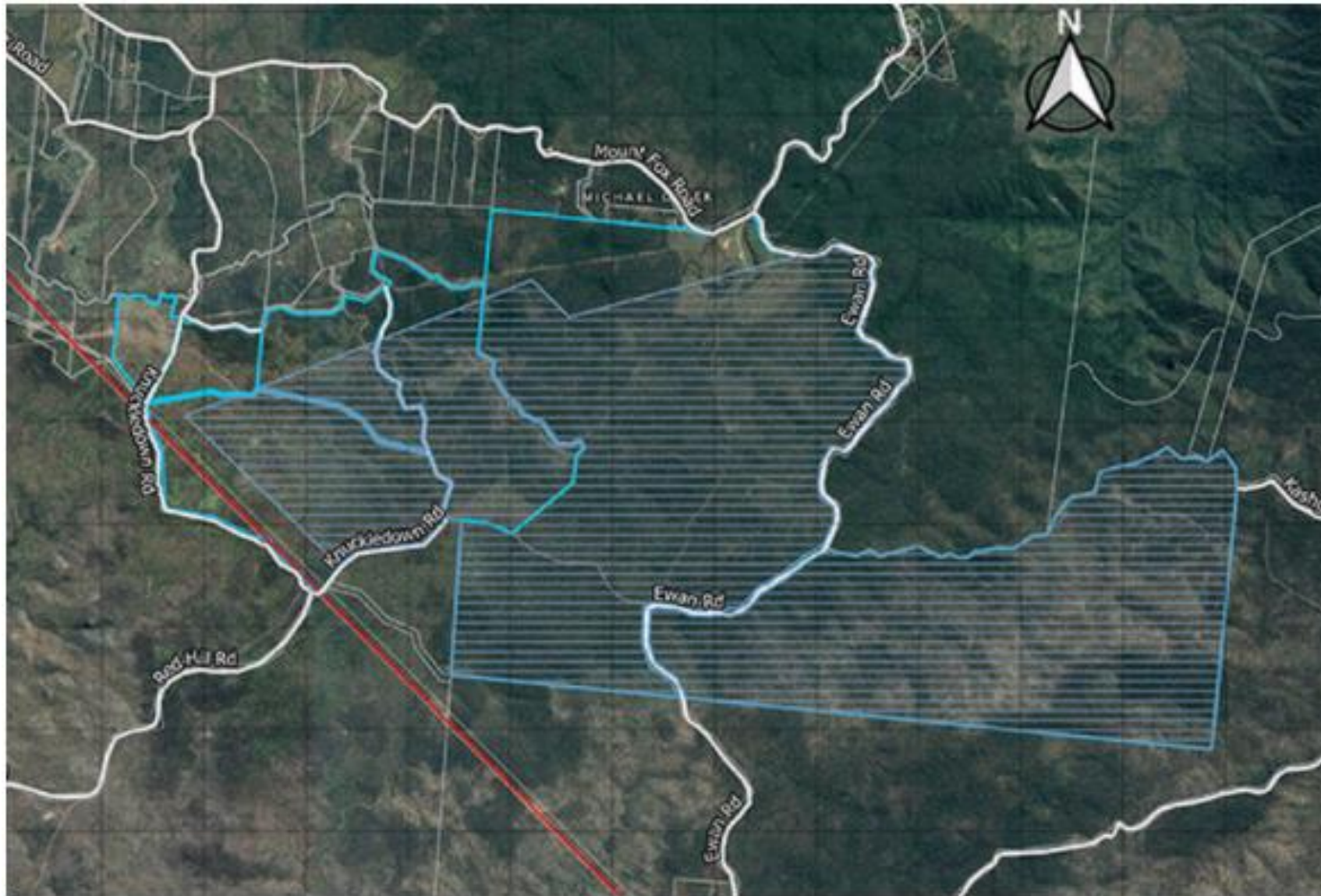


Figure 25-3 Mount Fox Wind Energy Park Location (MFEP, 2020)

## 25.2 Potential Impacts

Cumulative impacts of the Project, and other known major projects in the area are difficult to quantify based on the lack of available information, however the following section aims to provide a qualitative assessment of the potential and assumed activities which may lead to a cumulative impact on the receiving environment.

### 25.2.1 Construction

The construction period of the Project is anticipated to be April 2022 to February 2024. The construction periods of the Kidston Renewable Energy Hub, Greenvale Training Area and the Mount Fox Wind Energy park have the potential to overlap with the Project. Potential cumulative impacting factors associated with the construction of these projects are discussed below.

#### 25.2.1.1 Dust

An assessment of the potential impacts from dust from the Project is provided in Chapter 6 Air Quality. This assessment shows that the unmitigated air emissions from the construction phase poses a low risk of dust soiling and human health impacts. The assessment concluded that, per work site, emissions associated with construction activities are expected to be localised to the immediate area and only present for a short period of time.

The assessment also determined that, based on historical average annual PM<sub>10</sub> concentrations for the region, the regional air shed should have capacity to accept and dissipate project particulate matter emissions.

The Project, Kidston Renewable Energy Hub and the Mount Fox Energy Park may all require the use of local unsealed roads for the transport of materials, equipment and personnel, with the potential to generate cumulative dust impacts. It is assumed that local unsealed roads will only be used by the Project to access specific and localised construction areas, and given the distance between the three projects, use of these roads are unlikely to overlap. Therefore, cumulative dust impacts from unsealed local road use are considered unlikely.

#### 25.2.1.2 Noise

Chapter 19 Noise and Vibration identified setback distances from the Preferred Alignment at which compliance with noise criteria during construction would be achieved. The largest setback distance is associated with heli-stringing at 2.4 km, followed by vegetation clearing (mulcher) at 500 m. The short duration of heli-stringing at any one location indicates that cumulative noise impacts associated with this activity would be minimal and short term (days). Cumulative noise impacts from heli-stringing have therefore not been considered further.

The one sensitive receptor located within 500 m of the Preferred Alignment is towards the eastern end of the Project, over 80 km from Greenvale. Given the distance of this sensitive receptor to the nearest proposed project, no cumulative noise impacts on this sensitive receptors are anticipated.

#### 25.2.1.3 Road network

The road network in the vicinity of the Project site includes both State-controlled roads and local authority roads (Chapter 18 Traffic and Transport). The Preferred Alignment intersects Kennedy Developmental Road and Gregory Developmental Road, which are both State-controlled roads. The Preferred Alignment traverses several locally administered major and minor roads under the management of Etheridge Shire Council (ESC), Charters Towers Regional Council (CTRC) and Hinchinbrook Shire Council (HSC). These local roads are comprised mainly of unsealed roads and roads that have been gazetted, however unformed or undeveloped.

In accordance with DTMR's Guide to Traffic Impact Assessment, State-controlled road links where development traffic exceeds 5% of the base traffic (background traffic) is deemed to have an impact on the road network. Chapter 18 Transport and Traffic identified that the Project's estimated construction traffic volumes will most likely exceed 5% of the background traffic on Flinders Highway, Gregory Developmental Road and Kennedy Developmental Road during the construction period. The traffic operation of local authority roads (Craiglee Road, Greenvale Valley Road and Borefield Road) was considered unlikely to be impacted by the Project, given the low background traffic volumes and the temporary duration of the construction works.



The Greenvale Training Area project is likely to use local authority roads administered by Charters Towers Regional Council. The Kidston Renewable Energy Hub is likely to use local authority roads administered by Etheridge Shire Council. The Mount Fox Wind Park is likely to use local authority road administered by Hinchinbrook Shire Council or Charters Towers Regional Council. All of these projects are anticipated to use the Flinders Highway and Gregory Developmental Road for the delivery of construction material, machinery and personnel at some point during construction. Therefore, there is the potential for cumulative road network impacts should the construction periods of the three projects overlap.

#### **25.2.1.4 Social**

Should all the above-mentioned Projects overlap during construction, positive cumulative impacts for the region may be realised in terms socio-economic benefits.

#### **25.2.2 Operation**

The operation of the Project will be limited to maintenance activities along the easement and at the switching station. Therefore, any potential impacts, such as dust, noise, and traffic, will be minimal and short term. Therefore cumulative impacts associated with the operational phase are not further investigated.

Cumulative electric and magnetic fields (EMF) associated with the co-location with Ergon's 66 kV and 132 kV transmission lines is addressed in Chapter 21 Electric and Magnetic Field. The cumulative level of EMF was determined to be significantly below internationally recognised EMF guidelines for established health effects.

### **25.3 Mitigation and Management Measures**

Given the large distance of the Project from other existing and proposed projects in the region, cumulative impacts are anticipated to be limited to the road network during construction. Nonetheless, standard environmental controls, as outlined in Appendix B Environmental Management Plan, will be applied to the Project to minimise potential environmental impacts.

Potential cumulative impacts on the road network during construction will be managed through the following measures, as detailed in Chapter 18 Transport and Traffic.