



ECOLOGICAL ASSESSMENT REPORT

PROPOSED KAMERUNGA TO WOREE TRANSMISSION LINE
REPLACEMENT AND THE NEW BARRON RIVER SUBSTATION
DEVELOPMENT

Trend | Environmental
Consultants

August
2025

Prepared on behalf of
JBS&G



EXECUTIVE SUMMARY

Powerlink are the leading Australian providers of high-voltage electricity transmission network services, providing electricity to more than five million Queenslanders, and 253,000 businesses, with the network extending 1,700 kilometres (km) from Cairns to the New South Wales border, and comprising 15,345 circuit km of transmission lines and 147 substations.

Part of this network includes a 132 kilovolt (kV) transmission line in Cairns, Queensland, from the Kamerunga Substation to the Woree Substation. The transmission line provides the critical service of connecting the Barron Gorge Power Station to the transmission network, supplying power to northern Cairns.

Both the transmission line, and the Kamerunga Substation are reaching the end of their design life and are scheduled for replacement. As such, Powerlink are seeking approval to undertake a transmission line replacement project for the 132 kV transmission line between the existing Kamerunga and Woree Substations, with a new 132 kV transmission line. To support this, geotechnical investigations are required along the proposed alignment. In addition, Powerlink are looking to construct a replacement Substation for the Kamerunga Substation (the replacement Substation is referred to herein as the 'new Barron River Substation'). The new Barron River Substation is proposed on Lot 1 on RP716266 and Lot 3 on SP173007 (Map 1). Collectively, the proposed transmission line, the new Barron River Substation and the geotechnical investigation locations are herein referred to as the 'Project'. Approval for the Project is being sought via the Ministerial Infrastructure Designation (MID) process under the *Queensland Planning Act 2016* (Planning Act).

The total length of the proposed transmission line from Kamerunga and Woree is approximately 15.9 km and will be replaced in two sections, Kamerunga to Redlynch (4.3 km) and Redlynch to Woree (11.6 km):

- **Section 1 Overhead (OH) Component (Kamerunga to Redlynch)** will be replaced with an OH transmission line that will be a 132 kV double circuit, the same configuration as the existing line. Some limited overlap between the proposed and existing easements may occur in isolated locations. The existing transmission line will be decommissioned and dismantled following completion of the Project. The length of this section is approximately 4.3 km.
- **Section 2 Underground (UG) Component (Redlynch to Woree)** will be replaced with an UG cable. The UG transmission line will include two electrically separate circuits installed in trenches and filled with an engineered thermal backfill. The cable will be restricted mostly to State-controlled and Local Government roadways, with other associated infrastructure including cable joint bays and an underground to overhead (UGOH) structure. Undercrossing techniques will be utilised where required to avoid existing infrastructure such as major roads, rail lines, watercourses, and regulated vegetation. The method of undercrossing will depend on the geotechnical conditions, undercrossing distance and depth. Undercrossing types include single shot Horizontal Directional Drilling (HDD), encompassed HDD, pipe jacking and augering. The length of this section is approximately 11.6 km.

The width of the alignment (referred to throughout the report as the MID Corridor, shown in Map 1) will vary due to road infrastructure and residential land encroaching throughout most of the footprint. For the purpose of the ecological assessment, the MID Corridor includes the following widths:

- **Section 1 OH Component (Kamerunga to Redlynch)** will use mostly a 40 metre (m) wide easement, in line with current Powerlink design standards, which will sit immediately adjacent to the 20 m easement containing the existing transmission line. In some sections a new 60 m easement will be applied where the proposed easement does not adjoin the existing line.
- Where **Section 2 UG Component (Redlynch to Woree)** intersects road reserves, the MID Corridor is considered to be the width of the road reserve, from property boundary to property boundary. Where the corridor intersects easements and park land, the width will generally be 12 m (i.e., 6 m either side of the centre line) unless in non-remnant areas, where the width may be wider.
- The **New Barron River Substation** will encompass a footprint of 220m x 110m.
- The **geotechnical investigation** locations throughout Section 1 OH and Section 2 UG Components each encompass 0.01 hectares (ha).

The existing transmission line will be decommissioned and dismantled following completion of the Project; however, this will be undertaken as a separate project. This report supports approval for Sections 1 and 2 of the Project (encompassing the



OH and UG transmission lines, the new Barron River Substation and the geotechnical investigation locations). This report describes the results of the field survey that was undertaken within both Sections to verify the ecological values that are listed as matters of national environmental significance (MNES) and matters of state environmental significance (MSES), protected under Commonwealth and state legislation respectively, and assess the potential impacts associated with the construction.

The field survey aimed to verify the ecological values that exist and within and in the vicinity of the MID Corridor, as these have the potential to be impacted by construction of the Project. A likelihood of occurrence assessment and a risk assessment to determine the potential impact ratings were previously completed as part of the Desktop Protected Matters Assessment Report (Trend Environmental, 2025a), provided in Appendix A). The results of this Desktop Protected Matters Assessment informed the field survey for the Project.

The field ecological assessment was undertaken in accordance with applicable Commonwealth and state survey guidelines to verify the presence of MNES and MSES within the MID Corridor. Three field surveys were completed, in July 2023, and February and March 2024. During the field surveys, a number of methods were utilised to verify ecological values, including quaternary surveys for regulated vegetation and regional ecosystem, BioCondition assessments, watercourse assessments, targeted fauna surveys, and fauna habitat assessments.

Matters of National Environmental Significance

Following the field survey, it was confirmed or considered likely that the following MNES occur due to suitable habitat being present within the MID Corridor: one TEC (Lowland tropical rainforest of the Wet Tropics), eleven threatened¹ plants, one threatened amphibian, four threatened birds, seven threatened mammals, and five migratory bird species.

There was a total of 6.71ha of remnant and regrowth regulated vegetation (as defined under the *Vegetation Management Act 1999; Queensland; Qld*) within the MID Corridor that contained habitat values for these threatened species and ecological communities, and migratory species. While the MID Corridor contains suitable habitat for these MNES, only minor regulated vegetation clearing is proposed - in Section 1 OH Component of the MID Corridor, where the OH transmission line will cross the Barron River, and in Section 2 UG Component for the Freshwater Creek Geotechnical Investigation. In addition to this vegetation clearing, some amenity/street trees will need to be removed throughout the MID Corridor. Based on this, direct impacts to these MNES are considered minor.

Matters of State Environmental Significance

The MSES confirmed present in the MID Corridor include:

- Regulated vegetation including prescribed regional ecosystems that are endangered and of concern regional ecosystems.
- Protected wildlife habitat that includes habitat for an endangered wildlife or vulnerable wildlife, or special least concern animal.
- Waterways providing for fish passage (waterway barrier works).
- A protected area – Kamerunga Conservation Park.
- Marine plants²

It is anticipated that 1.97ha of prescribed endangered and of concern regional ecosystems (regulated vegetation) and protected wildlife habitat, considered MSES, within the MID Corridor will be directly impacted by regulated vegetation clearing within the MID Corridor (total MID Corridor area is 85.08ha). The protected wildlife habitat consisted of remnant and regrowth vegetation that could potentially support four threatened plants (not already considered MNES), three threatened amphibians, one threatened bird, one near threatened mammal, one threatened reptile and two special least concern mammals. While the MID Corridor contains MSES values, minimal regulated vegetation clearing is proposed as part of the Project, and as such direct impacts to these MSES regulated vegetation and wildlife habitat would generally be considered minor.

In addition to the MSES regulated vegetation and wildlife habitat, 0.31ha of the protected area (Kamerunga Conservation Park) and 463m² of marine plants, also considered MSES, will be directly impacted by the Project. As the Project will obtain a 'Use' approval through the MID process, under Section 44(6)b of the *Planning Act 2016* (Qld), the development becomes

¹ Threatened wildlife - Wildlife species listed as vulnerable, endangered, or critically endangered under the *Environment Protection and Biodiversity Conservation Act 1999 (Cth)* or the *Nature Conservation Act 1992 (Qld)*, due to risks of extinction from habitat loss, environmental pressures, or other threats.

² Where the HAT is mapped along the Barron River, the vine forest species that occur would be considered 'material' of an 'other' plant on tidal land, making them a marine plant protected under the *Fisheries Act 1994 (Qld)*.



'accepted development' under subsequent legislation e.g., *Vegetation Management Act 1992* (Qld) and *Fisheries Act 1994* (Qld). In addition, the Infrastructure Designation process under the *Planning Act 2016* (Qld) is not considered a prescribed activity for the purpose of providing an offset for significant residual impacts to prescribed environmental matters (recognised as MSES) under the *Environmental Offset Act 2014* (Qld).

The project will however be considered a prescribed activity for impacts to protected areas as this will be conducted under an authority granted, made, issued or given under the *Nature Conservation Act 1992* (Qld), section 34 in a protected area, which is listed as a prescribed activity under Schedule 1 of the *Environmental Offsets Regulation 2014* (Qld).

Potential Impacts and Mitigation

The project has minimised clearing of regulated vegetation recognised under the *Vegetation Management Act 1999* (Qld), by proposing to construct the Section 2 Component underground. However, some clearing of regulated vegetation and the verified TEC will be required where the Section 1 OH Component will cross the Barron River, and in Section 2 UG Component for the Freshwater Creek Geotechnical Investigation. In addition, there will be some removal of amenity/street trees where construction of the UG component will impact on root structures.

There may also be some aspects of the Project that could cause indirect impacts to MNES and MSES. Unmitigated impacts from the Project relate mostly to subsidence, sedimentation, and dust, light, noise and vibration during construction.

The project will be managed through the hierarchy of management principles of avoid, minimise, mitigate, then remediate to reduce these potential impacts. Avoidance and minimisation strategies that have been applied include:

- The Project has undergone rigorous feasibility studies which have defined the most appropriate construction technique (UG vs OH) and appropriate route using cleared non-remnant areas wherever possible to avoid clearing regulated vegetation areas.
- Utilising undercrossing techniques for Section 2 to avoid clearing regulated vegetation and impacting sensitive areas such as watercourses.
- Co-locating Section 1 OH Component adjacent to an existing corridor to reduce edge effects.

Where impacts to MNES and MSES could not be avoided or minimised, the following mitigation measures have been proposed to further reduce impacts:

- For Section 1 OH Component, the width of the MID Corridor has been kept to a minimum, accounting for conductor sag and swing, and bushfire hazard risk.
- For Section 2 UG Component:
 - Management of the depth of the undercrossing to be undertaken to avoid tree roots and minimise the chance of subsidence.
 - Following back-filling, soil profiles will be reinstated.
 - Provision of adequate buffers to watercourses when undercrossing to prevent contaminant runoff and sedimentation into watercourses.
- Majority of the construction will be undertaken during daylight hours to limit disturbance to nocturnal fauna. Night-time works, if required, to be limited and restricted to works that cannot be reasonably undertaken during the day.
- A high-risk Species Management Program (SMP) to be obtained prior to construction to accommodate for potential interference to threatened species breeding places (namely the Macleay's Fig-parrot that was recorded actively nesting near the MID Corridor, within Irene Street Flood Plain Area; and the Diadems Lead-nosed Bat recorded in the vicinity of the Barron River). To further reduce impacts to the Macleay's Fig-parrot, construction in this nesting location will be planned outside of the specie's breeding season (non-breeding season is August – December). In addition, an experienced Fauna Spotter Catcher (FSC) will be engaged to determine whether the pair are actively nesting in the vicinity of where they were recorded, prior to construction works starting. Should the pair be nesting, construction will be halted in this area until their young have fledged (8-10 weeks).
- Exclusion areas ('no-go' areas) to be demarcated and construction crews and heavy machinery to stay within the approved and designated MID Corridor.
- Ground disturbance to be limited to what is necessary only.
- Pest animal and weed management to be undertaken during construction and operation. A Biosecurity Management Plan to be developed and implemented for the Project.
- Restricted movement of Electric Ant carriers and the application for a Biosecurity Instrument Permit for working in Electric Ant Restricted Zones.
- A FSC will be present to supervise all clearing works in order to safely relocate fauna.
- A Construction Environmental Management Plan (CEMP) and other supplementary plans (e.g., Erosion and Sediment Control Plan and Biosecurity Plan) will be developed for managing impacts during the construction phase of the Project. Such measures will involve management of dust, noise and light impacts, water quality impacts, erosion and sedimentation, topsoil management, chemical storage, spill containment and management requirements,



traffic management including speed restrictions, weed and seed washdown requirements for machinery and vehicles, and designated construction working hours etc.

- Where the MID Corridor traverses marine plants, guidance provided in the *Accepted Development Requirements for operational work that is the removal, destruction or damage of marine plants* will be implemented as best practice.
- A s34 and s35 – easement arrangement under the *Nature Conservation Act 1992* (Qld) will be obtained where the MID Corridor traverses the Kamerunga Conservation Park. Under this arrangement, the impact area will be managed in accordance with the *Kamerunga Regional Park Management Statement 2015* (Department of National Parks, Sport and Racing; DNPSR, 2015) and an Environmental Management Plan (EMP) developed and implemented in accordance with the *Guideline for Preparing Environmental Management Plans for Queensland Parks and Wildlife Service and Partnerships authorities* (Department of Environment and Science; DES, 2023).
- When construction activities have been completed, all excavated or disturbed areas will be rehabilitated to ensure the soil is stable and provides a matrix for vegetation establishment to prevent erosion.

In consideration of impacts after avoidance and minimisation measures have been implemented, the Project is unlikely to have a significant impact on MNES based on the *Environmental Protection Biodiversity Conservation Act 1999* (EPBC Act) MNES Significant Impact Guidelines 1.1 (Department of Environment, 2013). As a result, the Project is unlikely to result in offset requirements under Commonwealth legislation, the *EPBC Act*.

For MSES, the Project is unlikely to have a significant residual impact on MSES regulated vegetation or wildlife habitat, however for MSES protected areas and marine plants, significant residual impacts are likely, based on the MSES Significant Residual Impact Guidelines (SDIP, 2014). While this is the case, an offset under the *Environmental Offsets Act 2014* (Qld) would not be required for impacts to marine plants, with the Infrastructure Designation process under the *Planning Act 2016* (Qld) not considered a prescribed activity for the purpose of providing an offset for significant residual impacts to prescribed environmental matters (recognised as MSES). But an offset will be required for impacts to protected areas as this will be conducted under an authority granted, made, issued or given under the *Nature Conservation Act 1992* (Qld), section 34 in a protected area, which is listed as a prescribed activity under Schedule 1 of the *Environmental Offsets Regulation 2014* (Qld).



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List of Abbreviations

Abbreviation	Definition
AHD	Australian Height Datum
AU	Assessment Unit
AU01	Assessment Unit 01
AU02	Assessment Unit 02
AU03	Assessment Unit 03
AU04	Assessment Unit 04
BVG	Broad Vegetation Group
CEMP	Construction Environmental Management Plan
CR	Critically Endangered under the <i>Nature Conservation Act 1992</i> (Qld)
Cth	Commonwealth
DAWE	Australian Department of Agriculture, Water and the Environment
DCCEEW	Department of Climate Change, Environment, Energy and Water
DEHP	Department of Environment and Heritage Protection
DES	Department of Environment and Science
DETSI	Department of the Environment, Tourism, Science and Innovation
DEWHA	Department of the Environment, Water, Heritage and the Arts
DNPSR	Department of National Parks, Sport and Racing
DSDILGP	Department of State Development, Infrastructure, Local Government and Planning
DSDIP	Department of Sustainable Development Infrastructure and Planning
DSEWPC	Department of Sustainability, Environment, Water, Population and Communities
EMP	Environmental Management Plan
EN	Endangered
EPBC	<i>Environment Protection and Biodiversity Conservation Act 1999</i>
ESE	East-Southeast
EVNT	Endangered, vulnerable and near threatened
EW	Extinct in wild
EX	Extinct
FSC	Fauna Spotter Catcher
HAT	Highest Astronomical Tide
HDD	Horizontal Directional Drilling
HES	High Ecologically Significant
ID	Identification
IR	Infrared
LC	Least Concern
LGA	Local Government Area
MID	Ministerial Infrastructure Designation



Abbreviation	Definition
MNES	Matters of National Environmental Significance
MSES	Matters of State Environmental Significance
NCA	<i>Nature Conservation Act 1992</i> (Qld)
NT	Near threatened
OC	Of concern
OH	Overhead
PMAV	Property Map of Assessable Vegetation
PMST	Protected Matters Search Tool
Qld	Queensland
SDAP	State Development Assessment Provisions
SE	Southeast
SEQ	Southeast Queensland
SLC	Special Least Concern
SMP	Species Management Program
SRI	Significant Residual Impact
SSE	South-south east
TEC	Threatened Ecological Community
UG	Underground
UGOH	Underground to Overhead
VMA	<i>Vegetation Management Act 1999</i> (Qld)
VU	Vulnerable
WPA	Wetland Protection Area



INTRODUCTION

1.1 PROJECT BACKGROUND

Powerlink are the leading Australian providers of high-voltage electricity transmission network services, providing electricity to more than five million Queenslanders, and 253,000 businesses, with the network extending 1,700 kilometres (km) from Cairns to the New South Wales border, and comprising 15,345 circuit km of transmission lines and 147 substations.

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- **Section 1 OH Component (Kamerunga to Redlynch)** will use a mostly 40 metre (m) wide easement, in line with current Powerlink design standards, which will sit immediately adjacent to the 20 m easement for the existing transmission line. In some sections a new 60 m easement will be applied where the proposed easement does not adjoin the existing line.
- Where **Section 2 UG Component (Redlynch to Woree)** intersects road reserves, the MID Corridor is considered to be the width of the road reserve, from property boundary to property boundary. Where the corridor intersects easements and park land the width will generally be 12 m (i.e., 6 m either side of the centre line) unless in non-remnant areas, where the width may be wider.
- The **New Barron River Substation** will encompass a footprint of approximately 220m x 110m.
- The **Geotechnical Investigation** areas each encompass 0.01 ha.

The existing transmission line will be decommissioned and dismantled following completion of the Project; however, this will be undertaken as a separate project. This report supports approval for both Sections of the Project including the new Barron River Substation and geotechnical investigations. Approval for the Project is being sought via the MID process under the Queensland *Planning Act 2016* (Queensland; Qld).

KAMERUNGA TO WOREE
TRANSMISSION LINE
MAP 1 PROJECT LOCATION

Legend

- MID Corridor
- Woree Substation
- New Barron River Substation
- Survey Area
- Freshwater Creek
- Geotechnical Investigation area

Transmission Line

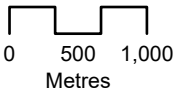
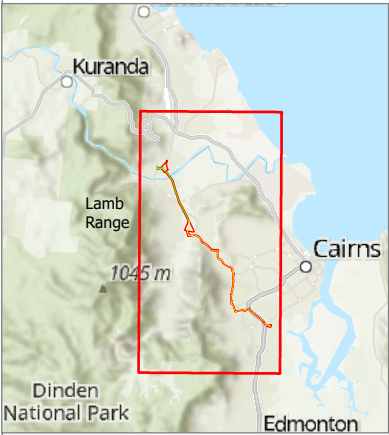
- Section 1 OH Component
- Section 2 UG Component

Lamb Range

Mount Whitfield Conservation Park

Goomburra Park

Freshwater Creek Geotechnical Investigation area



Scale: 1:55,000

Coordinate System: GDA 1994 MGA Zone 55

Trend Environmental Consultants

Sources: MID, Substation Infrastructure, GeoTech area (Powerlink), Ecological Data (Trend), Desktop Planning & Environment Data (QSPatial)
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1.2 PURPOSE OF THE ECOLOGICAL ASSESSMENT AND REPORT

The primary purpose of this Ecological Assessment Report is to document the ecological values within the MID Corridor, and immediately adjacent (the Survey Area) that are likely to be impacted by the Project; determine the potential for impacts to ecological values; and provide recommendations regarding avoidance and mitigation measures to reduce these impacts. These ecological values include matters of national environmental significance (MNES) and matters of state environmental significance (MSES).

This Ecological Assessment Report has been drafted to support the MID Proposal for the Project. The objectives of the ecological assessment were to:

- Undertake a field survey, in accordance with relevant Commonwealth and state guidelines (see *Section 3.2.1 Methodology*), to verify the ecological values present within and in the vicinity of the MID Corridor.
- Prepare an Ecological Assessment Report to describe the methodology and results of the field survey; identify the potential impacts from the Project; undertake a significant impact assessment for MNES and significant residual impact assessment for MSES; and provide recommendations for avoidance and mitigation measures to reduce impacts.

1.3 TERMINOLOGY

The below terms have been adopted throughout this report, and shown on the various maps where relevant:

- **MID Corridor:** A corridor encompassing the transmission line which is widened to allow the Design, Procure and Construct Contractor sufficient area to carry out the design for the final alignment. The MID Corridor encompasses Section 1 OH Component, Section 2 UG Component (including the geotechnical investigation locations and the new Barron River Substation).
- **Survey Area:** The area surveyed by ecologists, which was generally taken to be a 100m buffer area (larger in some areas) around the MID Corridor. The Survey Area was used to adequately capture ecological values adjacent to the proposed transmission line, to evaluate impacts upon the environment.
- **Section 1 OH Component:** The OH component of the transmission, which will be constructed from the Kamerunga Substation in Kamerunga, to Redlynch, approximately 600 m north of Goomboora Park. This section also contains the new Barron River Substation that is proposed to be constructed as part of the Project and includes geotechnical investigation areas.
- **Section 2 UG Component:** The UG component of the transmission, which will be constructed from north of Goomboora Park in Redlynch to the Woree Substation. The section also contains geotechnical investigation areas, including the Freshwater Creek Geotechnical Investigation area.
- **New Barron River Substation:** A new substation proposed on Lot 1 on RP716266 and Lot 3 on SP173007.
- **Freshwater Creek Geotechnical Investigation Area:** Geotechnical investigation area proposed along the UG component of the transmission line, adjacent to Freshwater Creek in Goomboora Park.

The MID Corridor, Section 1 OH Component, Section 2 UG Component, the Freshwater Creek Geotechnical Investigation area and the new Barron River Substation are shown in Map 1.

1.4 ENVIRONMENTAL SETTING

The transmission line is aligned from Kamerunga to Woree, approximately 5 km to the west of Cairns City, in north Queensland. The MID Corridor is approximately 15.9 km long, passing through the suburbs of Caravonica, Kamerunga, Redlynch, Kanimbla, Mooroolool, Earlville and Woree, and comprises freehold properties for Section 1 OH Component of the MID corridor and the new Barron River Substation, and is mostly within the road corridor for Section 2 UG Component, but also an easement and freehold parkland (Goomboora Park).

All geotechnical investigation areas occur within cleared areas (locations provided in Appendix E), with the exception of the Freshwater Creek Geotechnical Investigation area which occurs within regulated vegetation area adjacent to Goomboora Park (Map 1).

The catchment for the MID Corridor is the Wet Tropics region, where it is located within two drainage basins, the Barron Basin in the north, and Mulgrave Basin in the south. Several freshwater ephemeral and permanent streams flow throughout the MID Corridor. No groundwater dependent ecosystems were mapped as present in the Cairns Local Government Area (LGA) on Queensland Globe.



The MID Corridor contains mostly non-remnant vegetation,, however there are some patches of remnant and regrowth vegetation that are typically associated with ephemeral or permanent watercourses. Vegetation communities present in these remnant and regrowth areas include alluvial notophyll to mesophyll vine forest, and mixed eucalypt open forest to woodland with a vine forest understorey.

The Cairns region is warm and temperate, with annual rainfall 1,992 millimetres (BoM, 2024).

1.5 BIOREGION AND SUBREGION

The MID Corridor is located within the Wet Tropics bioregion but does not intersect the Wet Tropics World Heritage Area . This bioregion is dominated by rugged topography that is divided by a number of major basins, including the Daintree River, Mossman River, Barron River, Mulgrave-Russell River, Johnstone River, Tully River, Murray River and the Herbert River basins.

The MID Corridor traverses the relatively flat urban environment of the Cairns LGA and has elevations between 0 – 55 m Australian Height Datum (AHD), which predominantly consist of reddish-brown sand clay loam with metamorphic rock gravels, clay and silty loam on alluvium (Nott, 2003).

1.6 PROJECT DETAILS

1.6.1 Project Proponent

The owner, developer, operator and maintainer of the proposed transmission line is:

Powerlink Queensland

Address 33 Harold St, Virginia Queensland 4014
PO Box 1193, Virginia Queensland 4014
Telephone: (07) 3860 2111, 1800 635 369
Website: www.powerlink.com.au

1.6.2 Preliminary Studies Completed to Date

Powerlink has completed several separate studies examining a range of study corridors and concept alignments for the replacement, considering both OH and UG components and the new Barron River Substation. These studies have included concept route identification and engineering reviews to determine the most feasible construction option, route and construction techniques to be employed. A list of studies completed to date include but may not be limited to:

- CP.01489 Woree – Kamerunga Easement Acquisition. Project Proposal, version 2.0 (Powerlink Queensland, 2021a)
- CP.01489 Woree – Kamerunga Preliminary Investigation Report, version 2.0 (Powerlink Queensland, 2018)
- CP. 02731 Redlynch to Woree Concept Route Identification, version 1.0.3 (Powerlink Queensland, 2020)
- CP. 02731 Route Selection and Evaluation for a Dual Circuit 132kV Underground Connection between Redlynch and Woree (Cable Systems Engineering, 2021)
- Redlynch to Woree Overhead Line Route Concept Report (Callaghan, 2021)
- CP.02731 Existing Overhead Alignment Use Options Summary (Powerlink Queensland, 2021b)
- CP.02731 Redlynch to Woree Easement Acquisition Options Summary (Powerlink Queensland, 2022)

The Desktop Protected Matters Assessment Report, completed by Trend Environmental (Appendix A), and this Ecological Assessment Report examined the MID Corridor that was deemed the most feasible for each section - Section 1 OH Component (Kamerunga to Redlynch) and Section 2 UG Component (Redlynch to Woree).

1.6.3 Design

Section 1 OH Component (Kamerunga to Redlynch)

The Section 1 OH Component will be a 132 kV double circuit, the same configuration as the existing transmission line. Construction will involve a series of field activities which are broadly grouped as follows – site set out including establishment of laydowns areas and access tracks; pre-construction surveys, vegetation clearing; foundation installation; structure assembly and erection; conductor and earth wire stringing; site rehabilitation and demobilisation.



Section 2 UG Component (Redlynch to Woree)

The Section 2 UG Component will include two electrically separate circuits installed in trenches and filled with an engineered thermal backfill. Where an easement is required (for example freehold lots) the transmission line will be within a 12 m wide easement (6 m either side of the cable). Where the UG transmission line is located where an easement is not able to be granted (for example within road parcels) agreement will be obtained from the landowner or manager. Concrete cable joint bays will be installed every 800 – 1,000 m to join each drum of cable together. Each joint bay is approximately 13 m by 2.5 m in size. The Section 2 UG Component will include nine sections, with a total of eight joint bays. Additionally, an UGOH structure will be required at the Redlynch transition site to transition the OH transmission line, from Kamerunga Substation, to UG.

The construction of Section 2 UG Component will involve two different construction techniques:

- Construction of a trench that will be excavated in the roadway.
- Undercrossing techniques using single shot HDD, encompassed HDD, pipe jacking and augering. Undercrossing techniques will be used where infrastructure needs to be avoided (i.e., major roads, rail lines, watercourses or regulated vegetation). The method of undercrossing will depend on the geotechnical conditions, undercrossing distance and depth.

The following outlines the construction details for the Section 2 UG Component:

- **Trenched Design** - The trenching and conduit will typically take one to two years to construct, and involve site set out, excavation of 12 – 14 m of trench per day, installing of conduits, backfilling with thermal backfill, temporary surface reinstatement then surface reinstatement.
- **Undercrossing Design** - The use of HDD technologies is a process referred to as undercrossing. It is typically applied to areas where an open cut trench is either impractical or unfeasible. These undercrossings will typically take one year to construct, and involve site set out, establishing launch and retrieval locations, installing undercrossings and site reinstatement.
- **Joint Bays** - Joint bays will be approximately every kilometre and approximately 13 m by 2.5 m in size. They will typically take one to two years to construct, and involve site set out, excavation, installation of framework, pouring of concrete footing and walls, and installation of covers.
- **Cable installation and jointing** - Cable installation and jointing will typically take two to three years to construct, and involve cleaning conduits, setting up cable drums and winching equipment, pulling cable in, making joints, and testing and commissioning.

The New Barron River Substation

The new Barron River Substation is proposed on Lot 1 on RP716266 and Lot 3 on SP173007. The location of the new Barron River Substation is shown in Map 1. The substation will encompass a footprint of approximately 220 m x 110 m.

Geotechnical Investigation Locations

The Project will be subject to geotechnical investigations. Most of these investigation locations are within already disturbed areas, for example road ways or urban land (locations shown in Appendix E). The Freshwater Creek Geotechnical Investigation area however will be located adjacent to Freshwater Creek in Goomboora Park which is within a remnant vegetation area. The location of the Freshwater Creek Geotechnical Investigation area is shown in Map 1. This Geotechnical Investigation location will encompass a footprint of 0.01 ha and from herein will be the only geotechnical investigation area referred to for impact assessment purposes due to its potential for impacts to ecological values.



REGULATORY FRAMEWORK

The environmental legislation described in Table 1 are relevant to the Project and were investigated to determine the potential constraints in terms of environmental approvals, based on potential impacts from the Project on ecological values.

Table 1 Relevant environmental legislation	Legislation	Description	Relevance
COMMONWEALTH (Cth)	<i>Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)</i>	<p>The purpose of the <i>EPBC Act</i> (Cth) is to protect and manage nationally and internationally important flora and fauna, ecological communities, and heritage places. These are considered MNES. The EPBC Act recognises nine (9) MNES, including listed threatened species and communities, listed migratory species, RAMSAR wetlands and world heritage properties.</p> <p>The Act applies to all land tenures, where a development is likely to have a significant impact on an MNES, in which the Project is to be referred to the Commonwealth Department of Climate Change, Environment, Energy and Water (DCCEEW) for assessment as to whether the action is a 'controlled action', requiring Commonwealth approval. A protected matters database search can be conducted which lists all MNES that are considered known or likely to occur within a given area. This search determines what MNES are most relevant to the Project which therefore have the potential to be impacted.</p> <p>Offsets under the <i>EPBC Act Environmental Offsets Policy</i> (Cth) may be a requirement to compensate for any significant impacts of a controlled action on an MNES after avoidance and mitigation measures have been considered.</p>	<p>A significant impact assessment is required for any MNES found present within the MID Corridor, which will inform the requirement for an EPBC Referral.</p> <p>If impacts are deemed significant and they cannot be avoided or mitigated, environmental offsets may apply under the <i>EPBC Act Environmental Offsets Policy</i> (Cth).</p> <p>A significant impact assessment has been included within <i>Section 8 Significant Impact Assessment</i> of this Ecological Assessment Report.</p>
	Australian Weed Strategy	The Australian Weeds Strategy provides a framework to provide guidance and identify priorities for weed management on a national level, with the aim of minimising the impact of weeds on Australia's environmental, economic, and social assets. Under the Australian Weeds Strategy, 32 weeds of national significance (WoNS) are currently recognised. These weeds have been identified due to their invasiveness, potential for spread, and environmental and socio-economic impacts. A targeted plan for each WoNS is available.	<p>The presence of WoNS within the MID Corridor needs to be assessed prior to construction to ensure control strategies can be implemented to limit the spread of these invasive weeds.</p> <p>WoNS identified within the MID Corridor during ecological surveys are described within <i>Section 4.10.2 Restricted Invasive Plants</i> of this report.</p>
STATE	<i>Planning Act 2016</i>	<p>The <i>Planning Act 2016</i> (Qld) aims to establish an efficient and accountable system of land-use planning and development assessment, that balances the protection of ecological processes and economic development at local, regional, and state levels. The Act achieves this through state planning policies, planning schemes, and the development assessment system.</p> <p>The <i>Planning Regulation 2017</i> (Qld) sets out planning controls for proposed development under the Act, and defines prohibited, assessable, and accepted development when dealing with key ecological values (e.g., koala habitat in southeast Queensland; SEQ wetland protection areas and native vegetation), which then are assessed under separate legislation (e.g., the <i>Nature Conservation Act 1992</i>, <i>Vegetation Management Act 1999</i> or <i>Fisheries Act 1994</i>; Qld).</p> <p>Under the Act, infrastructure development under a designation (i.e., MID) is considered 'accepted development', meaning no further development approvals are required under the <i>Planning Act 2016</i> (Qld). Therefore, any legislation relevant under the Act and Regulation aren't triggered.</p>	<p>Chapter 2, Part 5 of the <i>Planning Act 2016</i> (Qld) allows for the Minister of the Department of State Development, Infrastructure, Local Government and Planning (DSDILGP) to designate premises for the development of infrastructure, prescribed by Schedule 5 of the <i>Planning Regulation 2017</i> (Qld).</p> <p>The project is defined as 'electricity operating works' under Schedule 5, Part 2, Item 7 of the <i>Planning Regulation 2017</i> (Qld) and as such will be subject to designation. Hence, the Project will be considered 'accepted' development under the <i>Planning Act 2016</i> (Qld).</p>



Legislation	Description	Relevance
<i>Electricity Act 1994</i>	The <i>Electricity Act 1994</i> (Qld) sets out the requirements which all electricity industry participants must follow to ensure a safe, efficient, and reliable supply of electricity. It also requires that the supply of electricity is undertaken in an environmentally sound manner.	Under section 31(1b) of the <i>Electricity Act 1994</i> (Qld), 'a transmission entity is required to properly consider the environmental effects of its activities under the transmission authority'. This Ecological Assessment Report has been prepared to assess the projects impacts on environmental matters.
<i>Nature Conservation Act 1992</i>	<p>The purpose of the <i>Nature Conservation Act 1992</i> (Qld) is to protect Queensland's natural areas and biota, through the creation of national parks, reserves, conservation areas and the protection of threatened and special flora and fauna. The Act regulates development in protected areas and where protected species have been recorded by upholding a permit and licensing system for the taking and keeping of native wildlife.</p> <p>The Regulations (<i>Nature Conservation (Animals)</i> and <i>Nature Conservation (Plants) Regulations 2020</i>) provide lists of flora and fauna species that are extinct, extinct in the wild, critically endangered, vulnerable, near threatened, and special least concern. Should these species or their habitat be present in the vicinity of any project, this may result in permit requirements under the Act to interfere with them, such as a Species Management Program (SMP) for interfering with an animal breeding place.</p> <p>The Act also regulates development within koala habitat areas through the <i>Nature Conservation (Koala) Conservation Plan 2017</i> and provides flora survey trigger mapping, which shows 'high-risk' areas for protected plants (those protected under the Act) which is used to assist flora survey and clearing permit requirements for impacted developments.</p>	<p>The MID Corridor contains high-risk areas for protected plants on the flora survey trigger map. It is therefore a requirement that a flora survey be undertaken by a suitably qualified person³ prior to construction, with a clearing permit obtained should protected plants be present.</p> <p>The MID Corridor will also need to be assessed for animal breeding places prior to construction. Should these occur and are likely to be impacted by construction, an SMP will be required.</p> <p>The flora survey and animal breeding place surveys for the MID Corridor have not been undertaken as part of the scope for this report but will be undertaken prior to construction, with the appropriate permits obtained as needed.</p> <p>As geotechnical investigations are to occur early on in the Project, a flora survey and animal breeding place survey was conducted in November 2024 for the Freshwater Creek Geotechnical Investigation area which is located within regulated vegetation and a 'high risk' area on the flora survey trigger map. The flora survey found no protected plants, and a Flora Survey Report was developed to accompany an Exempt Clearing Notification (Trend Environmental, 2025b). No breeding places were identified, making an SMP not necessary for this location.</p> <p>The MID Corridor also contains a protected area [estate], the Kamerunga Conservation Park, which requires a s34 and s35 – easement arrangement under the <i>Nature Conservation Act 1992</i> (Qld). While regulated vegetation clearing may be required in this estate, micro-siting will be undertaken prior to construction to avoid tree and shrub clearing to minimise impacts. The assessment of impacts for this protected area are provided in <i>Section 7.3 Project Impacts</i>.</p>

³ A suitably qualified person under the *Flora Survey Guidelines – Protected Plants* (Department of Environment and Science, 2020) is:

(a) a person who has 100 points or more, according to the self-assessment grading system in Table 1 below; or

(b) a person whom the relevant Director or Executive Director of the department has agreed in writing is a suitably qualified person, due to the person possessing other high-level skills or experience that are equivalent.



Legislation	Description	Relevance
<i>Vegetation Management Act 1999</i>	<p>The purpose of the <i>Vegetation Management Act 1999</i> (Qld) is to regulate the clearing of native vegetation in Queensland, through conserving native vegetation, preventing the loss of biodiversity and maintaining ecological processes. The Act applies to all vegetation, other than that in state forests, national parks and certain other tenures defined under the <i>Forestry Act 1959</i> (Qld) and the <i>Nature Conservation Act 1992</i> (Qld).</p> <p>The Act uses a series of maps to determine what vegetation is regulated and would require assessment should it be cleared for development. Regulated vegetation is categorised by its level of protection, including Category A (Vegetation offsets/compliance notices), Category B (Remnant vegetation), Category C (High-value regrowth vegetation), Category R (Reef regrowth watercourse vegetation), and Category X (Exempt clearing work on Freehold, Indigenous and Leasehold land).</p> <p>Categories containing remnant or regrowth vegetation are classified into protection types for regional ecosystems (RE): endangered, of concern or least concern. The Act also regulates the clearing of vegetation that is considered essential habitat for species of state significance and is within proximity to mapped wetlands and watercourses.</p>	<p>The project is considered 'accepted' development under the <i>Planning Act 2016</i> (Qld) as it will be subject to an MID. Therefore, operational works within regulated vegetation areas specified within Part 3 of <i>Planning Regulation 2017</i> (Qld) do not require approval for this project.</p> <p>This is also listed under section 112A of the <i>Electricity Act 1994</i> (Qld), whereby the Project is considered 'accepted development' for clearing native vegetation under the <i>Vegetation Management Act 1999</i> (Qld), on land that is designated by the Minister under the <i>Planning Act 2016</i> (Qld).</p>
<i>Fisheries Act 1994</i>	<p>The <i>Fisheries Act 1994</i> (Qld) is responsible for ensuring Queensland fisheries resources remain economically viable and socially acceptable; and any development is ecologically sustainable. This Act regulates development which is likely to impact on marine plants (e.g., mangroves); fish passage when development is considered waterway barrier works; and declared fish habitat areas.</p>	<p>A review of the Highest Astronomical Tide (HAT) mapping on Queensland Globe suggests that the Barron River in the vicinity of the MID Corridor crossing is tidal and as such may contain marine plants protected under the <i>Fisheries Act 1994</i> (Qld).</p> <p>The MID Corridor also intercepts mapped waterways for waterway barrier works that could be impacted by the Project.</p> <p>The project is considered 'accepted' development under the <i>Planning Act 2016</i> (Qld) as it will be subject to an MID. Therefore, operational works within fisheries areas specified within Part 3 of <i>Planning Regulation 2017</i> (Qld) do not require approval. While they do not require approval, compliance with accepted development requirements for these matters is considered best practice.</p>
<i>Environmental Protection Act 1994</i>	<p>The <i>Environmental Protection Act 1994</i> (Qld) lists obligations and duties to prevent environmental harm, nuisances, and contamination. The Act provides the regulatory framework to help reduce and eliminate pollution into the air, land, and water. The Act provides maps under the <i>Environment Protection Regulation 2019</i> (Qld) that identify the location of wetland protection areas (WPA), which are buffer areas that protect high ecologically significant (HES) wetlands from high impact earthworks, as defined under the <i>Planning Regulation 2017</i> (Qld).</p>	<p>The project is considered 'accepted' development under the <i>Planning Act 2017</i> as it will be subject to an MID. Therefore, operational works within WPAs specified within Part 3 of <i>Planning Regulation 2017</i> (Qld) do not require approval.</p>
<i>Water Act 2000</i>	<p>The purpose of the <i>Water Act 2000</i> (Qld) is to sustainably plan, manage and protect the state's water resources. Waters mapped in the watercourse identification map are protected. Activities within 'mapped' waters may require a riverine protection permit, including activities such as destroying vegetation, excavating, or placing fill.</p>	<p>The project is considered 'accepted' development under the <i>Planning Act 2016</i> (Qld) as it will be subject to an MID. Therefore, operational works within protected watercourses under the <i>Water Act 2000</i> (Qld) as specified within Part 3 of <i>Planning Regulation 2017</i> (Qld) do not require approval.</p> <p>Also, an electrical entity under the <i>Electricity Act 1994</i> (Qld) is an approved entity considered exempt from applying for a Riverine Protection Permit under the <i>Water Act 2000</i> (Qld).</p>

STATE



Legislation	Description	Relevance
<i>Environmental Offsets Act 2014</i>	<p>Under the <i>Environmental Offsets Act 2014</i> (Qld) an environmental offset is defined as an activity undertaken to counterbalance a 'significant residual impact' of a prescribed activity on a prescribed environmental matter. Section 14 of the <i>Environmental Offsets Act 2014</i> (Qld) states an offset condition may be imposed if the prescribed activity will, or is likely to, have a significant residual impact on a prescribed environmental matter. Schedule 1 of the <i>Environmental Offset Regulation 2014</i> (Qld) identifies prescribed activities.</p> <p>A prescribed environmental matter can be a matter of national, state, or local environmental significance, and includes but are not limited to protected areas, endangered or vulnerable wildlife, essential habitat, prescribed regional ecosystems, connectivity areas, wetlands and watercourses, fish habitat areas, waterways for fish passage and marine plants.</p>	<p>Environmental offsets may be required if impacts from a prescribed activity on prescribed environmental matters under the <i>Environmental Offsets Act 2014</i> (Qld), are deemed to be significant after avoidance and mitigation measures have been implemented.</p> <p>The Infrastructure Designation process under the <i>Planning Act 2016</i> (Qld) is not considered a prescribed activity for the purposes of providing an offset under the <i>Environmental Offset Act 2014</i> (Qld). Regardless, the avoid, minimise, mitigate approach to the Project should be employed. In this regard, a significant impact assessment should be completed to determine mitigation measures to reduce impacts on MSES. The significant impact assessment has been included within <i>Section 8 Significant Impact Assessment</i> of this Report.</p> <p>The project will however be considered a prescribed activity for:</p> <ul style="list-style-type: none">• Impacts to protected areas as this will be conducted under an authority granted, made, issued or given under the <i>Nature Conservation Act 1992</i> (Qld), section 34 in a protected area.• The taking of a protected plant within the meaning of the <i>Nature Conservation Act 1992</i> (Qld; should these be confirmed within the clearing impact area and cannot be avoided) under a protected plant clearing permit under the <i>Nature Conservation (Plants) Regulation 2020</i> (Qld).
<i>Coastal Protection and Management Act 1995</i>	<p>The <i>Coastal Protection and Management Act 1995</i> (Qld) provides for the protection, conservation, rehabilitation and management of the coastal zone, including its resources and biological diversity and works with the Planning Act 2016 to guide land use planning and development assessment decisions on Queensland's coast. Development activities can have significant impacts on the processes and ecological values of coastal areas including beaches, dunes and foreshores. Regulating development in these areas helps protect and conserve environmental, social and economic values of coastal resources and enhances the resilience of coastal communities to coastal hazards.</p>	<p>The project is considered 'accepted' development under the <i>Planning Act 2016</i> (Qld) as it will be subject to an MID. Therefore, operational works within coastal areas specified within Part 3 of <i>Planning Regulation 2017</i> (Qld) do not require approval for this project within coastal areas.</p>
<i>Biosecurity Act 2014</i>	<p>The <i>Biosecurity Act 2014</i> (Qld) provides management measures to protect the environment from pests and diseases. Under the Act, invasive plants and animals are categorised as either a 'prohibited matter' or 'restricted matter'. Local governments in Queensland are required to develop a Biosecurity Plan to manage these matters that are present within the local area.</p>	<p>Invasive plants and animals need to be assessed in the field to support the MID process. The project traverses a number of biosecurity zones, particularly the Electric Ant Biosecurity zone, and restricted zones (Map 11).</p> <p>A Biosecurity Management Plan should be developed to support construction of the Project and to achieve requirements under the <i>Biosecurity Act 2014</i> (Qld).</p> <p>Interfering with or moving biosecurity matters may require a biosecurity certificate or biosecurity instrument permit prior to construction.</p>

STATE



METHODOLOGY

3.1 DESKTOP ASSESSMENT

A desktop assessment was completed prior to the field survey. This desktop assessment involved a database review, a likelihood of occurrence assessment and risk assessment to determine presence and/or absence of MNES and MSES within the MID Corridor. The results of this desktop assessment were described in the *Desktop Protected Matters Assessment Report*, completed by Trend Environmental (Appendix A).

3.2 FIELD ASSESSMENT

3.2.1 Methodology

The field ecological assessment included three (3) survey events within the Survey Area by two (2) of Trend Environmental's ecologists. The survey dates were 17-19 July 2023, 8-9 February 2024 and 12 March 2024. All surveys were completed by persons suitably qualified and experienced in assessing terrestrial and aquatic ecological values. The locations of the survey effort within the Survey Area are shown in Map 2. During the field survey, the whole MID Corridor was walked or driven by ecologists and the following survey methods implemented.

Flora and Vegetation

- Quaternary surveys undertaken, in accordance with the *Methodology of surveying and mapping regional ecosystems and vegetation communities* (Neldner *et al.*, 2023), within mapped Category B (remnant), Category C (high-value regrowth) and Category R (reef regrowth watercourse vegetation) regulated vegetation areas (under the *Queensland Vegetation Management Act 1999*), to confirm the mapped REs and to characterise the floristic composition and structure of the vegetation communities.
- Vegetation categorisation surveys to characterise the vegetation into vegetation communities based on dominant canopy species and vegetation structures.
- Vegetation community delineation surveys to field validate the extent of the vegetation communities.
- Assessment of vegetation communities to confirm if they meet the key diagnostic criteria of the TEC under the EPBC Act, identified as likely to occur during the desktop assessment.
- Assessment of the suitability of the vegetation to provide habitat for threatened flora species listed under the *Nature Conservation Act 1992* (Qld) and/or the EPBC Act.
- Flora survey completed in accordance with the *Protected Plant - Flora Survey Guidelines* (Department of Environment and Science, 2020) or the Freshwater Geotechnical Investigation area. Note, a flora survey for the MID Corridor will be conducted prior to construction with a protected plant clearing permit obtained if required.
- Assessment of vegetation adjacent to tidal waters to satisfy the definition of marine plants, inherent marine plants, plant material on tidal land or adjacent marine plants under the *Fisheries Act 1994* (Qld).
- Recording of all flora species observed (inclusive of any threatened⁴ species), as well as any restricted invasive species listed under the *Biosecurity Act 2014* (Qld) or considered WoNS.

Fauna and Fauna Habitat

- Assessment of the vegetation communities to confirm the suitability they provide habitat for the threatened fauna species.
- Identification of breeding places for fauna (including least concern, special least concern, threatened and colonial breeding species).
- Targeted fauna surveys, undertaken in accordance with the following guidelines:
 - EPBC Act survey guidelines for Australia's threatened mammals (DSEWPC, 2011).
 - EPBC Act survey guidelines for Australia's threatened reptiles (DSEWPoC, 2011).
 - EPBC Act survey guidelines for Australia's threatened bats Department of Environment, Water, Heritage and the Arts (DEWHA, 2010a).

⁴ Flora species listed as critically endangered, endangered, vulnerable and/or near threatened under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* and/or Queensland *Nature Conservation Act 1992*.



- A review of koala habitat assessment criteria and methods (Youngentob et al., 2021).
- Terrestrial Vertebrate Fauna Survey Guidelines for Queensland (Eyre et al., 2022).
- Recording of all fauna species observed, as well as any pest species listed under the *Biosecurity Act 2014* (Qld).

Watercourse and Wetlands

- Watercourse determinations to field verify mapped locations of watercourses in accordance with the *Water Act 2000* (Qld)
- Aquatic ecology visual assessments and detection of aquatic threatened species habitat.

3.2.2 Survey Teams, Timing and Effort

Survey Teams and Timing

Seasonal events during the dry and wet seasons were conducted. Table 2 provides the survey details and survey teams that were deployed for the survey event.

Table 2 Timing and survey team details	Season	Dates	Length	Survey Team
	Dry Season (winter)	17-19 July 2023	3 days	Emily Krunes (Principal Ecologist) Maxim Gunther (Senior Ecologist)
	Wet Season (Summer)	8-9 February 2024	2 days	Maxim Gunther (Senior Ecologist) Julian Pitcher (Ecologist)
	Wet Season (Autumn)	12 March 2024	1 day	Emily Krunes (Principal Ecologist)

KAMERUNGA TO WOREE TRANSMISSION LINE MAP 2 SURVEY EFFORT 1 of 6

Legend

- MID Corridor
- New Barron River Substation
- Survey Area

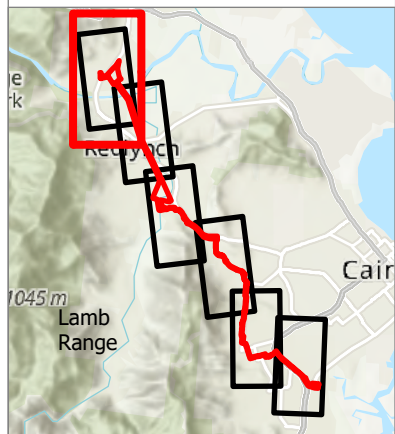
Transmission Line

- Section 1 OH Component
- Aquatic visual assessment
- Quaternary sites
- TEC verification sites

Fauna surveys

Type

- Anabat Device
- Bird Survey
- Camera Trap
- Spotlighting
- Fauna habitat



Scale: 1:14,000
Coordinate System: GDA 1994 MGA Zone 55

Trend Environmental
Consultants

Sources: MID, Substation Infrastructure, GeoTech area (Powerlink), Ecological Data (Trend), Desktop Planning & Environment Data (OSpatial)

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Checked: EK
Date: 30 Jul 2025

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Map 2: Kamernunga to Woree Transmission Line - Survey Effort (Map 2 - Survey Effort)

KAMERUNGA TO WOREE TRANSMISSION LINE MAP 2 SURVEY EFFORT 2 of 6

Legend

- MID Corridor
- New Barron River Substation
- Survey Area

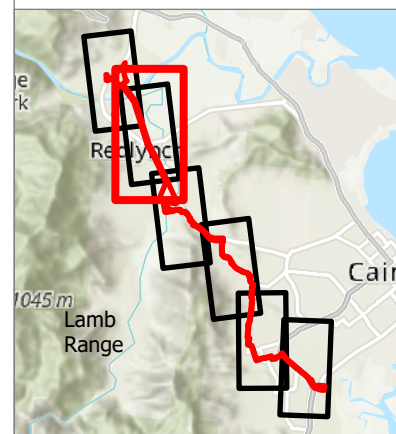
Transmission Line

- Section 1 OH Component
- Section 2 OH Component
- Aquatic visual assessment
- Quaternary sites
- TEC verification sites

Fauna surveys

Type

- Anabat Device
- Bird Survey
- Camera Trap
- Spotlighting
- Fauna habitat



Scale: 1:14,000
Coordinate System: GDA 1994 MGA Zone 55

Trend Environmental Consultants

Sources: MID, Substation Infrastructure, GeoTech area (Powerlink), Ecological Data (Trend), Desktop Planning & Environment Data (OSpatial)

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Map 2 of 6: Kamernunga to Woree Transmission Line Map 2 Survey Effort

KAMERUNGA TO WOREE
TRANSMISSION LINE
MAP 2 SURVEY EFFORT
3 of 6

Legend






-  MID Corridor
-  Survey Area
-  Freshwater Creek
-  Geotechnical Investigation area

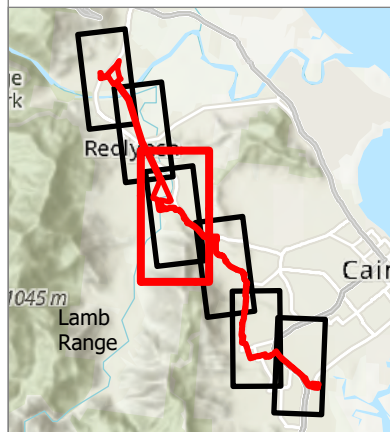
Transmission Line

-  Section 1 OH Component
-  Section 2 UG Component
-  Aquatic visual assessment
-  Quaternary sites
-  Biocondition sites
-  TEC verification sites

Fauna surveys

Type

-  Anabat Device
-  Bird Survey
-  Camera Trap
-  Spotlighting
-  Fauna habitat



Scale: 1:14,000
Coordinate System: GDA 1994 MGA Zone 55

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Sources: MID, Substation Infrastructure, GeoTech area (Powerlink), Ecological Data (Trend), Desktop Planning & Environment Data (OSpatial)

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KAMERUNGA TO WOREE TRANSMISSION LINE MAP 2 SURVEY EFFORT 4 of 6

Legend

- MID Corridor
- Survey Area

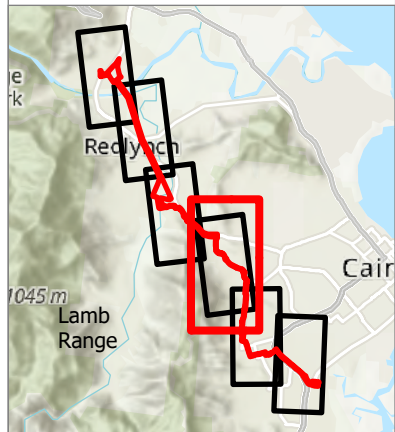
Transmission Line

- Section 2 UG Component
- Aquatic visual assessment
- Quaternary sites
- Biocondition sites
- TEC verification sites

Fauna surveys

Type

- Anabat Device
- Bird Survey
- Camera Trap
- Spotlighting
- Fauna habitat



Scale: 1:14,000
Coordinate System: GDA 1994 MGA Zone 55

Trend Environmental
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Sources: MID, Substation Infrastructure, GeoTech area (Powerlink), Ecological Data (Trend), Desktop Planning & Environment Data (OSpatial)

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Map 2 of 6: Kamernunga to Woree Transmission Line, Survey Effort

KAMERUNGA TO WOREE TRANSMISSION LINE MAP 2 SURVEY EFFORT 6 of 6

Legend


-  MID Corridor
-  Survey Area

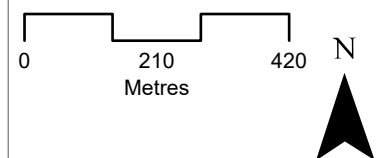
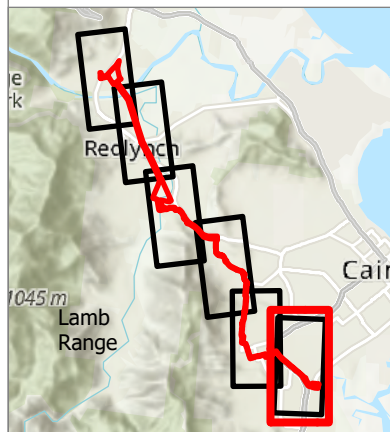
Transmission Line

-  Section 2 UG Component
-  Woree Substation
-  Quaternary sites

Fauna surveys

Type

-  Fauna habitat



Scale: 1:12,000
Coordinate System: GDA 1994 MGA Zone 55

Trend Environmental
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Sources: MID, Substation Infrastructure, GeoTech area (Powerlink), Ecological Data (Trend), Desktop Planning & Environment Data (OSpatial)

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Survey Effort

To determine survey effort for the Project, the MID Corridor was delineated into assessment units (AU) which were derived from the dominant Broad Vegetation Group (BVG) at a scale of 1:1,000,000 (Table 3). Note, areas of Category R regulated vegetation were removed from these area calculations as these mapped areas are associated with a defined distance of a watercourse, rather than associated with actual remnant or regrowth vegetation. Where the area of some BVGs were small or similar in type, these were grouped.

The MID Corridor contained 6.09ha of remnant and regrowth vegetation, 0.622 ha of water (estuarine system) and 78.37ha of non-remnant areas typically associated with urban sprawl or roads (Table 3). To meet guideline survey requirements, as per the *Methodology for surveying and mapping regional ecosystems and vegetation communities in Queensland* (Neldner et al., 2023) an observation density of 0.25 – 1 sites / ha for map scales of 1:5000 and 1:10,000 is required. The aim was to assess any patch of remnant or regrowth vegetation greater than 0.1 ha (as this is the minimum area threshold for the relevant TECs and also REs within the bioregion), which resulted in a density observation of 6.73 sites / ha (41 vegetation assessment sites total). Table 4 describes the survey effort undertaken within each assessment unit. Survey effort is shown on Map 2.

Table 3	AU	BVG	Description	MID Corridor Area (ha)
Assessment units defined by BVG within the MID Corridor	AU01	4b	Evergreen to semi-deciduous mesophyll to notophyll vine forest, frequently with <i>Archontophoenix</i> spp. (Palms) fringing streams.	4.73
		1a	Complex mesophyll to notophyll vine forests usually in fertile and very wet locations.	0.01
		22c	Open forests dominated by <i>Melaleuca</i> spp. (<i>Melaleuca argentea</i> (Silver Tea-tree), <i>Melaleuca leucadendra</i> (Broad-leaved Tea-tree), <i>Melaleuca dealbata</i> (Swamp Tea-tree) or <i>Melaleuca fluviatilis</i> (Weeping tea-tree) fringing major streams with <i>Melaleuca saligna</i> (Willow Bottlebrush) or <i>Melaleuca bracteata</i> (Black tea-tree) in minor streams	1.34
	AU03	Non-remnant	A varied mix of land types including residential, parkland and road infrastructure.	78.37
	AU04	16d (Water)	River beds, open water or sand, or rock, frequently not vegetated.	0.62
TOTAL				85.08

Table 4	Survey Type	Target Groups	Justification	Survey Effort
Survey effort	Vegetation assessments	All areas	Vegetation Quaternary assessments identified the structural composition and species in a vegetation patch. Vegetation is a known predictor of fauna/flora habitat (Neldner et al., 2023; Laidlaw & Butler, 2021). Hence, these assessments informed the habitat suitability for targeted flora/fauna species.	41 assessments in vegetated AUs (AU01 – AU02)
	TEC verification	Any suspected TEC areas	Each patch of suspected TEC was evaluated against the key diagnostic criteria and condition thresholds within the relevant DCCEW Conservation or Listing Advice.	11 TEC assessments
	Fauna habitat assessments	All vegetation patches	Habitat assessments focused on micro-habitat features within a vegetation patch.	20 points in vegetated AUs (AU01 – AU02).
	Scat and sign searches	All vegetated areas	Searches included looking for signs of animal activity, including tracks, scats, scratches, nests, and burrows.	16 points in vegetated AUs (AU01 – AU02).
	Spotlighting	Nocturnal fauna	Spotlighting was performed by at least two people per spotlighting event in suitable habitat areas of targeted threatened species.	Three points, twelve person hours over two nights, in AU01 -AU02
	Anabat ultrasonic and acoustic recording	Bats	Acoustic bat detection devices were used to determine the potential presence of threatened bat species. One Anabat Swift device was deployed in an optimal recording location throughout the surveys. The Anabat deployed also recorded acoustic sounds for other species.	Three trap nights in AU01 and AU02.
	Infrared camera trap survey	Vegetated areas	Infrared camera traps were deployed and baited with fruit (target being the threatened Black-footed Tree-rat, <i>Mesembriomys gouldii rattoides</i> ; Southern Cassowary,	Total three trap nights in AU01.



Survey Type	Target Groups	Justification	Survey Effort
		<i>Casuarium casuarium johnsonii</i> ; Northern Bettong, <i>Bettongia tropica</i>) to capture nocturnal fauna.	
Aquatic Ecology visual surveys	Platypus	Evaluation of the suitability of a watercourse to support the special least concern Platypus. These surveys were not to negate presence but establish habitat suitability. Presence was assumed if any type of suitable habitat was available.	Two points in AU01
Incidental Observations	All	All fauna observed incidentally within the MID Corridor - were recorded.	

Survey Conditions

A summary of the weather conditions during the field survey are provided in Table 5. Weather data was sourced from Bureau of Meteorology, at the Cairns Racecourse weather station (ID 031222), which is located approximately <1km of the southern extent of the MID Corridor (BoM, 2024).

Conditions were fine and sunny for the dry season survey, with the no rainfall experienced. Wind speed was fairly consistent, between 17-22km/hour (h). Minimum temperatures ranged between 19.3 – 19.9 °C. The maximum temperature ranged between 26.6 – 27.7 °C. Relative humidity changed marginally between 55 -58 %.

For the wet season surveys, some rainfall was experienced (7.8 and 36.2mm), minimum temperatures ranged between 23.3 – 24.0 °C, and maximum temperatures ranged between 29.7 – 32.9 °C. Relative humidity changed greatly between 59 -90%.

Table 5
Weather conditions during the field survey

Season	Date	Temperature (°C)		Rainfall (mm)	3pm Relative Humidity (%)	3pm Wind Speed (km/h)
		Min	Max			
Dry Season (winter)	17 July 2023	19.9	26.6	0	58	22 SE
	18 July 2023	19.4	N/A	0	58	19 SE
	19 July 2023	19.3	27.7	0	55	17 SSE
Wet Season (summer)	8 February 2024	24.0	29.7	0	90	13 S
	9 February 2024	23.3	32.9	7.8	63	11 SSE
Wet Season (autumn)	12 March 2024	23.5	31.1	36.2	59	20 ESE

3.3 REPORTING

3.3.1 Desktop and Field Assessment Results

Results from the desktop and field ecological assessments have been provided throughout this report. Results reported directly relate to verified MNES and MSES within the MID Corridor.

3.3.2 Significant Impact Assessment under the *Environment Protection, Biodiversity Conservation Act 1999* (Commonwealth)

A significant impact assessment was completed for MNES, as defined under the *EPBC Act Environmental Offsets Policy* (Cth). The significant impact assessment for MNES was completed in accordance with the *EPBC Act MNES Significant Impact Guidelines 1.1* (Department of Environment, 2013). This guideline outlines how to assess whether a proposed activity will, or is likely to have, a significant impact on a MNES. The significant impact assessment has been provided in *Section 8 Significant Impact Assessment*.

Note, a significant impact was assessed based on the potential project impacts and the avoidance and minimisation measures proposed. To comply with the guidelines, if it was determined that a significant impact was unlikely due to management or mitigation measures, the reasoning either:

- Clearly demonstrated the effectiveness of those measures, or
- Provided strong evidence that impacts will be avoided or significantly minimised with a high degree of certainty.

Project impacts can be direct impacts from construction, as well as the indirect impacts in a local or regional context or as a result of construction or operation of the powerline.



3.3.3 Significant Residual Impact under the *Environmental Offsets Act 2014* (Queensland)

A significant residual impact (SRI) assessment was completed for MSES as defined under the *Environmental Offsets Act 2014* (Qld). The SRI assessment was completed in accordance with the *Significant Residual Impact Guideline* (SDIP, 2014). This guideline outlines how to assess whether a prescribed activity will, or is likely to have, a significant impact on a MSES.

While the Project isn't considered a prescribed activity for the purpose of the MID Assessment under the *Planning Act 2016* (Qld), the project is considered a prescribed activity for impacts to protected areas under the *Nature Conservation Act 1992* (Qld); hence an SRI assessment is required to determine the significance of impacts which could carry offset implications under the *Environmental Offsets Act 2014* (Qld). Further, an SRI assessment has also been completed to determine impacts and assist in providing avoidance and mitigation measures to reduce impacts. The SRI Assessment has been provided in *Section 8 Significant Impact Assessment*.

3.3.4 Nomenclature

Taxonomic nomenclature used for the description of flora species was according to the Census of Queensland Flora and Fungi 2023 (Bean, 2024). Where relevant, species have been listed by family name in alphabetical order.

3.4 ASSUMPTIONS AND LIMITATIONS

3.4.1 Third Party Data

The content of this report, including the assessment of project impacts, has been based on information available at the time the report was prepared. Information has been obtained from third party sources (i.e., desktop review of government databases, as listed in Table 2 of the Desktop Protected Matters Assessment Report provided in Appendix A) and, while due diligence has been taken to ensure the accuracy of these data, Trend Environmental makes no statements regarding the reliability or completeness of these data.

3.4.2 Determining Ecological Values

There is inherent variability in vegetation communities and species distributions and inherent limitations in all field surveys. The ability to detect plants and accurately identify them to species level can also vary greatly depending on season, climate conditions and the presence of reproductive material (i.e., flower, fruit and seed capsules). While the ability to detect fauna can be difficult due to mobility or cryptic nature, sensitivity to humans, migration periods, and diurnal and nocturnal movements. The inherent limitations in undertaking field ecological assessments have been mitigated by applying a field sampling program to target the presence of any habitat that may be suitable for threatened species and undertaking field surveys within appropriate seasons for a higher chance of detection.

3.4.3 Determining Survey Timing

The ideal time for surveying for threatened flora is typically when all threatened flora species likely to occur are either flowering or fruiting to ensure accurate identification. The flora species that were considered 'likely to occur' (Table 7; *Carronia pedicillata*, *Rhodamnia sessiliflora*, and *Myrmecodia beccarii*) can be identified in the absence of reproductive material, and therefore survey timing was not dictated by flowering or fruiting periods for threatened flora. Regardless, surveys were undertaken during multiple seasons to increase the chance of detection of all threatened flora species, should they occur within the MID Corridor.

During the field surveys, if identification could not be made on a flora species that had similar characteristics to a threatened species, a conservative approach was implemented whereby a sample was to be sent to the Queensland Herbarium for accurate identification. If identification could not be made by the Queensland Herbarium due to a lack of reproductive material, then a follow up survey was to be undertaken during a more suitable detection period (i.e., when flowering/fruiting). Note, no flora species were recorded during the field surveys that could not be identified to species level or had similar characteristics to a known threatened species potentially occurring within the region. Hence it was deemed the survey timing for the Project was suitable and a follow-up flora survey was not necessary for this project.

3.5 PERMITS

Trend Environmental holds a Scientific Purposes Permit (SUR001598) and ethics approval (CA2023/01/1680) to conduct ecological surveys within non-protected land tenures. The Trend Environmental team includes 'suitably qualified' ecologists under the *Flora Survey Guidelines – Protected Plants* (DES, 2020). The ecological assessments undertaken for this project were undertaken in accordance with the conditions of these permits, and in accordance with relevant Commonwealth and State ecological assessment guidelines.



SUMMARISED DESKTOP RESULTS

4.1 RELEVANT MNES AND MSES

Ecological values for this report have been defined as MNES (protected under the *EPBC Act*) and MSES (as recognised prescribed environmental matters under the *Environmental Offsets Act 2014*; Qld). Table 6 outlines the MNES and MSES that are applicable to the Project, based on the desktop review of ecological values mapped within the MID Corridor (as provided in the *Desktop Protected Matters Assessment Report* in Appendix A). These applicable MNES and MSES were the focus for the field survey.

Table 6
Applicable MNES
and MSES for the
Project (matters
not applicable
have been greyed
out)

Ecological Values / Prescribed Matters		Relevance
World Heritage Properties		Applicable Wet Tropics of Queensland present in vicinity. Impacts need to be assessed.
TECs		Applicable TECs potentially present that require field verification.
Listed Threatened and Migratory Species		Applicable Listed threatened species habitat may occur, requiring field verification.
Regulated vegetation	Prescribed REs that are endangered REs	Applicable outside of urban areas Endangered and of concern REs mapped that require field verification.
	Prescribed REs that are of concern regional ecosystems	Some sections of the MID Corridor are located in urban areas, as such these REs will not be considered a prescribed environmental matter in urban areas. However, REs within Section 1 OH Component, and in the vicinity of Goomboora Park in Section 2 UG Component, will likely be considered prescribed environmental matters as these occur outside urban areas.
	Prescribed REs that intersect with a wetland on the vegetation management wetlands map	Not applicable No wetlands present.
	Prescribed REs that are areas of essential habitat for an Endangered, Vulnerable, Near Threatened (EVNT) plant or animal	Applicable outside of urban areas Essential habitat is mapped as present throughout the MID Corridor. Where this habitat occurs in urban areas, it would not be considered a prescribed environmental matter. However, within Section 1 OH Component, and in the vicinity of Goomboora Park in Section 2 UG Component, these areas will likely be considered a prescribed environmental matter, as they occur outside urban areas.
	Prescribed RE located within a defined distance from the defining banks of a relevant watercourse or drainage feature	Applicable outside of urban areas Watercourses are mapped as present throughout the MID Corridor. Where these occur in urban areas, prescribed REs within a defining bank would not be considered a prescribed environmental matter. However, watercourses within Section 1 OH Component, and in the vicinity of Goomboora Park in Section 2 UG Component, will likely be considered a prescribed environmental matter, as these occur outside of urban areas.
Connectivity Areas	Prescribed REs containing remnant vegetation required for ecosystem functioning	Applicable outside of urban areas Some connectivity areas are present within Section 1 OH Component, and in the vicinity of Goomboora Park in Section 2 UG Component. Where these occur outside of an urban area it would be considered a prescribed environmental matter.
Wetlands and Watercourses	A wetland in a wetland protection area or a HES wetland on map of referable wetlands	Not applicable None present in the MID Corridor.
	A wetland or watercourse in high ecological value waters	Not applicable None present in the MID Corridor.
Designated precinct	Designated precinct in a strategic environmental area	Not applicable Not a prescribed environmental matter in urban areas.
Protected Wildlife Habitat	A high-risk area on the flora survey trigger map, that contains endangered or vulnerable plants	Applicable High-risk mapping occurs within the MID Corridor, potentially containing endangered or vulnerable plants.
	An area not high risk on the flora trigger map, but contains endangered or vulnerable plants	Applicable Endangered or vulnerable plants species habitat may occur, requiring field verification.
	A koala habitat area	Not applicable None present in the MID Corridor.
	A habitat for an endangered or vulnerable wildlife or special least concern animal	Applicable Endangered or vulnerable wildlife species habitat may occur, requiring field verification.
Protected Areas	A protected area	Applicable The Kamerunga Conservation Park occurs in Section 1 OH Component of the Project. The conservation park is recognised as a prescribed environmental matter (MSES) under the <i>Environmental Offsets Act 2014</i> (Qld).



Ecological Values / Prescribed Matters			Relevance
Highly Protected Zones	Highly protected zones of State marine parks		Not applicable None present in the MID Corridor.
Fish Habitat Areas	An area declared under the <i>Fisheries Act 1994</i> (Qld) to be a fish habitat area		Not applicable None present in the MID Corridor.
Queensland Waterway Barrier Works (Fish Passage)	Any part of a waterway providing fish passage, if waterway barrier works will limit fish passage		Applicable outside of urban areas (Section 1 OH Component) Mapped Queensland waterways for waterway barrier works intercept the MID Corridor. Some sections of the MID Corridor are located in urban areas, as such these waterways would not be considered a prescribed environmental matter in urban areas. Waterways within Section 1 OH Component, and in the vicinity of Goomboora Park in Section 2 UG Component will likely be considered prescribed environmental matters. Works associated with UG and OH transmission lines may require access across waterways. Where this is the case, any crossings will be prepared in accordance with the Accepted Development Requirements for Waterway Barrier Works.
Marine Plants	A marine plant under the <i>Fisheries Act 1994</i>		Applicable A review of the Highest Astronomical Tide mapping on Queensland Globe suggests that the Barron River in the vicinity of the MID Corridor crossing is tidal and as such may contain marine plants protected under the Fisheries Act. Presence of marine plants within the MID Corridor requires field-verification.
Legally Secured Offset Areas	A legally secured offset area		Not applicable None present in the MID Corridor.

4.2 MNES AND MSES PREDICTED TO OCCUR

The *Desktop Protected Matters Assessment Report* (Appendix A) identified the following MNES and MSES as potentially occurring within the MID Corridor:

- One TEC, the *Lowland tropical rainforest of the Wet Tropics* (listed endangered under the *EPBC Act*).
- Threatened species including 15 flora, four amphibians, five birds, eleven mammals and one reptile as described in Table 7 and Table 8.
- Seven migratory species as described in Table 8.
- Regulated vegetation.
- Protected wildlife habitat.
- Waterways for waterway barrier works.
- Marine plants.
- Protected area.

These MNES and MSES were targeted during the field survey to confirm their presence within the MID Corridor.

Table 7
Commonwealth and State listed threatened flora species considered likely to occur or may occur in the MID Corridor

Family	Scientific Name	Common Name	Status ¹		Likelihood of Occurrence ²
			QLD	CTH	
PLANTS					
Apocynaceae	<i>Leichhardtia araujacea</i>	-	CR	CR	May occur
Athyriaceae	<i>Diplazium cordifolium</i>	-	VU	VU	May occur
Burseraceae	<i>Canarium acutifolium</i>	-	VU	VU	Likely to occur
Euphorbiaceae	<i>Acalypha lyonsii</i>	-	VU	-	May occur
Euphorbiaceae	<i>Wetria australiensis</i>	-	VU	-	May occur
Hymenophyllaceae	<i>Polyphlebium endlicherianum</i>	Middle Filmy Fern	VU	EN	May occur
Lycopodiaceae	<i>Phlegmariurus filiformis</i>	Rat's Tail tassel-fern	LC	EN	May occur
Lycopodiaceae	<i>Phlegmariurus squarrosus</i>	Water Tassel-Fern	CR	CR	May occur
Lycopodiaceae	<i>Phlegmariurus tetrastichoides</i>	Square Tassel Fern	VU	VU	May occur
Menispermaceae	<i>Carronia pedicellata</i>	-	EN	EN	Likely to occur
Myrtaceae	<i>Rhodamnia sessiliflora</i>	Iron Malletwood	EN	-	Likely to occur
Orchidaceae	<i>Dendrobium nindii</i>	Blue Orchid	EN	EN	May occur
Orchidaceae	<i>Spathoglottis paulinae</i>	Small Purple Orchid	NT	-	May occur
Rubiaceae	<i>Myrmecodia beccarii</i>	Ant Plant	VU	VU	Likely to occur
Proteaceae	<i>Alloxylon flammeum</i>	Queensland Waratah	VU	VU	May occur

¹ Queensland (QLD) Status (Nature Conservation Act 1992; Qld): EX = Extinct, EW = Extinct in Wild, CR = Critically Endangered, EN = Endangered, VU = Vulnerable, NT = Near Threatened, LC = Least Concern

Australian (CTH) Status (EPBC Act): EX = Extinct, EW = Extinct in Wild, CR = Critically Endangered, EN = Endangered, VU = Vulnerable, - not protected

² Based on information provided in the likelihood of occurrence assessment in the *Desktop Protected Matters Assessment Report* (Trend Environmental 2024; provided in Appendix A). Categories used include likely to occur, may occur or unlikely to occur.



Notes: - in Common Name = no common name exists

Table 8
Commonwealth
and State listed
threatened fauna
species considered
likely to occur or
may occur in the
MID Corridor

Family	Scientific Name	Common Name	Status ¹		Likelihood of Occurrence ²
			QLD	CTH	
AMPHIBIANS					
Hylidae	<i>Litoria dayi</i>	Australian Lacelid	VU	VU	Likely to occur
Hylidae	<i>Litoria nannotis</i>	Waterfall Frog	EN	-	May occur
Hylidae	<i>Litoria rheocola</i>	Common Mistfrog	EN	-	Likely to occur
Hylidae	<i>Litoria serrata</i>	Tapping Green Eyed Frog	VU	-	May occur
BIRDS					
Accipitridae	<i>Erythrotriorchis radiatus</i>	Red Goshawk	EN	VU	May occur
Apodidae	<i>Hirundapus caudacutus</i>	White-throated Needletail	VU	VU	Likely to occur
Casuariidae	<i>Casuarius casuarius johnsonii</i> (southern)	Southern Cassowary	EN	EN	Likely to occur
Psittaculidae	<i>Cyclopsitta diopjthalma macleayana</i>	Macleay's Fig-parrot	VU	-	Likely to occur
Tytonidae	<i>Tyto novaehollandiae kimberli</i>	Masked Owl (northern)	VU	VU	May occur
MAMMALS					
Dasyuridae	<i>Dasyurus hallucatus</i>	Northern Quoll	LC	EN	Likely to occur
Dasyuridae	<i>Dasyurus maculatus gracilis</i>	Spotted-tailed Quoll (northern)	EN	EN	May occur
Emballonuridae	<i>Saccolaimus saccolaimus nudicluniatus</i>	Bare-rumped Sheathtail Bat	EN	VU	Likely to occur
Hipposideridae	<i>Hipposideros diadema reginae</i>	Diadem Leaf-nosed Bat	NT	-	May occur
Hipposideridae	<i>Hipposideros semoni</i>	Semon's Leaf-nosed Bat	EN	VU	May occur
Muridae	<i>Mesembriomys gouldii rattoides</i>	Black-footed Tree-rat	LC	VU	May occur
Phascolarctidae	<i>Phascolarctos cinereus</i>	Koala	EN	EN	May occur
Potoroidae	<i>Bettongia tropica</i>	Northern Bettong	EN	EN	May occur
Pseudocheiridae	<i>Petauroides minor</i>	Northern Greater Glider	VU	VU	May occur
Pteropodidae	<i>Pteropus conspicillatus</i>	Spectacled Flying-fox	EN	EN	Likely to occur
Rhinolophidae	<i>Rhinolophus robertsi</i>	Large-eared Horseshoe Bat	LC	VU	May occur
REPTILES					
Crocodylidae	<i>Crocodylus porosus</i>	Estuarine Crocodile	VU	M, Mi	Likely to occur
MIGRATORY SPECIES					
Apodidae	<i>Apus pacificus</i>	Fork-tailed Swift	LC	M, Mi	Likely to occur
Cuculidae	<i>Cuculus optatus</i>	Oriental Cuckoo	LC	Mi	Likely to occur
Dicruridae	<i>Monarcha melanopsis</i>	Black-faced Monarch	LC	M, Mi	Likely to occur
Dicruridae	<i>Myiagra cyanoleuca</i>	Satin Flycatcher	LC	M, Mi	Likely to occur
Dicruridae	<i>Rhipidura rufifrons</i>	Rufous Fantail	LC	M, Mi	Likely to occur
Dicruridae	<i>Symposiachrus trivirgatus</i>	Spectacled Monarch	LC	M, Mi	Likely to occur
Hirundinidae	<i>Hirundo rustica</i>	Barn Swallow	LC	Mi	May occur

¹ Queensland (QLD) Status (Nature Conservation Act 1992; Qld): EX = Extinct, EW = Extinct in the Wild, CR = Critically Endangered, EN = Endangered, VU = Vulnerable, NT = Near Threatened, LC = Least Concern, SL = Special least concern

Australian (CTH) Status (EPBC Act): EX = Extinct, EW = Extinct in the Wild, CR = Critically Endangered, EN = Endangered, VU = Vulnerable, M = Marine, Mi = Migratory - not protected under Act.

² Based on information provided in the likelihood of occurrence assessment in the Desktop Protected Matters Assessment Report (Trend Environmental 2024; provided in Appendix A). Categories used include likely to occur, may occur or unlikely to occur.

4.3 VEGETATION COMMUNITIES

4.3.1 Field Verified Regulated Vegetation

The MID Corridor consisted predominantly of a modified urban landscape. The field survey verified the presence of Category B (Remnant), Category C (High-value regrowth), Category R (Reef regrowth watercourse) and Category X (non-remnant) vegetation within the MID Corridor using the Quaternary survey methodology, as per the *Methodology for surveying and mapping regional ecosystems and vegetation communities in Queensland* (Neldner *et al.*, 2023). A total of 41 quaternary surveys were completed throughout the Survey Area (Map 2).



The Quaternary surveys identified minor deviations from the State-mapped vegetation communities (as described in the *Desktop Protected Matters Assessment Report*; Appendix A). Some areas were field-verified as Category B (Remnant) if they satisfied the criteria for remnant status in accordance with Neldner and colleagues (2023). Other areas were field-verified as Category C (High-value regrowth) if they satisfied the definition of high-value regrowth.

Table 9 describes the REs that were identified throughout the Survey Area, the calculated extent of each within the MID Corridor, as well as the extent surveyed in Survey Area. These RE areas are shown on Map 3.

Table 9	RE	Category ¹	Description	VMA Class ²	MID Corridor Extent (ha)	Survey Area Extent (ha)	
Dominant REs mapped within the MID Corridor	7.3.10a	B	Mesophyll vine forest. Moderately to poorly drains alluvial plains, of moderate fertility. Lowlands of the very wet and wet zone. Not a wetland.	OC	Section 1 OH	0	4.46
					New Barron River Substation	0	
					Section 2 UG	0	
	C				Section 1 OH	0	2.27
					New Barron River Substation	0	
					Section 2 UG	0.02	
	7.3.23a	B	Simple-complex, semi-deciduous notophyll to mesophyll vine forest. Lowlands on alluvium, predominantly riverine levees of the moist and dry rainfall zones. Riverine.	EN	Section 1 OH	0.62	19.11
					New Barron River Substation	0	
					Section 2 UG	4.11	
	7.3.23b/ 7.3.26b	B	7.3.23b - Semi-deciduous vine forest with <i>Nauclea orientalis</i> , <i>Cryptocarya hypospodia</i> and <i>Castanospermum australe</i> . Outwash plains of lowlands, of the wet rainfall zone.	EN	Section 1 OH	0	2.96
					New Barron River Substation	0	
					7.2.26b - <i>Casuarina cunninghamiana</i> woodland to open forest on alluvium fringing streams	OC	
	7.3.25	B	<i>Melaleuca leucadendra</i> +/- vine forest species open forest to closed forest on alluvium fringing streams	OC	Section 1 OH	1.34	3.73
					New Barron River Substation	0	
					Section 2 UG	0	
	7.3.28a	B	Open water within natural non-tidal rivers. Rivers and creeks. Riverine. Non vegetated RE.	OC	Section 1 OH	0.62	0.70
					New Barron River Substation	0	
					Section 2 UG	0	
7.11.18	B	<i>C. intermedia</i> and/or <i>C. tessellaris</i> +/- <i>E. tereticornis</i> open forest to tall open forest (or vine forest with these species as emergent) on coastal metamorphic headlands and foothills.	OC	Section 1 OH	0	1.05	
				New Barron River Substation	0		
				Section 2 UG	0		
Non-remnant	X	-	-	-	78.37	125.54	
TOTAL Vegetated						6.71	34.28

¹ Category of Regulated Vegetation: A= Vegetation offsets/compliance notices/Vdecs, B = Remnant vegetation, C = High-value regrowth, R = Reef Regrowth watercourse vegetation, X = non-remnant vegetation.

² Vegetation Management Act (VMA) 1999 (Qld) Class: EN = Endangered, OC= Of Concern, LC = Least Concern.

4.3.2 Field-verified Vegetation Communities

Vegetation within the MID Corridor has been categorised into vegetation communities (Map 4), including:

- Alluvial notophyll to mesophyll vine forest;
- Mixed eucalypt to open forest with vine forest understorey;
- Regrowth areas;
- Riverbeds and open water; and
- Cleared areas/non-remnant.

A description of the verified vegetation communities, corresponding REs, suitable habitat for threatened flora and fauna species, and the potential to conform to a listed TEC are described in Table 10.

KAMERUNGA TO WOREE TRANSMISSION LINE MAP 3 - FIELD VERIFIED REGIONAL ECOSYSTEMS AND THREATENED FLORA OBSERVATIONS 1 of 6

Legend

- MID Corridor
- New Barron River Substation
- Survey Area

Transmission Line

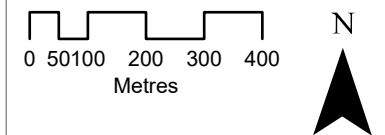
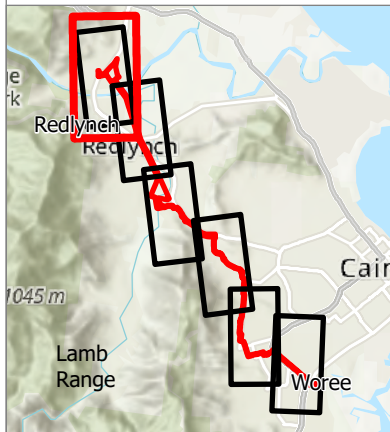
- Section 1 OH Component
- Vegetation Management
- Watercourse/ drainage feature (Stream Order)

Field-verified Regional Ecosystems

- Category A or B containing endangered
- Category A or B containing of concern

Threatened Ecological Community

- Lowland Tropical Rainforest of the Wet Tropics



Scale: 1:13,000
Coordinate System: GDA 1994 MGA Zone 55

Trend Environmental
Consultants

Sources: MID, Substation Infrastructure, GeoTech area (Powerlink), Ecological Data (Trend), Desktop Planning & Environment Data (QSpatial)
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ABN 43 622 414 046
94 Kennedy Esplanade South Mission Beach, QLD 4852
Prepared: MG
Checked: EK
Date: 30 Jul 2025
Service layer: Earthstar Geographics, Esri, CGIAR, Department of Resources, DESI, Esri, TomTom, Garmin, METINASA, USGS

KAMERUNGA TO WOREE TRANSMISSION LINE MAP 3 - FIELD VERIFIED REGIONAL ECOSYSTEMS AND THREATENED FLORA OBSERVATIONS 2 of 6

Legend

- MID Corridor
- New Barron River Substation
- Survey Area

Transmission Line

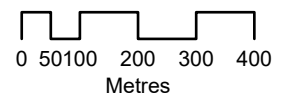
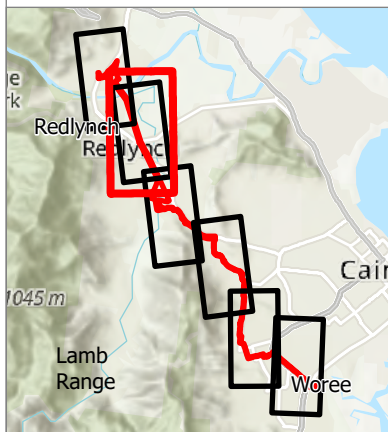
- Section 1 OH Component
- Section 2 UG Component
- Vegetation Management
- Watercourse/ drainage feature (Stream Order)

Field-verified Regional Ecosystems

- Category A or B containing endangered
- Category A or B containing of concern

Threatened Ecological Community

- Lowland Tropical Rainforest of the Wet Tropics



Scale: 1:13,000
Coordinate System: GDA 1994 MGA Zone 55

Trend Environmental Consultants

Sources: MID, Substation Infrastructure, GeoTech area (Powerlink), Ecological Data (Trend), Desktop Planning & Environment Data (QSpatial)

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

Prepared: MG
Checked: EK
Date: 30 Jul 2025

Service layer: Department of Resources, DESI, Esri, TomTom, Garmin, METINASA, USGS, Esri, Geoscience Australia, NASA, NGA, USGS, Maxar




File: C:\Users\mg\Documents - Trend Environmental\Shared Documents - Ecology\Central\Client\9 352423-13 Cairns - Powerlink Transmission Line\3-13-1 Redlynch to Woree\3-13-1 Field Verified Regional Ecosystems and Threatened Flora Observations\Map 3 - 2 of 6.aprx

KAMERUNGA TO WOREE TRANSMISSION LINE MAP 3 - FIELD VERIFIED REGIONAL ECOSYSTEMS AND THREATENED FLORA OBSERVATIONS 3 of 6




Legend

-  MID Corridor
-  Survey Area
-  Freshwater Creek
Geotechnical Investigation
area

Transmission Line

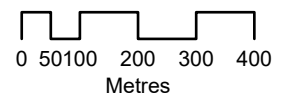
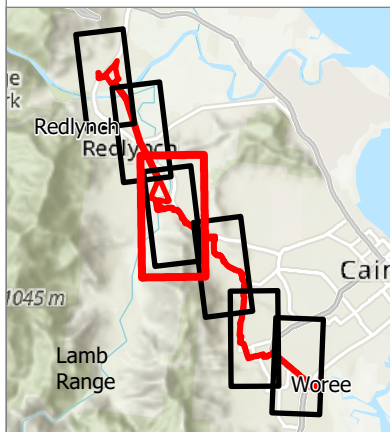
-  Section 1 OH Component
-  Section 2 UG Component
-  Vegetation Management
Watercourse/ drainage feature
(Stream Order)

Field-verified Regional Ecosystems

-  Category A or B containing
endangered
-  Category A or B containing of
concern
-  Category C or R containing of
concern

Threatened Ecological Community

-  Lowland Tropical Rainforest of
the Wet Tropics



Scale: 1:13,000
Coordinate System: GDA 1994 MGA Zone 55

Trend Environmental
Consultants

Sources: MID, Substation Infrastructure, GeoTech area (Powerlink), Ecological Data (Trend), Desktop Planning & Environment Data (QSPatial)

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
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KAMERUNGA TO WOREE TRANSMISSION LINE MAP 3 - FIELD VERIFIED REGIONAL ECOSYSTEMS AND THREATENED FLORA OBSERVATIONS


4 of 6


Legend


 MID Corridor

 Survey Area


Transmission Line


 Section 2 UG Component

 Vegetation Management

 Watercourse/ drainage feature
(Stream Order)

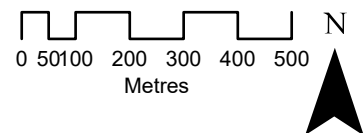
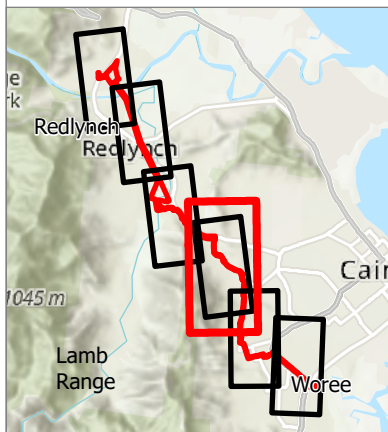
Field-verified Regional Ecosystems

 Category A or B containing of concern

 Category C or R containing of concern

Threatened Ecological Community

 Lowland Tropical Rainforest of the Wet Tropics



Scale: 1:14,000

Coordinate System: GDA 1994 MGA Zone 55

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Consultants

Sources: MID, Substation Infrastructure, GeoTech area (Powerlink), Ecological Data (Trend), Desktop Planning & Environment Data (QSPatial)

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
Service layer: Earthstar Geographics, Esri, CGIAR, Department of Resources, DESI, Esri, TomTom, Garmin, METINASA, USGS

Map 3 - Field Verified Regional Ecosystems and Threatened Flora Observations


KAMERUNGA TO WOREE TRANSMISSION LINE MAP 3 - FIELD VERIFIED REGIONAL ECOSYSTEMS AND THREATENED FLORA OBSERVATIONS 5 of 6


Legend

 MID Corridor

 Survey Area

Transmission Line

 Section 2 UG Component

 Vegetation Management
Watercourse/ drainage feature
(Stream Order)

Field-verified Regional Ecosystems

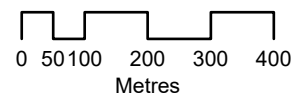
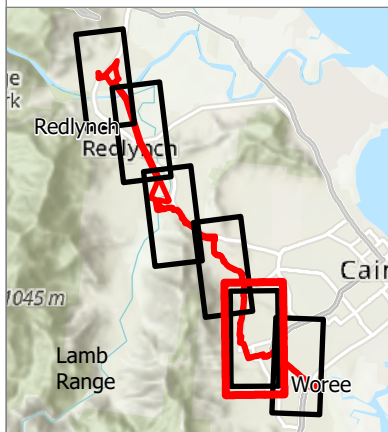
 Category C or R containing of concern

Threatened Ecological Community

 Lowland Tropical Rainforest of the Wet Tropics

7.3.10a

7.3.10a



Scale: 1:12,000

Coordinate System: GDA 1994 MGA Zone 55

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Consultants

Sources: MID, Substation Infrastructure, GeoTech area (Powerlink), Ecological Data (Trend), Desktop Planning & Environment Data (QSPatial)

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Map 3 - Field Verified Regional Ecosystems and Threatened Flora Observations

KAMERUNGA TO WOREE TRANSMISSION LINE MAP 3 - FIELD VERIFIED REGIONAL ECOSYSTEMS AND THREATENED FLORA OBSERVATIONS 6 of 6

Legend

- MID Corridor
- Woree Substation
- Survey Area

Transmission Line

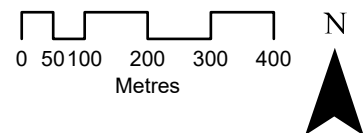
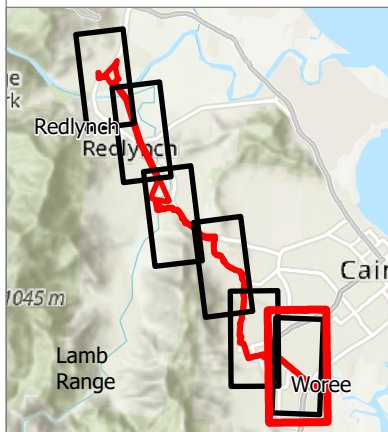
- Section 2 UG Component
- Vegetation Management
- Watercourse/ drainage feature (Stream Order)

Field-verified Regional Ecosystems

- Category C or R containing of concern

Threatened flora

- Mymecodia beccarii* (Ant Plant)



Scale: 1:12,000
Coordinate System: GDA 1994 MGA Zone 55

Trend Environmental
Consultants

Sources: MID, Substation Infrastructure, GeoTech area (Powerlink), Ecological Data (Trend), Desktop Planning & Environment Data (QSpatial)

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7.3.10a





Table 10
Vegetation
communities
within MID
Corridor

Vegetation Community	Descriptions
Alluvial notophyll to mesophyll vine forest	Description of vegetation communities Scattered patches of notophyll to mesophyll vine forest that surrounded seasonal and permanent watercourses. These vegetation communities contained a high species richness of rainforest species and ranged from 14-24m in height. The groundcover comprised of an abundance of leaf litter and saplings of the canopy species.
	Corresponding REs RE7.3.10a, 7.3.23a and 7.3.25
	Area in MID Corridor (ha) 6.09ha
	Threatened flora suitable habitat Provides suitable habitat for many threatened flora including <i>Leichhardtia araujacea</i> , <i>Diplazium cordifolium</i> , <i>Canarium acutifolium</i> , <i>Acalypha lyonsii</i> , <i>Wetria australiensis</i> , <i>Polyphlebium endlicherianum</i> (Middle Filmy Fern), <i>Phlegmariurus filiformis</i> (Rat's Tail Tassel-fern), <i>Phlegmariurus squarrosus</i> (Water Tassel-fern), <i>Phlegmariurus tetrastichoides</i> (Square Tassel-fern), <i>Carronia pedicellate</i> , <i>Rhodamnia sessiliflora</i> (Iron Mallotwood) and <i>Dendrobium nindii</i> (Blue Orchid).
	Threatened fauna suitable habitat Provides suitable habitat for many threatened fauna including four amphibians, four birds, nine mammals and five migratory bird species, as listed in Table 13 and Table 14.
	Potential to conform to a TEC Lowland tropical rainforest of the Wet Tropics TEC
Mixed Eucalypt woodland to open forest with vine forest understorey	Description of vegetation communities This vegetation community was characterised by: <ul style="list-style-type: none"> A Myrtaceous species emergent layer consisting of <i>C. tessellaris</i>, <i>C. intermedia</i>, <i>E. tereticornis</i>, <i>Eucalyptus grandis</i> (Rose Gum), and <i>L. suaveolens</i>. The canopy height up to 25m, with a canopy cover between 45% (disturbed) – 75% (undisturbed). A well-developed vine forest canopy and understorey was present.
	Corresponding REs RE7.11.18
	Area in MID Corridor (ha) 0 ha (located outside the MID Corridor, within Survey Area)
	Threatened flora suitable habitat Provides suitable habitat for many threatened flora including <i>Spathoglottis paulinae</i> (Small Purple Orchid), <i>Alloxylon flammeum</i> (Queensland Waratah) and <i>Myrmecodia beccarii</i> (Ant Plant).
	Threatened fauna suitable habitat Provides suitable habitat for many threatened fauna including one bird, seven mammals and four migratory bird species, as listed in Table 13 and Table 14.
	Potential to conform to a TEC None


Photograph





Vegetation Community	Descriptions		Photograph
Regrowth areas (considered Category X)	Description of vegetation communities	These vegetation communities were disturbed ecosystems that were regrowing but did not meet the floristic characteristics of an RE to be considered high value regrowth. These communities typically consisted of Myrtaceae and Acacia species, including <i>C. tessellaris</i> , <i>E. grandis</i> , <i>Acacia mangium</i> (Brown Salwood) and <i>Acacia flavescens</i> (Yellow Wattle).	
	Corresponding REs	None	
	Area in MID Corridor (ha)	8.27ha	
	Threatened flora suitable habitat	Marginal habitat values provided for threatened flora. Potential for <i>Myrmecodia beccarii</i> to be present if host trees occur.	
	Threatened fauna suitable habitat	Marginal habitat values provided for threatened fauna.	
	Potential to conform to a TEC	None	
Riverbeds and open water	Description of vegetation communities	Present within the Barron River, in Kamerunga. Riverine ecosystem with fringing riparian habitats	
	Corresponding REs	7.3.28a	
	Area in MID Corridor (ha)	0.62ha	
	Threatened flora suitable habitat	Very limited potential to provide suitable habitat for threatened flora species.	
	Threatened fauna suitable habitat	Potential to provide suitable habitat for the vulnerable estuarine crocodile	
	Potential to conform to a TEC	None	



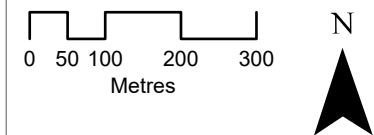
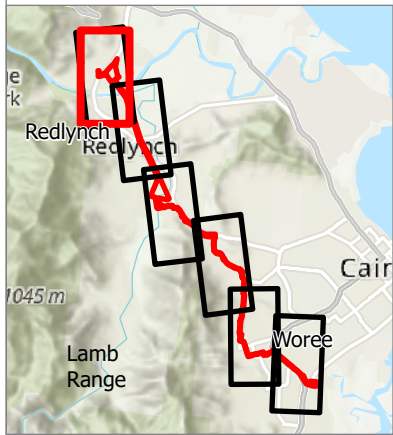
Vegetation Community	Descriptions		Photograph
Cleared areas	Description of vegetation communities	Present in non-remnant areas and road verges. It was characterised by a high density of weeds including <i>Megathyrsus maximus</i> (Guinea Grass), <i>Ageratum conyzoides</i> (Billy Goat Weed), <i>Mimosa pudica</i> (Sensitive Weed), <i>Rivina humilis</i> (Coral Berry) and <i>Sphagneticola trilobata</i> (Singapore Daisy). There were some trees present in some area, including planted species such as <i>Delonix regia</i> (Poinciana) and <i>Mangifera indica</i> (Mango).	
	Corresponding REs	None	
	Area in MID Corridor (ha)	70.10ha	
	Threatened flora suitable habitat	Very limited potential to provide suitable habitat for threatened flora species.	
	Threatened fauna suitable habitat	Very limited potential to provide suitable habitat for threatened fauna species.	
	Potential to conform to a TEC	None	

KAMERUNGA TO WOREE TRANSMISSION LINE MAP 4 GROUND-TRUTHED VEGETATION COMMUNITIES

1 of 6

Legend

- MID Corridor
- New Barron River
Substation
- Survey Area
- Transmission Line
- Section 1 OH Component
- Vegetation Community
- Alluvial notophyll to
mesophyll vine forest
- River beds and open
water
- Cleared areas/ non-
remnant
- Regrowth areas/ non-
remnant



Trend | Environmental Consultants

Sources: MID, Substation Infrastructure, GeoTech area (Powerlink), Ecological Data (Trend), Desktop Planning & Environment Data (QSpatial)

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Path: C:\Users\mg@trend\OneDrive - Trend Environmental\Shared Documents - Ecology\General\Client\9 - 3856258 - 18 Cairns - Powerlink Transmission Line\Map 4 - Vegetation Ground Truthed\Map 4 - Vegetation Community.aprx

KAMERUNGA TO WOREE TRANSMISSION LINE MAP 4 GROUND-TRUTHED VEGETATION COMMUNITIES 2 of 6

Legend


 MID Corridor


 Survey Area


Transmission Line


 Section 1 OH Component

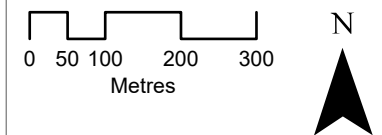
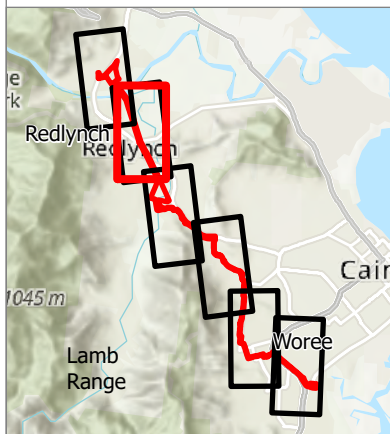
Vegetation Community

 Alluvial notophyll to mesophyll vine forest

 River beds and open water

 Cleared areas/ non-remnant

 Regrowth areas/ non-remnant



Scale: 1:10,000

Coordinate System: GDA 1994 MGA Zone 55

Trend Environmental Consultants

Sources: MID, Substation Infrastructure, GeoTech area (Powerlink), Ecological Data (Trend), Desktop Planning & Environment Data (QSpatial)

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Path: C:\Users\mg\OneDrive - Trend Environmental\Shared Documents - Ecology\General\Client\8 - Powerlink Transmission Line\8.2.1 - Redlynch to Woree\2025\Development\Figure 4 - Vegetation Communities

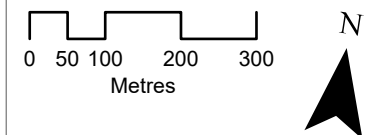
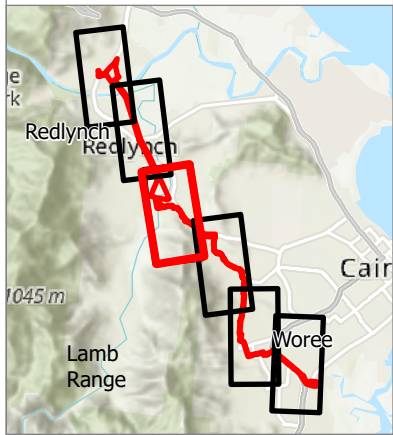
KAMERUNGA TO WOREE TRANSMISSION LINE MAP 4 GROUND-TRUTHED VEGETATION COMMUNITIES

3 of 6

Legend

- MID Corridor
 - Survey Area
 - Freshwater Creek
Geotechnical
Investigation area
- ### Transmission Line
- Section 1 OH Component
 - Section 2 UG Component

- ### Vegetation Community
- Alluvial notophyll to mesophyll vine forest
 - Mixed eucalypt woodland to open forest
 - Cleared areas/ non-remnant
 - Regrowth areas/ non-remnant



Scale: 1:10,000
Coordinate System: GDA 1994 MGA Zone 55

KAMERUNGA TO WOREE TRANSMISSION LINE MAP 4 GROUND-TRUTHED VEGETATION COMMUNITIES

4 of 6

Legend

MID Corridor

Survey Area

Transmission Line

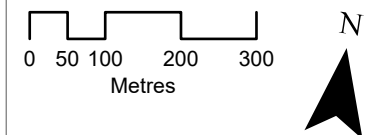
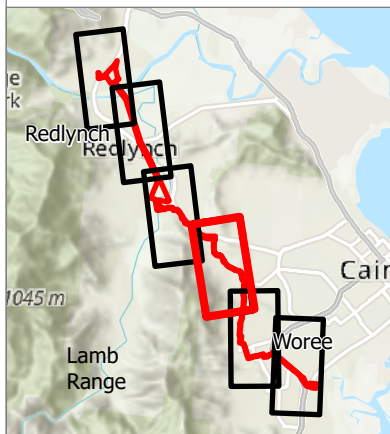
Section 1 OH Component

Vegetation Community

Alluvial notophyll to mesophyll vine forest

Cleared areas/ non-remnant

Regrowth areas/ non-remnant



Scale: 1:10,000

Coordinate System: GDA 1994 MGA Zone 55

Trend | Environmental Consultants

Sources: MID, Substation Infrastructure, GeoTech area (Powerlink), Ecological Data (Trend), Desktop Planning & Environment Data (QSpatial)

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Date: 30 Jul 2025


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Path: C:\Users\mg\Documents - Trend Environmental\Shared Documents - Ecology\General\Client\8 - Powerlink Transmission Line\8.2.1 - Map\Map 4 - Ground-Truthed Vegetation Communities.aprx


KAMERUNGA TO WOREE TRANSMISSION LINE MAP 4 GROUND-TRUTHED VEGETATION COMMUNITIES 5 of 6

Legend


 MID Corridor


 Survey Area

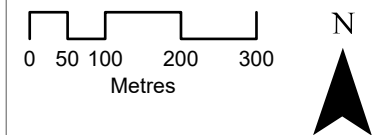
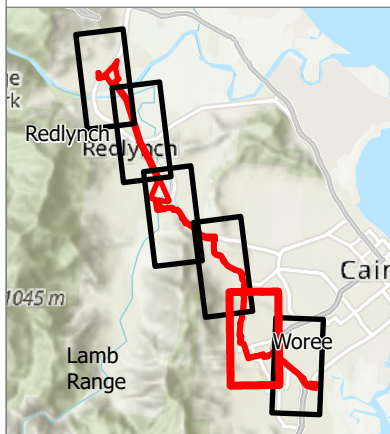
Transmission Line

 Section 2 UG Component

Vegetation Community

 Alluvial notophyll to mesophyll vine forest

 Cleared areas/ non-remnant



Scale: 1:10,000

Coordinate System: GDA 1994 MGA Zone 55

Trend Environmental Consultants

Sources: MID, Substation Infrastructure, GeoTech area (Powerlink), Ecological Data (Trend), Desktop Planning & Environment Data (QSpatial)

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
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
KAMERUNGA TO WOREE TRANSMISSION LINE MAP 4 GROUND-TRUTHED VEGETATION COMMUNITIES

6 of 6




Legend

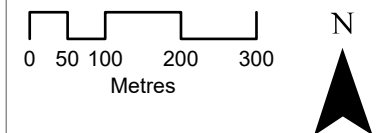
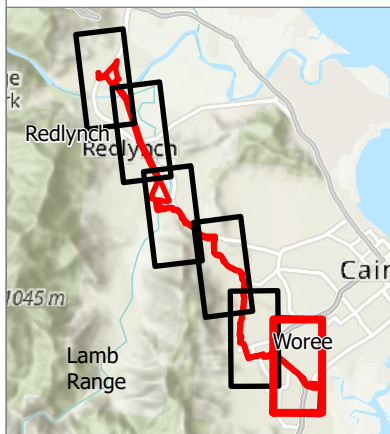
-  MID Corridor
-  Woree Substation
-  Survey Area

Transmission Line

-  Section 2 UG Component

Vegetation Community

-  Alluvial notophyll to mesophyll vine forest
-  Cleared areas/ non-remnant
-  Regrowth areas/ non-remnant



Scale: 1:10,000

Coordinate System: GDA 1994 MGA Zone 55

Trend Environmental
Consultants

Sources: MID, Substation Infrastructure, GeoTech area (Powerlink), Ecological Data (Trend), Desktop Planning & Environment Data (QSpatial)

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4.3.4 Threatened Ecological Communities

Verification of TEC

Patches of the field verified *Alluvial notophyll to mesophyll vine forest vegetation community* were identified as having the potential to conform to the EPBC listed endangered *Lowland tropical rainforest of the Wet Tropics TEC*. The REs present within the MID Corridor that can conform to the TEC include RE7.3.10a, RE7.3.23a and RE7.3.23b. An assessment has been undertaken in Table 11 to confirm if the *Alluvial notophyll to mesophyll vine* vegetation communities conform to the key diagnostic characteristics contained in the *Approved Conservation Advice for the Lowland tropical rainforest of the Wet Tropics ecological community*.

This assessment identified that remnant and regrowth sections of the field-verified vegetation community conformed to the key diagnostic criteria and there was considered the *Lowland tropical rainforest of the Wet Tropics TEC*. The total area of verified TEC within the MID Corridor was 4.74ha. The TEC areas are shown on Map 3, with the areas intersecting the MID Corridor being adjacent to the Barron River in Section 1 OH Component and in Goomboora Park in Section 2 UG Component.

Table 11 Assessment of the Alluvial notophyll to mesophyll vine forest vegetation communities against the TEC key diagnostic characteristics	Key Diagnostic Criteria	Assessment Outcomes
	1. Lowland Tropical Rainforest is restricted to the Wet Tropics Bioregion and the Starke Coastal Lowlands subregion in the Cape York Peninsula Bioregion.	✓ MID Corridor is within the Wet Tropics Bioregion
	2. It occurs principally on fertile soils, which may be derived from alluvium, basalt, metamorphic and granite substrates.	✓ All patches were on alluvial land zones.
	3. Typically occurs in areas with high long-term mean annual rainfall (1300mm to 3500mm per annum). There is a marked concentration of rain in the months December to March (wet season).	✓ Cairns region has an average annual rainfall being 1,992 millimetres (BoM 2023).
	4. Typically confined to east of the coastal ranges and below 80 – 100m AHD. However, it can also be found up to approximately 300 – 350m AHD where substrate and other conditions support the community.	✓ MID Corridor is east of the Great Dividing Range, and between 7-55m AHD.
	5. Generally recognisable by its canopy features: an uneven canopy averaging 20 – 40 m in height. In general, trees are tall (at least 25 m) evergreen (occasionally semi-deciduous), sometimes with well-developed buttresses; and most canopy trees are mesophylls (i.e., have a leaf or leaflet blade length 12.5 – 25 cm).	✓ Uneven canopy present, averaging 25m. Many with well-developed buttresses and numerous mesophyll species present.
	6. Ecological community varies from structurally simple to structurally complex. Growth forms which contribute to structural complexity include palm trees, trees with well-developed plank buttresses, vines and robust lianas, vascular epiphytes (e.g., ferns and orchids), climbing aroids (e.g., <i>Rhaphidophora</i> , <i>Pothos</i> , <i>Epipremnum</i>), rattans (<i>Calamus</i> sp.), and gingers.	✓ Most patches were structurally complex with high species richness and many growth forms including palm trees, buttresses, vines, epiphytes, aroids and gingers.
	7. The floristic composition of the ecological community is very diverse and is characterised by a high species diversity of plants with predominantly large leaves, including a high representation of the families Myrtaceae, especially <i>Syzygium</i> (noting eucalypts and <i>Melaleuca</i> spp. are typically absent or in relatively low abundance), and Lauraceae. Rarely, stands are dominated by a single species, such as <i>Backhousia</i>	✓ High species diversity present with 44 species identified.
	8. Typically, there is an absence or relatively low abundance of species from the genera <i>Eucalyptus</i> , <i>Corymbia</i> , <i>Melaleuca</i> and <i>Casuarina</i> .	✓ Lack of <i>Eucalyptus</i> , <i>Corymbia</i> , <i>Melaleuca</i> and <i>Casuarina</i> notable.
	9. Typically, a well-developed sub-canopy tree layer is present as well as a sparse shrub/sapling layer. In well-developed forests, overlap between layers means they may be difficult to delineate.	✓ Emergent, canopy and subcanopy well-developed. Shrub layer non-existent. Groundcover mostly leaf litter and saplings of canopy species.
	10. Within individual stands, variation in site factors result in conspicuous structural differences such as a dominance of palms on sites with impeded drainage.	✓ Structural differences notable in some areas.



TEC Condition Post Tropical Cyclone Jasper

Tropical Cyclone Jasper, the wettest cyclone in Australian history, hit the coast north of Cairns on 13 December 2023. This cyclone and the associated flood event greatly impacted the Barron River and its riparian habitat. The field survey within Section 2 UG Component occurred prior to the cyclone event, however the field survey within Section 1 OH Component which included the Barron River component, occurred post the cyclone event.

Riparian vegetation adjacent to the Barron River was severely damaged at the time of surveying in this location (Figure 1). While the condition of REs in the vicinity were degraded, the remnant areas were conservatively mapped as *Lowland tropical rainforest of the Wet Tropics TEC*, where it met the key diagnostic criteria within the Approved Conservation Advice. The Conservation Advice recognises that this TEC is subject to relatively frequent (and often high intensity) tropical cyclone events, and it is common for parts of the community to be naturally within a highly disturbed state. In this respect, cyclone impacted parts still form part of the TEC, as they will recover over time.



Figure 1
Riparian vegetation
adjacent to the
Barron River post
Tropical Cyclone
Jasper

4.4 FLORA AND ECOSYSTEMS

4.4.1 Threatened Flora Species

Both native and introduced flora species were recorded during the field surveys. A full list of flora species recorded is provided in Appendix C. There was a total of 109 flora species identified, consisting of 85 native species, and 24 introduced species. There was one threatened flora species, *Myrmecodia beccarii*, recorded during the field survey (Figure 2). Individuals of this species were observed within the Survey Area but south of the MID Corridor footprint (records shown on Maps 3 and 5).

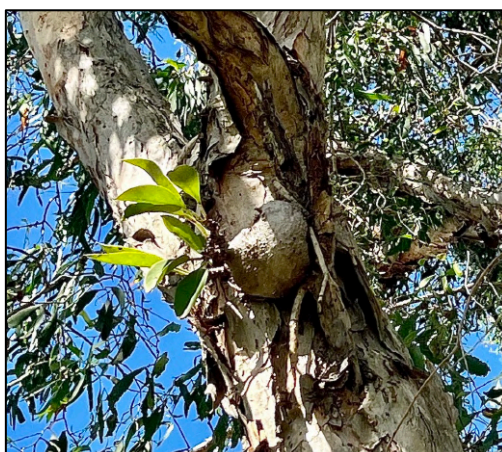


Figure 2
Myrmecodia beccarii
recorded outside
(south) of the MID
Corridor



A review of the Cairns Regional Council's TreePlotter database was also undertaken to identify whether any threatened species had previously been recorded by Council within the Survey Area however no threatened species were identified.

4.4.2 Suitable Habitat for Threatened Flora Species

While no other threatened flora species were identified within the Survey Area during the survey, suitable habitat for threatened flora species was identified (Map 5). The threatened flora species that had suitable habitat present are listed in Table 12. While these species were not physically sighted during the field assessment, habitat for these threatened flora species occurred within the MID Corridor. Table 12 also describes the vegetation communities within the MID Corridor that provide suitable habitat for each threatened species.

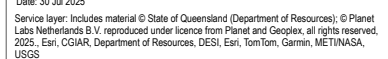
Table 12
Threatened flora species that have suitable habitat verified within the MID Corridor

Family	Scientific Name	Common Name	Status ¹		Suitable Habitat
			QLD	CTH	
Apocynaceae	<i>Leichhardtia araujacea</i>	-	CR	CR	Alluvial notophyll to mesophyll vine forest (RE7.3.23a)
Athyriaceae	<i>Diplazium cordifolium</i>	-	VU	VU	Alluvial notophyll to mesophyll vine forest
Burseraceae	<i>Canarium acutifolium</i>	-	VU	VU	
Euphorbiaceae	<i>Acalypha lyonsii</i>	-	VU	-	
Euphorbiaceae	<i>Wetria australiensis</i>	-	VU	-	
Hymenophyllaceae	<i>Polyphlebium endlicherianum</i>	Middle Filmy Fern	VU	EN	
Lycopodiaceae	<i>Phlegmariurus filiformis</i>	Rat's Tail tassel-fern	LC	EN	
Lycopodiaceae	<i>Phlegmariurus squarrosus</i>	Water Tassel-Fern	CR	CR	
Lycopodiaceae	<i>Phlegmariurus tetrastichoides</i>	Square Tassel Fern	VU	VU	
Menispermaceae	<i>Carronia pedicellata</i>	-	EN	EN	
Myrtaceae	<i>Rhodamnia sessiliflora</i>	Iron Malletwood	EN	-	
Orchidaceae	<i>Dendrobium nindii</i>	Blue Orchid	EN	EN	
Orchidaceae	<i>Spathoglottis paulinae</i>	-	NT	-	Mixed Eucalypt woodland to open forest with vine forest understorey
Proteaceae	<i>Alloxylon flammeum</i>	Queensland Waratah	VU	VU	
Rubiaceae	<i>Myrmecodia beccarii</i>	Ant Plant	VU	VU	<ul style="list-style-type: none"> • Mixed Eucalypt woodland with vine forest understorey • Regrowth areas • Non-remnant areas with host trees

¹ Queensland (QLD) Status (Nature Conservation Act 1992; Qld): EX = Extinct, EW = Extinct in Wild, CR = Critically Endangered, EN = Endangered, VU = Vulnerable, NT = Near Threatened, LC = Least Concern

Australian (CTH) Status (EPBC Act): EX = Extinct, EW = Extinct in Wild, CR = Critically Endangered, EN = Endangered, VU = Vulnerable, - not protected under Act
Notes: - in Common Name = no common name exists





Rhodamnia sessiliflora





KAMERUNGA TO WOREE TRANSMISSION LINE MAP 5 SUITABLE FLORA HABITAT AND THREATENED FLORA OBSERVATIONS

3 of 6


Legend


-  MID Corridor
-  Survey Area
-  Freshwater Creek
-  Geotechnical Investigation area


Transmission Line

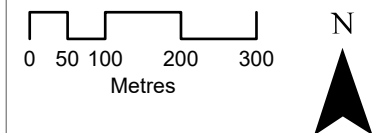
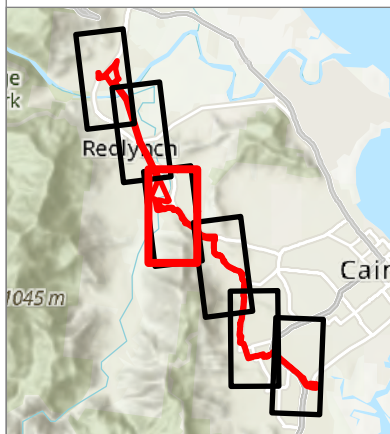
-  Section 1 OH Component
-  Section 2 UG Component

Suitable Flora Habitat

-  *Alloxylon flammeum*
Spathoglottis paulinae

-  *Leichhardtia araujacea*

- Diplazium cordifolium*
- Canarium acutifolium*
- Polyphlebium endlicherianum*
- Phlegmariurus filiformis*
- Phlegmariurus squarrosus*
-  *Phlegmariurus tetrastichoides*
- Carronia pedicellata*
- Dendrobium nindii*
- Acalypha lyonsii*
- Wetria australiensis*
- Rhodamnia sessiliflora*



Scale: 1:10,000

Coordinate System: GDA 1994 MGA Zone 55

Trend Environmental
Consultants

Sources: MID, Substation Infrastructure, GeoTech area (Powerlink), Ecological Data (Trend), Desktop Planning & Environment Data (QSPatial)

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Map 5 of 6: Suitable Flora Habitat and Threatened Flora Observations. This map is part of a series of maps showing the project area. The map is titled 'Map 5 of 6: Suitable Flora Habitat and Threatened Flora Observations'. The map shows the project area, including the transmission line, suitable flora habitat, and threatened flora observations. The map is part of a series of maps showing the project area. The map is titled 'Map 5 of 6: Suitable Flora Habitat and Threatened Flora Observations'. The map shows the project area, including the transmission line, suitable flora habitat, and threatened flora observations.

KAMERUNGA TO WOREE TRANSMISSION LINE MAP 5 SUITABLE FLORA HABITAT AND THREATENED FLORA OBSERVATIONS


4 of 6

Legend


 MID Corridor

 Survey Area

Transmission Line

 Section 2 UG Component

Suitable Flora Habitat

 *Myrmecodia beccarii*

Diplazium cordifolium

Canarium acutifolium

Polyphlebium endlicherianum

Phlegmariurus filiformis

Phlegmariurus squarrosus

 *Phlegmariurus tetrastichoides*

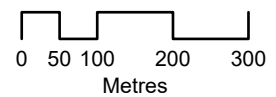
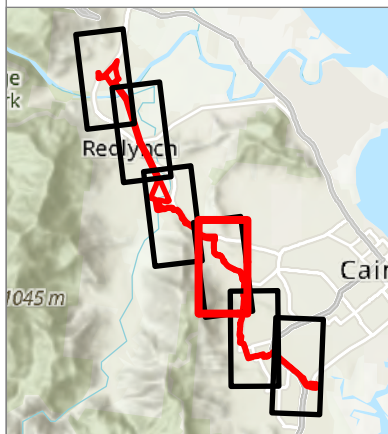
Carronia pedicellata

Dendrobium nindii

Acalypha lyonsii

Wetria australiensis

Rhodamnia sessiliflora



Scale: 1:10,000

Coordinate System: GDA 1994 MGA Zone 55

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KAMERUNGA TO WOREE TRANSMISSION LINE MAP 5 SUITABLE FLORA HABITAT AND THREATENED FLORA OBSERVATIONS

5 of 6

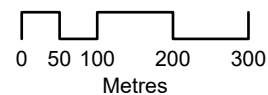
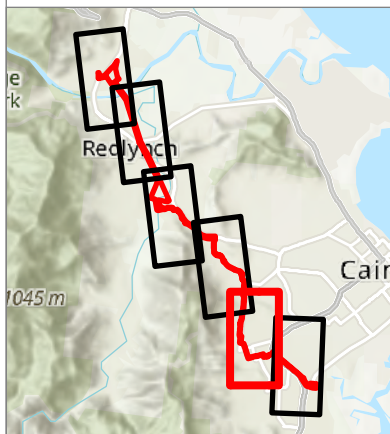
Legend

- MID Corridor
- Survey Area

Transmission Line

- Section 2 UG Component

Diplazium cordifolium
Canarium acutifolium
Polyphlebia endlicherianum
Phlegmariurus filiformis
Phlegmariurus squarrosus
Phlegmariurus tetrastichoides
Carronia pedicellata
Dendrobium nindii
Acalypha lyonsii
Wetria australiensis
Rhodamnia sessiliflora



Scale: 1:10,000

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Map 5 of 6: Redlynch to Woree Transmission Line - Flora Habitat and Threatened Flora Observations

KAMERUNGA TO WOREE TRANSMISSION LINE MAP 5 SUITABLE FLORA HABITAT AND THREATENED FLORA OBSERVATIONS

6 of 6

Legend

- MID Corridor
- Woree Substation
- Survey Area

Threatened flora

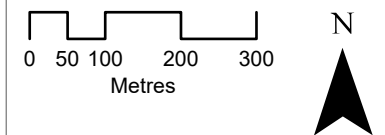
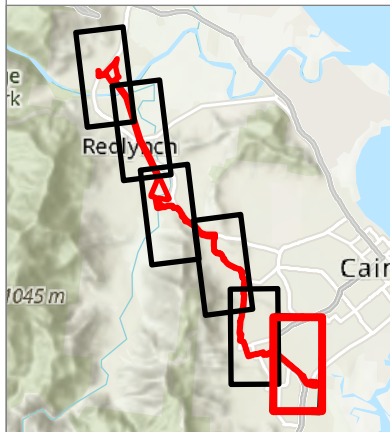
- Myrmecodia beccarii (Ant Plant)

Transmission Line

- Section 2 UG Component

Suitable Flora Habitat

- Myrmecodia beccarii
- Diplazium cordifolium
- Canarium acutifolium
- Polyphlebium endlicherianum
- Phlegmariurus filiformis
- Phlegmariurus squarrosus
- Phlegmariurus tetrastichoides
- Carronia pedicellata
- Dendrobium nindii
- Acalypha lyonsii
- Wetria australiensis
- Rhodamnia sessiliflora



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Coordinate System: GDA 1994 MGA Zone 55

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4.5 FAUNA AND HABITAT

4.5.1 Threatened and Special Least Concern Fauna Species

A total of 41 fauna species were observed during the field survey, comprising the following: three amphibians, 21 birds, 15 mammal species and two reptiles (refer to Appendix C for a full list of fauna species recorded; Appendix D contains the Bat Analysis reports for the Project). From the identified fauna species, four threatened, special least concern and migratory species were recorded during the field survey (Map 6). Table 13 provides a description of the species observation and whether there is potential for direct or indirect impacts to these species as a result of the Project. One threatened bird, the Macleay's Fig-parrot (*Cyclopsitta diophthalma macleayana*), one threatened mammal, the Diadems Leaf-nosed Bat (*Hipposideros diadema*), one special least concern mammal, the Short-beaked Echidna (*Tachyglossus aculeatus*), and one listed migratory species, the Fork-tailed Swift (*Apus pacificus*) were recorded (Figure 3). These records are shown on Map 6.

Table 13
Observed
conservation
significant species

Type	Common Name	Scientific Name	Status ¹		Observation Description	Suitable habitat	Potential for impacts
			QLD	CTH			
BIRDS							
Psittaculidae	<i>Cyclopsitta diopthalma macleayana</i>	Macleay's Fig-parrot	VU	-	Pair observed nest building in regrowth vine forest in Irene Street Flood Plain Area, within the survey area, adjacent to the Survey Area but outside the MID Corridor (Figure 3).	Alluvial vine forest	No vegetation clearing proposed in this vicinity hence direct impacts to the nest or species habitat in this location not proposed. Potential for indirect impacts however during construction (e.g., from noise, vibration). Mitigation measures proposed in Table 20.
MAMMALS							
Hipposideridae	<i>Hipposideros diadema</i>	Diadems Leaf-nosed Bat	NT	-	Recorded on Anabat near the Barron River in Kamerunga within MID Corridor.	Alluvial vine forest	Potential for direct impacts during vegetation clearing adjacent to the Barron River in Section 1 OH Component. Avoidance and mitigation measures proposed to minimise impacts (Table 20).
Tachyglossidae	<i>Tachyglossus aculeatus</i>	Short-beaked Echidna	SLC	-	Recorded on IR Camera in remnant vine forest in Goomboora Park, within the MID Corridor (Figure 3)..	All remnant and regrowth areas	Potential for direct impacts during vegetation clearing adjacent to the Barron River in Section 1 OH Component, and construction in proximity to habitat throughout rest of the MID Corridor. Avoidance and mitigation measures proposed to minimise impacts (Table 20).
MIGRATORY SPECIES							
Apodidae	<i>Apus pacificus</i>	Fork-tailed Swift	LC	M, Mi	Multiple individuals recorded during diurnal bird survey, remnant vine forest in Goomboora Park, within the MID Corridor.	All, aerial species	Aerial species that is unlikely to be directly impacted. Indirect impacts however may occur to species habitat during construction. Mitigation measures proposed (Table 20).

¹ Queensland (QLD) Status (Nature Conservation Act 1992; Qld): EX = Extinct, EW = Extinct in Wild, CR = Critically Endangered, EN = Endangered, VU = Vulnerable, NT = Near Threatened, LC = Least Concern
Australian (CTH) Status (EPBC Act): EX = Extinct, EW = Extinct in Wild, CR = Critically Endangered, EN = Endangered, VU = Vulnerable, M = Marine, Mi = Migratory-not protected under Act

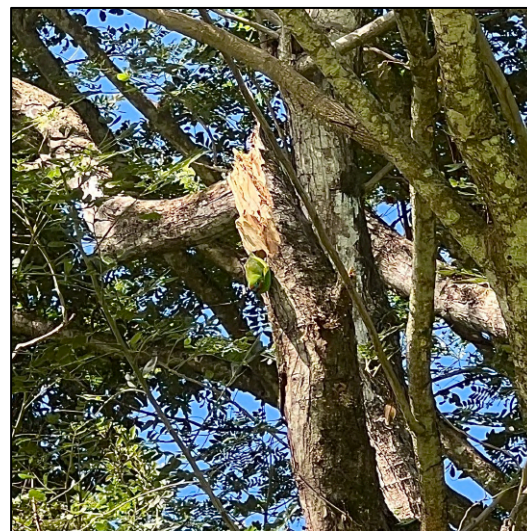


Figure 3
Short-beaked Echidna
and Macleay's Fig
Parrot sighted in the
MID Corridor

4.5.2 Suitable Habitat for Threatened and Migratory Fauna Species

Some threatened, migratory, or special least concern fauna species that were considered likely to occur or may occur in the likelihood of occurrence assessment, as provided in the Desktop Protected Matters Report, whilst not detected during the field assessment, had suitable habitat verified within the MID Corridor (Map 6). These threatened species, and the vegetation communities within the MID Corridor that provide suitable habitat have been described in Table 14. Species that are greyed out were considered potentially occurring within the likelihood of occurrence assessment, but following the field ecological assessment had no suitable habitat verified within the MID Corridor.

Table 14
Threatened and
migratory fauna
species (other than
those observed) that
have suitable habitat
verified within the MID
Corridor

Type	Common Name	Scientific Name	Status ¹		Suitable Habitat
			QLD	CTH	
AMPHIBIANS					
Hylidae	<i>Litoria dayi</i>	Australian Lacelid	VU	VU	Alluvial notophyll to mesophyll vine forest (RE7.3.23a in Goomboora Park only)
Hylidae	<i>Litoria nannotis</i>	Waterfall Frog	EN	-	
Hylidae	<i>Litoria rheocola</i>	Common Mistfrog	EN	-	
Hylidae	<i>Litoria serrata</i>	Tapping Green Eyed Frog	VU	-	
BIRDS					
Accipitridae	<i>Erythrotriorchis radiatus</i>	Red Goshawk	EN	VU	Mixed Eucalypt woodland with vine forest understorey
Apodidae	<i>Hirundapus caudacutus</i>	White-throated Needletail	VU	VU	<ul style="list-style-type: none">Alluvial notophyll to mesophyll vine forestMixed Eucalypt woodland with vine forest understorey
Casuariidae	<i>Casuaris casuaris johnsonii</i> (southern)	Southern Cassowary	EN	EN	
Tytonidae	<i>Tyto novaehollandiae kimberli</i>	Masked Owl (northern)	VU	VU	
MAMMALS					
Dasyuridae	<i>Dasyurus hallucatus</i>	Northern Quoll	LC	EN	Nil, no rocky areas present
Dasyuridae	<i>Dasyurus maculatus gracilis</i>	Spotted-tailed (northern) Quoll	EN	EN	Alluvial notophyll to mesophyll vine forest (Goomboora Park only)
Emballonuridae	<i>Saccolaimus saccolaimus nudicluniatus</i>	Bare-rumped Sheathtail Bat	EN	VU	<ul style="list-style-type: none">Alluvial notophyll to mesophyll vine forestMixed Eucalypt woodland with vine forest understorey
Hipposideridae	<i>Hipposideros semoni</i>	Semon’s Leaf-nosed Bat	EN	VU	



Type	Common Name	Scientific Name	Status ¹		Suitable Habitat
			QLD	CTH	
Muridae	<i>Mesembriomys gouldii rattoides</i>	Black-footed Tree-rat	LC	VU	Mixed Eucalypt woodland with vine forest understorey
Ornithorhynchidae	<i>Ornithorhynchus anatinus</i>	Platypus	SLC	-	Alluvial notophyll to mesophyll vine forest (Freshwater Creek in Goomboora Park only)
Phascolarctidae	<i>Phascolarctos cinereus</i>	Koala	EN	EN	Nil, marginal tree species present in MID Corridor to support this species.
Potoroidae	<i>Bettongia tropica</i>	Northern Bettong	EN	EN	<ul style="list-style-type: none"> Alluvial notophyll to mesophyll vine forest Mixed Eucalypt woodland with vine forest understorey
Pseudocheiridae	<i>Petauroides minor</i>	Northern Greater Glider	VU	VU	Nil, marginal eucalypt forest present to support this species.
Pteropodidae	<i>Pteropus conspicillatus</i>	Spectacled Flying-fox	EN	EN	<ul style="list-style-type: none"> Alluvial notophyll to mesophyll vine forest
Rhinolophidae	<i>Rhinolophus robertsi</i>	Large-eared Horseshoe Bat	LC	VU	<ul style="list-style-type: none"> Mixed Eucalypt woodland with vine forest understorey

REPTILE

Crocodylidae	<i>Crocodylus porosus</i>	Estuarine Crocodile	VU	M, Mi	Riverbeds and open water
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MIGRATORY SPECIES

Cuculidae	<i>Cuculus optatus</i>	Oriental Cuckoo	LC	Mi	Mixed Eucalypt woodland with vine forest understorey
Dicruridae	<i>Monarcha melanopsis</i>	Black-faced Monarch	LC	M, Mi	<ul style="list-style-type: none"> Alluvial notophyll to mesophyll vine forest Mixed Eucalypt woodland with vine forest understorey
Dicruridae	<i>Myiagra cyanoleuca</i>	Satin Flycatcher	LC	M, Mi	
Dicruridae	<i>Rhipidura rufifrons</i>	Rufous Fantail	LC	M, Mi	
Dicruridae	<i>Symposiachrus trivirgatus</i>	Spectacled Monarch	LC	M, Mi	
Hirundinidae	<i>Hirundo rustica</i>	Barn Swallow	LC	Mi	Nil, avoids populated areas

¹ Queensland (QLD) Status (Nature Conservation Act 1992; Qld): EX = Extinct, EW = Extinct in Wild, CR = Critically Endangered, EN = Endangered, VU = Vulnerable, NT = Near Threatened, LC = Least Concern

Australian (CTH) Status (EPBC Act): EX = Extinct, EW = Extinct in Wild, CR = Critically Endangered, EN = Endangered, VU = Vulnerable, - not protected

Notes: Species unlikely to occur based on field verified vegetation communities have been greyed out.

KAMERUNGA TO WOREE TRANSMISSION LINE MAP 6 SUITABLE FAUNA HABITAT AND THREATENED FAUNA OBSERVATIONS

1 of 6

Legend

- MID Corridor
- New Barron River Substation
- Survey Area
- Transmission Line**
 - Section 1 OH Component
 - Vegetation Management Watercourse/ drainage feature

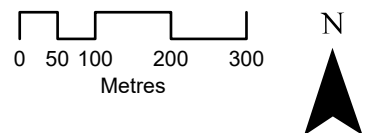
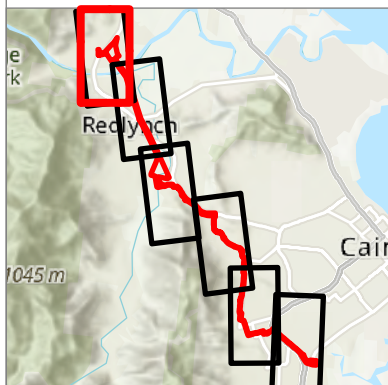
Threatened and migratory fauna observations

Species

- Diadem Leaf-Nosed Bat

Suitable Fauna Habitat

- Estuary Crocodile
- Black-faced Monarch
- Rufous Fantail
- Satin Flycatcher
- Spectacled Monarch
- Northern Bettong
- Masked Owl (northern)
- Southern Cassowary
- White-throated Needle-tail
- Bare-rumped Sheat-tail Bat
- Diadem Leaf-Nosed Bat
- Large-eared Horseshoe Bat
- Spectacled Flying-fox
- Semon's Leaf-nosed Bat
- Australian Lacelid
- Common Mistfrog
- Tapping Green Eyed Frog
- Waterfall Frog
- Macleay's Fig Parrot
- Short-beaked Echidna



Scale: 1:10,000

Coordinate System: GDA 1994 MGA Zone 55

Trend Environmental Consultants

Sources: MID, Substation Infrastructure, GeoTech area (Powerlink), Ecological Data (Trend), Desktop Planning & Environment Data (QSpatial)

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




Map 6-18-1 Redlynch to Woree Transmission Line (Powerlink) - Ecology/General/Client/9 382625-18 Cairns - Redlynch Transmission

Path: C:\Users\pkj55\OneDrive - Trend Environmental\Shared Documents - Ecology\General Clients\B. JSS&G\B-18 Cairns - Powerlink Transmission
1\0\15-1 Redfish in Wood\250\Workman\Figure 6 - Fauna habitat area

KAMERUNGA TO WOREE TRANSMISSION LINE MAP 6 SUITABLE FAUNA HABITAT AND THREATENED FAUNA OBSERVATIONS



3 of 6

Legend








-  MID Corridor
-  Survey Area
-  Freshwater Creek
Geotechnical Investigation
area
- Transmission Line**
-  Section 1 OH Component
-  Section 2 UG Component
-  Vegetation Management
Watercourse/ drainage feature

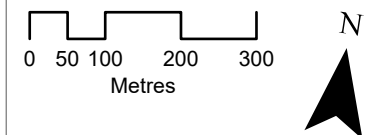
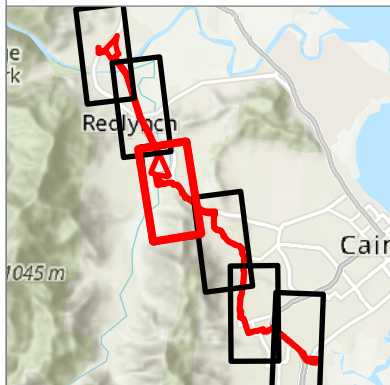
Threatened and migratory fauna observations

Species

-  Fork-Tailed Swift
-  Short-Beaked Echidna

Suitable Fauna Habitat

- Black-faced Monarch
- Rufous Fantail
- Satin Flycatcher
- Spectacled Monarch
- Northern Bettong
- Masked Owl (northern)
-  Southern Cassowary
- White-throated Needletail
- Bare-rumped Sheattail Bat
- Diadem Leaf-Nosed Bat
- Large-eared Horseshoe Bat
- Spectacled Flying-fox
- Semon's Leaf-nosed Bat
-  Macleay's Fig Parrot
-  Short-beaked Echidna
-  Oriental Cuckoo
-  Red Goshawk
-  Spotted-tailed Quoll (northern)
-  Platypus



Scale: 1:10,000

Coordinate System: GDA 1994 MGA Zone 55

Trend Environmental
Consultants

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Map 6 of 6: Kamernunga to Woree Transmission Line - Suitable Fauna Habitat and Threatened Fauna Observations

KAMERUNGA TO WOREE TRANSMISSION LINE MAP 6 SUITABLE FAUNA HABITAT AND THREATENED FAUNA OBSERVATIONS

4 of 6

Legend

MID Corridor

Survey Area

Transmission Line

Section 2 UG Component

Vegetation Management
Watercourse/ drainage feature

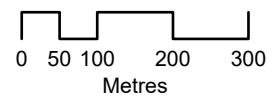
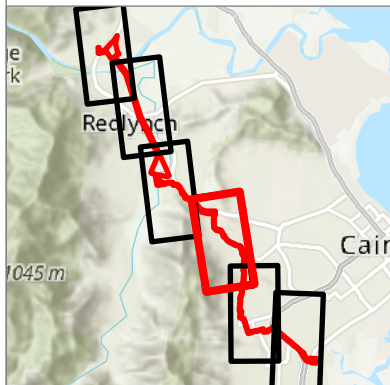
Suitable Fauna Habitat

Black-faced Monarch
Rufous Fantail
Satin Flycatcher
Spectacled Monarch
Northern Bettong
Masked Owl (northern)

Southern Cassowary
White-throated Needletail
Bare-rumped Sheattail Bat
Diadem Leaf-Nosed Bat
Large-eared Horseshoe Bat
Spectacled Flying-fox
Semon's Leaf-nosed Bat

Macleay's Fig Parrot

Short-beaked Echidna



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Map 6-18-1 Redlynch to Cairns - Transmission Line - Figure 6 - Fauna Habitat 2025

KAMERUNGA TO WOREE TRANSMISSION LINE MAP 6 SUITABLE FAUNA HABITAT AND THREATENED FAUNA OBSERVATIONS


5 of 6


Legend

 MID Corridor

 Survey Area


Transmission Line

 Section 2 UG Component

 Vegetation Management
Watercourse/ drainage feature

Threatened and migratory fauna observations


Species

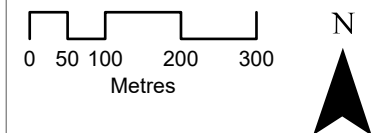
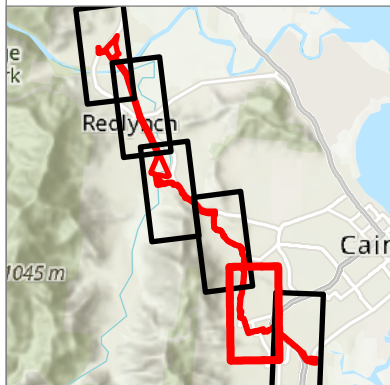
 Macleay's Fig-Parrot

Suitable Fauna Habitat

Black-faced Monarch
Rufous Fantail
Satin Flycatcher
Spectacled Monarch
Northern Bettong
Masked Owl (northern)
Southern Cassowary
White-throated Needletail
Bare-rumped Sheathtail Bat
Diadem Leaf-Nosed Bat
Large-eared Horseshoe Bat
Spectacled Flying-fox
Semon's Leaf-nosed Bat

 Macleay's Fig Parrot

 Short-beaked Echidna



Scale: 1:10,000

Coordinate System: GDA 1994 MGA Zone 55

Trend Environmental
Consultants

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Map 6 of 6: Suitable Fauna Habitat and Threatened Fauna Observations. This map is part of a series of maps showing the proposed transmission line route and associated fauna habitat and observations. The map is based on aerial photography and other data sources. The map is not a guarantee of accuracy and should be used as a guide only. The map is subject to change without notice.

KAMERUNGA TO WOREE TRANSMISSION LINE MAP 6 SUITABLE FAUNA HABITAT AND THREATENED FAUNA OBSERVATIONS

6 of 6

Legend

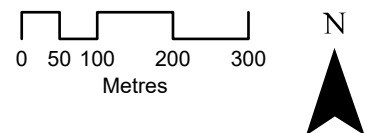
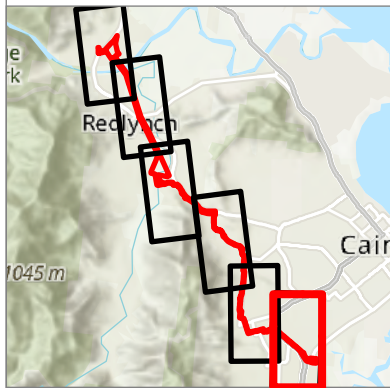
- MID Corridor
- Woree Substation
- Survey Area

Transmission Line

- Section 2 UG Component
- Vegetation Management
- Watercourse/ drainage feature

Suitable Fauna Habitat

- Black-faced Monarch
- Rufous Fantail
- Satin Flycatcher
- Spectacled Monarch
- Northern Bettong
- Masked Owl (northern)
- Southern Cassowary
- White-throated Needletail
- Bare-rumped Sheathtail Bat
- Diadem Leaf-Nosed Bat
- Large-eared Horseshoe Bat
- Spectacled Flying-fox
- Semon's Leaf-nosed Bat
- Australian Lacelid
- Common Mistfrog
- Tapping Green Eyed Frog
- Waterfall Frog
- Macleay's Fig Parrot
- Short-beaked Echidna



Scale: 1:10,000

Coordinate System: GDA 1994 MGA Zone 55

Trend Environmental
Consultants

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Map 6 of 6: Kamernunga to Woree Transmission Line - Suitable Fauna Habitat and Threatened Fauna Observations



4.6 WATERCOURSES, WATERWAYS AND WETLANDS

Watercourses throughout the MID Corridor were either permanent or ephemeral (Figure 4). These watercourses were mapped under separate State legislation, including:

- Watercourses recognised under the *Vegetation Management Act 1999* (Qld; Map 3).
- Queensland waterways for waterway barrier works recognised under the *Fisheries Act 1994* (Qld). These waterways were verified during the field survey using the definition of a waterway under the *Fisheries Act 1994* (Qld). Verified waterways for waterway barrier works are illustrated in Map 7.
- Watercourses mapped under the *Water Act 2000* (Qld).. Mapped watercourses located in the Survey Area include Freshwater Creek in the vicinity of Goomboora Park in Section 2 UG Component, Chinamen Creek, Clarkes Creek and Gordon Creek in the southern part of Section 2 UG Component (Map 8). These watercourse were verified during the field survey using the definition of a watercourse under the *Water Act 2000* (Qld). Verified watercourses under the *Water Act 2000* (Qld) are illustrated in Map 8.
- No wetlands protected under the *Vegetation Management Act 1999* (Qld), or HES wetlands were mapped as present within the MID Corridor, and none were verified during the field ecological assessment.



Barron River, Kamerunga



Freshwater Creek, Redlynch



Unnamed Creek, Ramsay Drive



Cement drain, Irene Street



Cement drain, Henley Street

Figure 4
Watercourses within
the MID Corridor

KAMERUNGA TO WOREE TRANSMISSION LINE MAP 7 WATERWAYS AND WETLANDS 1 of 6

Legend

- MID Corridor
- New Barron River Substation
- Survey Area

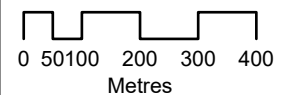
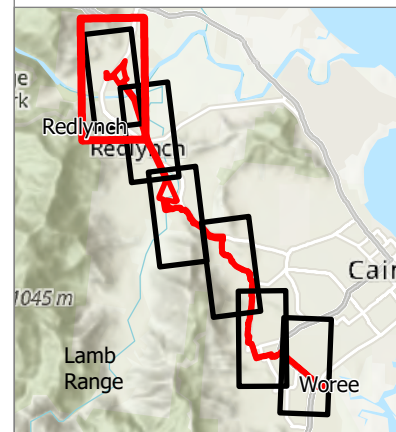
Transmission Line

- Section 1 OH Component

Queensland waterways for waterway barrier works

Risk rating

- Low
- Moderate
- Major



Scale: 1:13,000

Coordinate System: GDA 1994 MGA Zone 55

Trend Environmental
Consultants

Sources: MID, Substation Infrastructure, GeoTech area (Powerlink), Ecological Data (Trend), Desktop Planning & Environment Data (QSpatial)

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
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Map 7-18-1: Redlynch to Woree (Transmission Line) - Wetland Area - Desktop Planning

KAMERUNGA TO WOREE TRANSMISSION LINE MAP 7 WATERWAYS AND WETLANDS 2 of 6

Legend





-  MID Corridor
-  New Barron River Substation
-  Survey Area

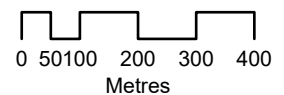
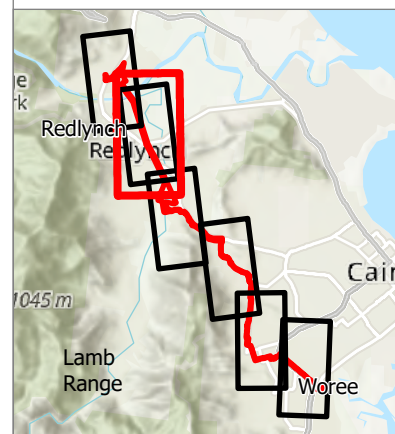
Transmission Line

-  Section 1 OH Component
-  Section 2 UG Component

Queensland waterways for waterway barrier works

Risk rating

-  Low
-  Moderate
-  High
-  Major



Scale: 1:13,000

Coordinate System: GDA 1994 MGA Zone 55

Trend Environmental
Consultants

Sources: MID, Substation Infrastructure, GeoTech area (Powerlink), Ecological Data (Trend), Desktop Planning & Environment Data (QSpatial)

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KAMERUNGA TO WOREE TRANSMISSION LINE MAP 7 WATERWAYS AND WETLANDS 3 of 6

Legend

- MID Corridor
- Survey Area
- Freshwater Creek
Geotechnical Investigation
area

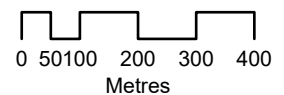
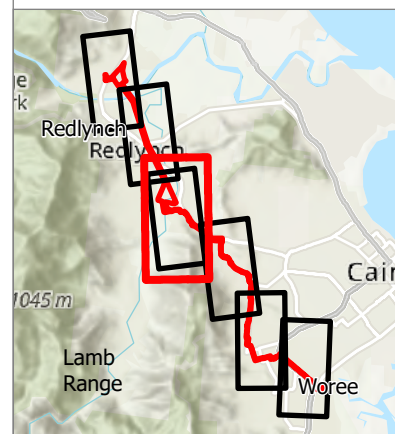
Transmission Line

- Section 1 OH Component
- Section 2 UG Component

Queensland waterways for waterway barrier works

Risk rating

- Low
- Moderate
- High
- Major



Scale: 1:13,000

Coordinate System: GDA 1994 MGA Zone 55

Trend Environmental
Consultants

Sources: MID, Substation Infrastructure, GeoTech area (Powerlink), Ecological Data (Trend), Desktop Planning & Environment Data (QSpatial)

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KAMERUNGA TO WOREE TRANSMISSION LINE MAP 7 WATERWAYS AND WETLANDS 4 of 6

Legend

-  MID Corridor
-  Survey Area

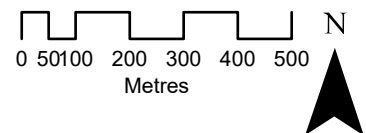
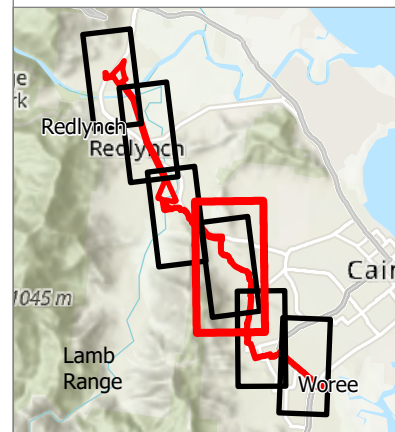
Transmission Line

-  Section 2 UG Component

Queensland waterways for waterway barrier works

Risk rating

-  Low
-  Moderate



Scale: 1:14,000

Coordinate System: GDA 1994 MGA Zone 55

Trend Environmental
Consultants

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KAMERUNGA TO WOREE TRANSMISSION LINE MAP 7 WATERWAYS AND WETLANDS 5 of 6

Legend

-  MID Corridor
-  Survey Area

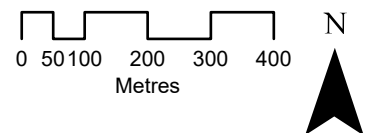
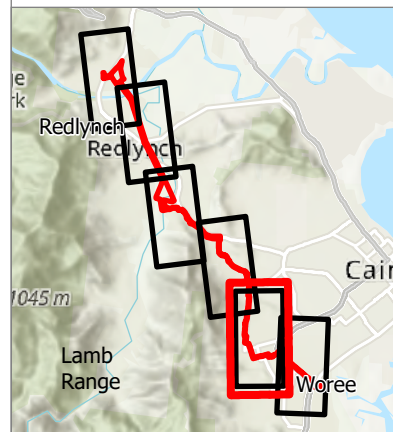
Transmission Line

-  Section 2 UG Component

Queensland waterways for waterway barrier works

Risk rating

-  Low
-  Moderate



Scale: 1:12,000

Coordinate System: GDA 1994 MGA Zone 55

Trend Environmental
Consultants

Sources: MID, Substation Infrastructure, GeoTech area (Powerlink), Ecological Data (Trend), Desktop Planning & Environment Data (QSpatial)

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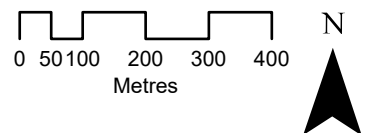
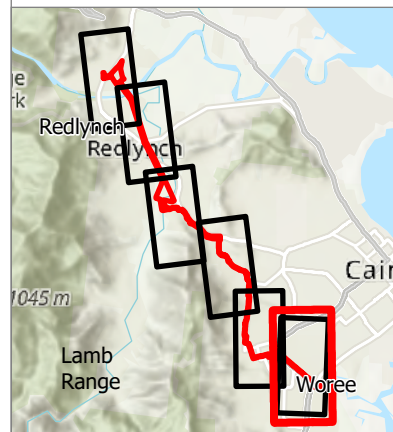
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KAMERUNGA TO WOREE TRANSMISSION LINE MAP 7 WATERWAYS AND WETLANDS 6 of 6

Legend

-  MID Corridor
-  Survey Area
-  Woree Substation
- Transmission Line**
 -  Section 2 UG Component
-  Directory of important wetlands
- Queensland waterways for waterway barrier works**
- Risk rating**
 -  Low
 -  Moderate
 -  High



Scale: 1:12,000

Coordinate System: GDA 1994 MGA Zone 55

Trend Environmental Consultants

Sources: MID, Substation Infrastructure, GeoTech area (Powerlink), Ecological Data (Trend), Desktop Planning & Environment Data (QSpatial)

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




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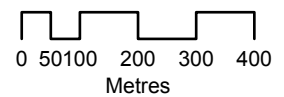
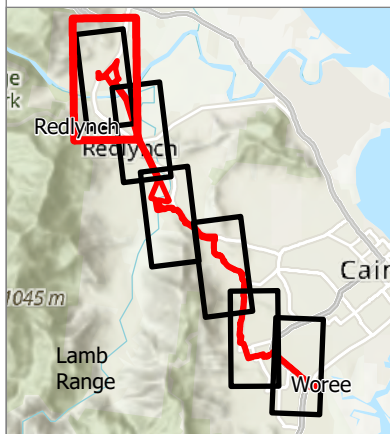
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KAMERUNGA TO WOREE TRANSMISSION LINE MAP 8 - WATER ACT 2000 (QLD) WATERCOURSES 1 of 6

Legend

-  MID Corridor
-  New Barron River Substation
-  Survey Area
- Transmission Line**
-  Section 1 OH Component
-  Unmapped
-  Drainage feature [defined by Water Act 2000]
-  Watercourse [defined by Water Act 2000]



Scale: 1:13,000

Coordinate System: GDA 1994 MGA Zone 55

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Consultants

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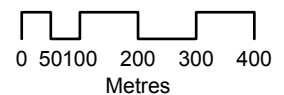
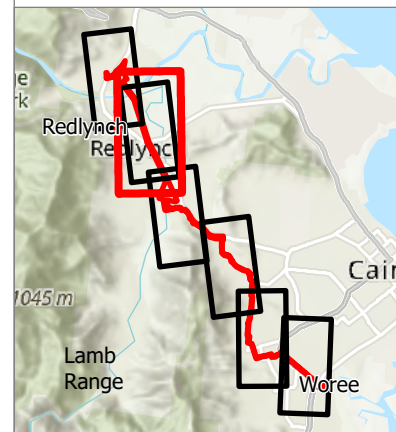
KAMERUNGA TO WOREE TRANSMISSION LINE MAP 8 - WATER ACT 2000 (QLD) WATERCOURSES 2 of 6

Legend

- MID Corridor
- New Barron River Substation
- Survey Area

Transmission Line

- Section 1 OH Component
- Section 2 UG Component
- Unmapped
- Drainage feature [defined by Water Act 2000]
- Watercourse [defined by Water Act 2000]



Scale: 1:13,000

Coordinate System: GDA 1994 MGA Zone 55

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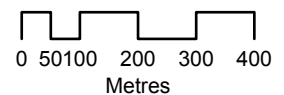
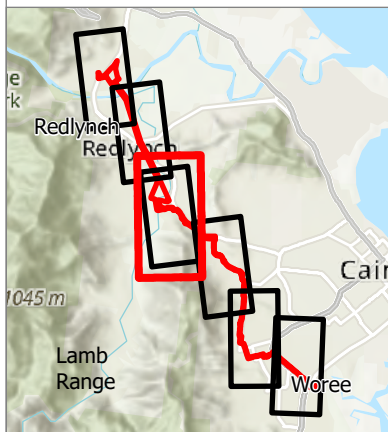
KAMERUNGA TO WOREE TRANSMISSION LINE MAP 8 - DEFINED WATERCOURSES 3 of 6

Legend

- MID Corridor
- Survey Area
- Freshwater Creek
- Geotechnical Investigation area

Transmission Line

- Section 1 OH Component
- - - Section 2 UG Component
- Unmapped
- Drainage feature [defined by Water Act 2000]
- Watercourse [defined by Water Act 2000]



Scale: 1:13,000

Coordinate System: GDA 1994 MGA Zone 55

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




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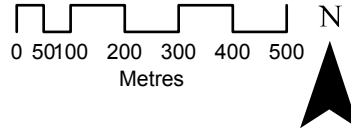
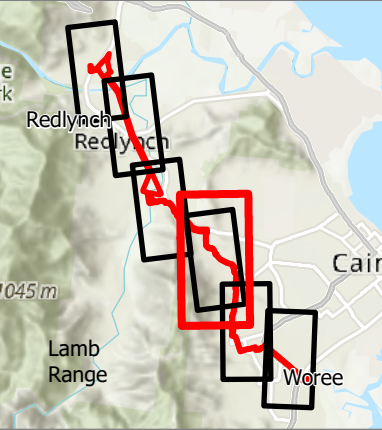
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KAMERUNGA TO WOREE
TRANSMISSION LINE
MAP 8 - WATER ACT 2000
(QLD) WATERCOURSES
4 of 6

Legend

-  MID Corridor
-  Survey Area
- Transmission Line**
 -  Section 2 UG Component
 -  Unmapped
 -  Drainage feature [defined by Water Act 2000]
 -  Watercourse [defined by Water Act 2000]



Scale: 1:14,000
Coordinate System: GDA 1994 MGA Zone 55



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KAMERUNGA TO WOREE
TRANSMISSION LINE
MAP 8 - WATER ACT 2000
(QLD) WATERCOURSES
5 of 6

Legend

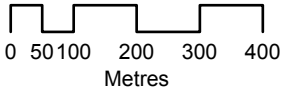
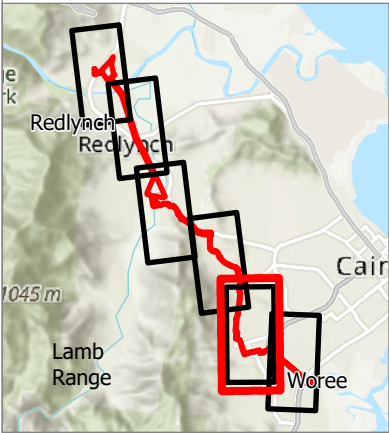
- MID Corridor
- Survey Area
- Transmission Line
 - Section 2 UG Component
 - Unmapped
 - Drainage feature [defined by Water Act 2000]
 - Watercourse [defined by Water Act 2000]

Chinaman Creek

unnamed tributary
of Clarkes Creek

Clarkes Creek

Gordon
Creek



Scale: 1:12,000
Coordinate System: GDA 1994 MGA Zone 55

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Consultants

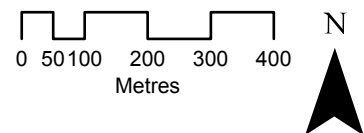
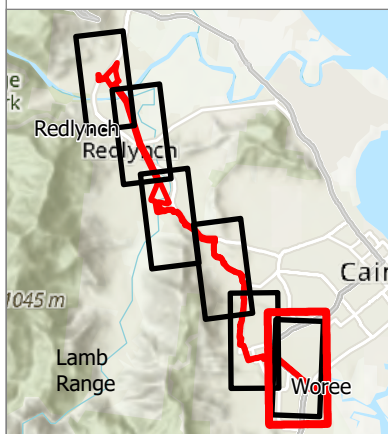
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KAMERUNGA TO WOREE TRANSMISSION LINE

MAP 8 - WATER ACT 2000 (QLD) WATERCOURSES 6 of 6

Legend

- MID Corridor
 - Woree Substation
 - Survey Area
- Transmission Line**
- Section 2 UG Component
 - Unmapped
 - Drainage feature [defined by Water Act 2000]
 - Watercourse [defined by Water Act 2000]



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Sources: MID, Substation Infrastructure, GeoTech area (Powerlink), Ecological Data (Trend), Desktop Planning & Environment Data (QSpatial)

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4.7 MARINE PLANTS

Marine plants are protected under the *Fisheries Act 1994* (Qld), as are inherent marine plants, plant material on tidal land and adjacent marine plants. A summarised definition of each has been provided below, based on the definition under the *Fisheries Act 1994* (Qld):

- Marine plants – a plant that usually grows on, or adjacent to, tidal land, whether it is living or dead, standing or fallen; the material of a tidal plant, or other plant material on tidal land; a plant, or material of a plant, prescribed under a regulation or management plan to be a marine plant but does not include prohibited or restricted matters, or a controlled biosecurity matter of regulated biosecurity matter under the *Biosecurity Act 2014* (Qld). Examples of marine plants include mangroves, saltmarsh, seagrass and algal communities.
- Inherent marine plants – Inherent marine plants include all true mangroves, salt couch, seagrasses, mangrove fern, marine algae and coastal samphires regardless of their location being on or above tidal land.
- Plant material on tidal land – Material of a tidal plant, or other plant material on tidal land is protected as a marine plant given its significant contribution to fisheries productivity. Material of plants, whether they be tidal or other plants, relates to entire plants and/or parts of plants, such as bark, leaves, stems, roots, flowers or seeds. Terrestrial plants, such as river gums and terrestrial grasses that are growing on tidal land, are considered ‘material’ of an ‘other’ plant on tidal land and are therefore a marine plant.
- Adjacent marine plants – Adjacent marine plants include a range of plant species that usually grow adjacent to tidal land and provide valuable habitat to our native fish when hydrologically connected to the marine environment. These plants include a range of saltmarsh species, casuarinas, melaleucas and cottonwood, and are often found interspersed with inherent marine plants.

While the Barron River in the vicinity of the MID Corridor is not mapped as a tidal waterway for waterway barrier works, a review of the HAT suggests that the Barron River in the vicinity of the MID Corridor can be tidal during large spring tides (Map 9). As a result, where tidal waters potentially inundate, the vegetation was assessed to determine the presence of marine plants, inherent marine plants, plant material on tidal land or adjacent marine plants.

Within the vicinity of the MID Corridor where it is proposed to cross the Barron River, there was no presence of mangroves, salt couch or other tidal plants that would typically be considered a marine plant under the *Fisheries Act 1994* (Qld). However, where the HAT is mapped, the vine forest species that occur would be considered ‘material’ of an ‘other’ plant on tidal land, making them a marine plant protected under the *Fisheries Act 1994* (Qld). It was calculated that 463m² of marine plants occur within the MID Corridor.

Marine plants are protected under the *Fisheries Act 1994* (Qld) and are considered a prescribed environmental matter under the *Environmental Offsets Act 2014* (Qld).

4.8 PROTECTED AREAS

The Kamerunga Conservation Park occurs in Section 1 OH Component of the Project adjacent to the Barron River (Map 10). Section 1 OH Component of the Project intersects 0.31ha of this Kamerunga Conservation Park.

Conservation Parks are protected under the *Nature Conservation Act 1992* (Qld) and are considered a prescribed environmental matter (MSES; protected area) under the *Environmental Offsets Act 2014* (Qld).

4.9 CORRIDORS AND CONNECTIVITY









Vegetation throughout the MID Corridor was typically present in fragmented and isolated patches, surrounded by roads and residential communities. The non-remnant areas were densely populated, which greatly impacts the fauna habitat values within fragmented patches of vegetation. Regardless, they may provide stepping-stone habitat for a range of mobile bird and bat species, and as a result could contribute towards the mosaic of foraging resources throughout the Cairns LGA.

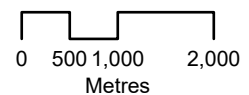
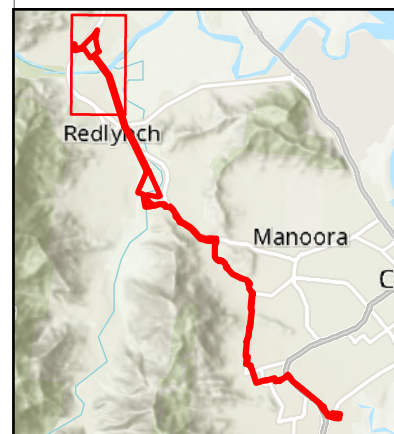
The Lamb Range to the west of the MID Corridor is a significant tract of vegetation that provide significant flora and fauna habitat values for the region (Map 1). The Goomboora Park and Freshwater Creek area in the Section 2 UG Component, and the Barron River in Section 1 OH Component forms part of the Lamb Range, with these areas having the potential to provide an extension of habitat for any fauna present throughout the Lamb Range.

KAMERUNGA TO WOREE TRANSMISSION LINE

MAP 9 MARINE PLANTS

Legend

-  MID Corridor
-  New Barron River Substation
-  Survey Area
- Transmission Line**
 -  Section 1 OH Component
 -  Highest astronomical tide
 -  Marine plants
- Field Verified Regional Ecosystems**
 -  Category A or B containing endangered
 -  Category A or B containing of concern



Scale: 1:9,000
Coordinate System: GDA2020 MGA Zone 55

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Sources: MID, Substation Infrastructure, GeoTech area (Powerlink), Ecological Data (Trend), Desktop Planning & Environment Data (QSPatial)

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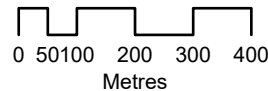
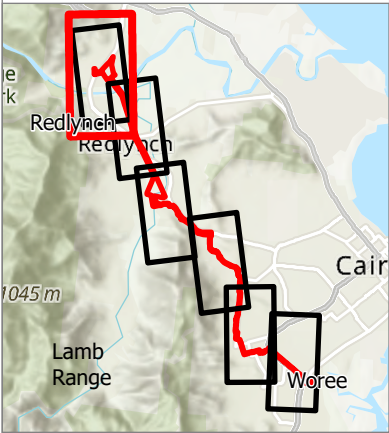
KAMERUNGA TO WOREE
TRANSMISSION LINE
MAP 10 PROTECTED AREAS OF
QUEENSLAND

Legend

- MID Corridor
- New Barron River Substation
- Survey Area

Transmission Line

- Section 1 OH Component
- Section 2 UG Component
- Protected areas and forests of Queensland



Scale: 1:13,000
Coordinate System: GDA 1994 MGA Zone 55

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4.10 INVASIVE SPECIES

4.10.1 Weed Species

Many introduced flora species were recorded throughout the MID Corridor. The most dominant species included *Megathyrsus maximus*, *Mimosa pudica*, *Rivina humilis*, *Solanum torvum* (Devil's Fig) and *Sphagneticola trilobata*. Map 11 shows the field-verified high-density areas for these weed species.

4.10.2 Restricted Invasive Plants

Terrestrial weeds were present within the Study Area in variable densities and were most prevalent in cleared areas, along road verges, and along the edges of native vegetation communities. While weeds within the remnant patches of vegetation were relatively low.

Table 15 lists the introduced species that were recorded within the MID Corridor that are considered restricted invasive plants under the *Biosecurity Act 2014* (Qld) and/or WoNS. Whilst three of the identified species are listed as a restricted matter under the Act, none are listed as a WoNS.

In addition, a locally declared plant under Cairns Regional Council was recorded within riparian habitat along Barron River, the *Castilla elastica* (Panama Rubber Tree). This species was found in the Cairns Regional Council 'Prevention Zone'.

Table 15
Restricted Invasive
Plants

Scientific Name	Common Name	<i>Biosecurity Act 2014</i> Category	WoNs Listing
<i>Cascabela thevetia</i>	Yellow Oleander	Restricted - Category 3	-
<i>Sphagneticola trilobata</i>	Singapore Daisy	Restricted - Category 3	-
<i>Spathodea campanulata</i>	African Tulip	Restricted - Category 3	-

4.10.3 Pest Species

One introduced terrestrial fauna species was recorded during the field survey, which was the Cane Toad (*Rhinella marina*). This species is not considered a restricted species under the *Biosecurity Act 2014* (Qld).

4.10.4 Biosecurity Zones

The MID Corridor traverses the Electric Ant Biosecurity Zones with some locations intercepting restricted zones: Caravonica 5, and Redlynch 10 (Map 11). Electric Ants are a Category 1 restricted matter under the *Biosecurity Act 2014* (Qld). Under the Act, all Queenslanders have a general biosecurity obligation to manage biosecurity risks and threats that are under their control, they know about, or they are expected to know about.




Electric Ants live in soil and most materials that touch soil, including plant and inorganic materials (such as machinery and equipment). Moving these materials poses a serious risk of spreading electric ants. To prevent the spread of Electric Ants, the Queensland Government has implemented movement controls in areas affected by this pest species. Movement controls in place within the biosecurity zone are designed to prevent Electric Ants from spreading and are essential to the eradication effort. The biosecurity zone has two levels of restrictions, depending on the level of risk. These are the restricted zone and lesser restrictions area.

Within the restricted zone (such as Caravonica 5 and Redlynch 10), movement of Electric Ant carriers (e.g., soil) is restricted. Geotechnical investigations and construction activities in restricted areas will require a Biosecurity Instrument Permit from Biosecurity Queensland for moving an electric ant carrier from a property within the Electric Ant Biosecurity Zone unless movement restrictions are lifted prior to commencement.



KAMERUNGA TO WOREE TRANSMISSION LINE

MAP 11 BIOSECURITY



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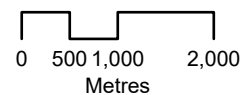
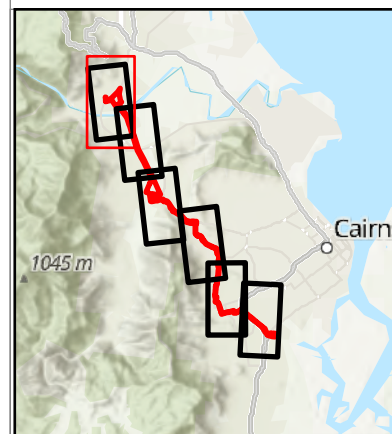
-  MID Corridor
-  New Barron River Substation
-  Survey Area

Transmission Line

-  Section 1 OH Component
-  Field Verified High Density Weed areas

Electric Ant Zones

-  Electric Ant Restricted Zone
-  Electric Ant Biosecurity Zone



Scale: 1:13,000

Coordinate System: GDA 1994 MGA Zone 55

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Sources: MID, Substation Infrastructure, GeoTech area (Powerlink), Ecological Data (Trend), Desktop Planning & Environment Data (QSpatial)
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Map 11 Biosecurity




KAMERUNGA TO WOREE TRANSMISSION LINE

MAP 11 BIOSECURITY



Legend

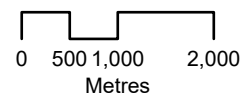
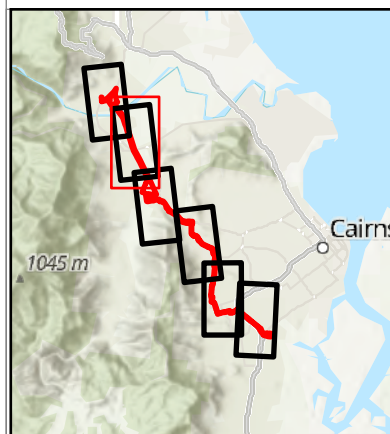
-  MID Corridor
-  New Barron River Substation
-  Survey Area

Transmission Line

-  Section 1 OH Component
-  Section 2 UG Component
-  Field Verified High Density Weed areas

Electric Ant Zones

-  Electric Ant Restricted Zone
-  Electric Ant Biosecurity Zone



Scale: 1:13,000

Coordinate System: GDA 1994 MGA Zone 55





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KAMERUNGA TO WOREE TRANSMISSION LINE

MAP 11 BIOSECURITY



Legend

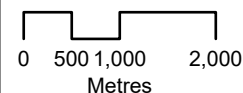
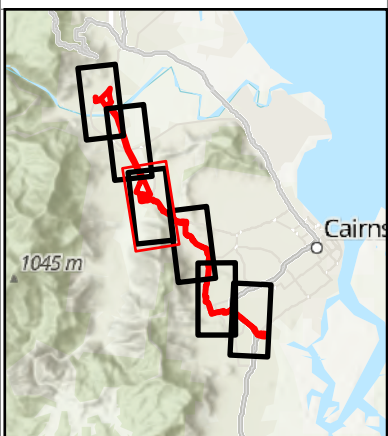
-  MID Corridor
-  Survey Area
-  Freshwater Creek
-  Geotechnical Investigation area

Transmission Line

-  Section 1 OH Component
-  Section 2 UG Component
-  Field Verified High Density Weed areas

Electric Ant Zones

-  Electric Ant Restricted Zone
-  Electric Ant Biosecurity Zone



Scale: 1:13,000
Coordinate System: GDA 1994 MGA Zone 55

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Sources: MID, Substation Infrastructure, GeoTech area (Powerlink), Ecological Data (Trend), Desktop Planning & Environment Data (GSpatial)
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ABN 43 622 414 046
94 Kennedy Esplanade South Mission Beach, QLD 4852
Prepared: MG
Checked: EK
Date: 30 Jul 2025
Service layer: Earthstar Geographics, Department of Resources, DESI Esri, TomTom, Garmin, FAO, MET/NASA, USGS, Esri, Geoscience Australia, NASA, NGA, USGS



KAMERUNGA TO WOREE TRANSMISSION LINE

MAP 11 BIOSECURITY



Legend

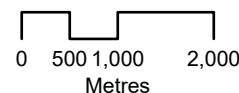
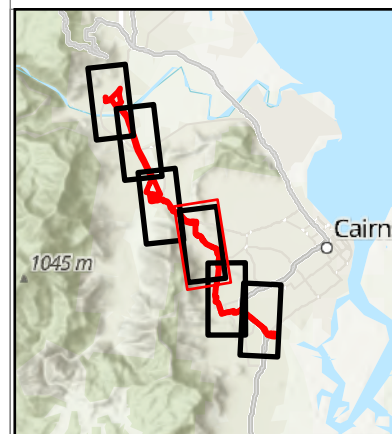
-  MID Corridor
-  Survey Area

Transmission Line

-  Section 2 UG Component
-  Field Verified High Density Weed areas

Electric Ant Zones

-  Electric Ant Restricted Zone
-  Electric Ant Biosecurity Zone



Scale: 1:13,000

Coordinate System: GDA 1994 MGA Zone 55

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Sources: MID, Substation Infrastructure, GeoTech area (Powerlink), Ecological Data (Trend), Desktop Planning & Environment Data (OSpatial)
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
Service layer: Earthstar Geographics, Department of Resources, DESL Esri, TomTom, Garmin, FAO, MET/NASA, USGS, Esri, Geoscience Australia, NASA, NGA, USGS

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KAMERUNGA TO WOREE TRANSMISSION LINE

MAP 11 BIOSECURITY



Legend

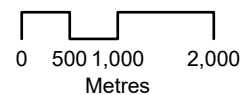
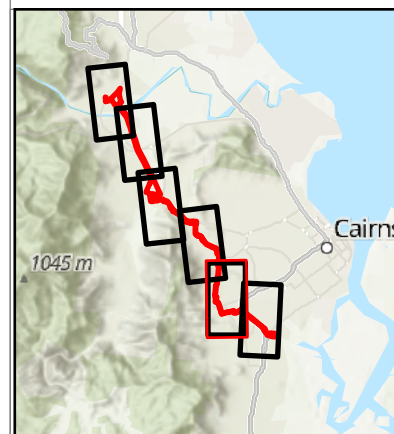
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Scale: 1:13,000
Coordinate System: GDA 1994 MGA Zone 55




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Sources: MID, Substation Infrastructure, GeoTech area (Powerlink), Ecological Data (Trend), Desktop Planning & Environment Data (OSpatial)
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KAMERUNGA TO WOREE TRANSMISSION LINE

MAP 11 BIOSECURITY



Legend

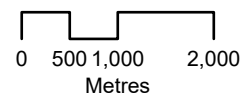
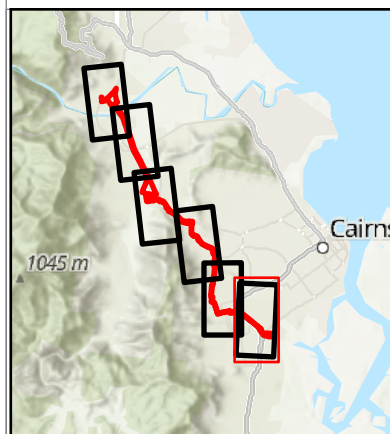
-  MID Corridor
-  Woree Substation
-  Survey Area

Transmission Line

-  Section 2 UG Component
-  Field Verified High Density Weed areas

Electric Ant Zones

-  Electric Ant Restricted Zone
-  Electric Ant Biosecurity Zone



Scale: 1:13,000

Coordinate System: GDA 1994 MGA Zone 55

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Sources: MID, Substation Infrastructure, GeoTech area (Powerlink), Ecological Data (Trend), Desktop Planning & Environment Data (QSpatial)
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MATTERS OF NATIONAL ENVIRONMENTAL SIGNIFICANCE

5.1 EXTENT OF MNES IN THE MID CORRIDOR

Based on the results of the *Desktop Protected Matters Assessment Report (Appendix A)* and field survey, both MNES and MSES habitat was identified within the MID Corridor that has the potential to be impacted by the Project. Field-verified MNES included one TEC, and suitable habitat for 23 threatened species and seven migratory species listed under the *EPBC Act*.

The total extent of habitat for each verified MNES within the MID Corridor is provided in Table 16. Note, while this is the extent of habitat for each MNES, only minor clearing is proposed to support Section 1 OH Component and the Freshwater Creek Geotechnical Investigation area for the Project. *Section 8 Significant Impact Assessment* contains the significant impact assessment completed for MNES in accordance with the EPBC Act MNES Significant Impact Guidelines 1.1 (Department of Environment, 2013).

5.1.1 Threatened Ecological Communities

Lowland Tropical Rainforest of the Wet Tropics Bioregion

The *Lowland tropical rainforest of the Wet Tropics Bioregion TEC* is typified by the presence of fertile soils in high rainfall areas of the Wet Tropics. It is only located <100 m AHD in the Wet Tropics Bioregion and the Starke Coastal Lowlands subregion of Cape York, and is characterised by an uneven, often structurally complex canopy, averaging 20 – 40 m in height, with evergreen mesophyll trees, many with well-developed buttresses.

All areas of RE7.3.10a, 7.3.23a and 7.3.23b within the MID Corridor that were surveyed during the field survey satisfied the requirements for the TEC diagnostic criteria within the Approved Listing Advice for the *Lowland tropical rainforest of the Wet Tropics Bioregion TEC* (Department of Agriculture, Water and the Environment (DAWE) 2021; Table 11). Three remnant and regrowth patches of vegetation that were considered the TEC overlapped with the MID Corridor, representing 4.74 ha within the MID Corridor (Map 3). The impact area of TEC however is 0.63 ha (0.62 ha of RE7.3.23a in Section 1 OH Component [in the Barron River vicinity] where regulated clearing is required to support the OH transmission line, and 0.01ha of RE7.3.23a in Section 2 UG Component to allow for the Freshwater Creek Geotechnical Investigation area). The remaining TEC occurs in the vicinity of Goomboora Park in the Section 2 UG Component where clearing is generally not proposed due to the HDD associated with the construction of the UG transmission line. *Section 8 Significant Impact Assessment* contains the significant impact assessment for potential impacts to this identified TEC.

5.1.2 Threatened Species

The following MNES listed threatened species were considered likely to or may occur within the MID Corridor, and had suitable habitat verified within, or within the near vicinity of the MID Corridor during the field survey (Table 16):

- Eleven threatened plant species;
- One amphibian species;
- Four bird species;
- Seven mammal species; and
- Seven migratory species.

Most of these species have similar habitat requirements, preferring vine forest, or eucalypt forest with a vine forest understorey. These are the main two vegetation communities present within the MID Corridor. All other listed threatened species that were listed within the EPBC Protected Matters Search Tool (PMST) were excluded due to the MID Corridor not containing suitable habitat for these species. *Section 8 Significant Impact Assessment* contains the significant impact assessment for MNES listed threatened flora and fauna species, and migratory species that were confirmed as present, or have suitable habitat present within the MID Corridor.



Table 16
Extent of
MNES in the
MID Corridor
and Impact
extent

MNES	Type	Species Name	Common Name	Status ¹		Presence ²	Suitable Habitat ³	Survey Area Extent (ha)	MID Corridor Extent (ha)	Direct Impact Extent (ha)^
				QLD	CTH					
TEC		<i>Lowland tropical rainforest of the Wet Tropics</i>				Confirmed	-	7.06	4.74	0.63
Threatened Species	Plants	<i>Leichhardtia araujacea</i>	-	CR	CR	May occur	1	15.71	4.12	0.01
		<i>Diplazium cordifolium</i>	-	VU	VU	May occur	2	7.74	6.09	1.97
		<i>Canarium acutifolium</i>	-	VU	VU	Likely	2	7.74	6.09	1.97
		<i>Polyphlebium endlicherianum</i>	Middle Filmy Fern	VU	EN	May occur	2	7.74	6.09	1.97
		<i>Phlegmariurus filiformis</i>	Rat's Tail tassel-fern	LC	EN	May occur	2	7.74	6.09	1.97
		<i>Phlegmariurus squarrosus</i>	Water Tassel-Fern	CR	CR	May occur	2	7.74	6.09	1.97
		<i>Phlegmariurus tetrastichoides</i>	Square Tassel Fern	VU	VU	May occur	2	7.74	6.09	1.97
		<i>Carronia pedicellata</i>	-	EN	EN	Likely	2	7.74	6.09	1.97
		<i>Dendrobium nindii</i>	Blue Orchid	EN	EN	May occur	2	7.74	6.09	1.97
		<i>Alloxylon flammeum</i>	Queensland Waratah	VU	VU	May occur	3	1.05	Nil	Nil
		<i>Myrmecodia beccarii</i>	Ant Plant	VU	VU	Likely	3, 4	6.21	3.15	1.34
		Amphibians	<i>Litoria dayi</i>	Australian Lacelid	VU	VU	Likely	1	15.71	4.12
Birds	<i>Erythroriorchis radiatus</i>	Red Goshawk	EN	VU	May occur	3	0.97	Nil	Nil	
	<i>Hirundapus caudacutus</i>	White-throated Needletail	VU	VU	Likely	2, 3	8.71	6.09	1.97	
	<i>Casuaris casuaris johnsonii</i>	Southern Cassowary (southern)	EN	EN	Likely	2, 3	8.71	6.09	1.97	
	<i>Tyto novaehollandiae kimberli</i>	Masked Owl	VU	VU	May occur	2, 3	8.71	6.09	1.97	
Mammals	<i>Dasyurus maculatus gracilis</i>	Spotted-tailed Quoll (northern)	EN	EN	May occur	1	15.71	4.12	0.01	
	<i>Saccolaimus saccolaimus nudicluniatus</i>	Bare-rumped Sheathtail Bat	EN	VU	Likely	2, 3	8.71	6.09	1.97	
	<i>Hipposideros semoni</i>	Semon's Leaf-nosed Bat	EN	VU	May occur	2, 3	8.71	6.09	1.97	
	<i>Mesembriomys gouldii rattoides</i>	Black-footed Tree-rat	LC	VU	May occur	3	0.97	Nil	Nil	
	<i>Bettongia tropica</i>	Northern Bettong	EN	EN	May occur	2, 3	8.71	6.09	1.97	
	<i>Pteropus conspicillatus</i>	Spectacled Flying-fox	EN	EN	Likely	2, 3	8.71	6.09	1.97	
	<i>Rhinolophus robertsi</i>	Large-eared Horseshoe Bat	LC	VU	May occur	2, 3	8.71	6.09	1.97	
Migratory Species	<i>Apus pacificus</i>	Fork-tailed Swift	LC	M, Mi	Confirmed	Breeding Foraging	- All	Nil 29.95	Nil 14.98	Nil 1.97
	<i>Crocodylus porosus</i>	Estuarine Crocodile	VU	M, Mi	Likely		6	4.76	0.62	Nil
	<i>Cuculus optatus</i>	Oriental Cuckoo	LC	Mi	Likely	Breeding Foraging	- 3	Nil 1.05	Nil Nil	Nil Nil
	<i>Monarcha melanopsis</i>	Black-faced Monarch	LC	M, Mi	Likely		2, 3	8.71	6.09	1.97
	<i>Myiagra cyanoleuca</i>	Satin Flycatcher	LC	M, Mi	Likely	Breeding Foraging	- 2, 3	Nil 8.71	Nil 6.09	Nil 1.97
	<i>Rhipidura rufifrons</i>	Rufous Fantail	LC	M, Mi	Likely	Breeding Foraging	- 2, 3	Nil 8.71	Nil 6.09	Nil 1.97
	<i>Symphysichrus trivirgatus</i>	Spectacled Monarch	LC	M, Mi	Likely		2, 3	8.71	6.09	1.97

¹ Queensland status, Nature Conservation Act 1992 (Qld; NCA): EX = Extinct, EW = Extinct in Wild, CR = Critically Endangered, EN = Endangered, VU = Vulnerable, NT = Near Threatened, LC = Least Concern

Australian Status (EPBC Act; CTH): EX = Extinct, EW = Extinct in Wild, CR = Critically Endangered, EN = Endangered, VU = Vulnerable - not protected

² Based on the likelihood of occurrence assessment in the Desktop Protected Matters Assessment Report (Trend Environmental 2023), and updated post field survey. Categories include likely to occur, may occur or unlikely to occur.

³ Habitat types include: 1 = Alluvial notophyll to mesophyll vine forest (RE7.3.23a in Goomboora Park only); 2 = Alluvial notophyll to mesophyll vine forest; 3 = Mixed Eucalypt woodland to open forest with vine forest understorey

4 = Some regrowth areas; 5 = Alluvial notophyll to mesophyll vine forest (Freshwater Creek in Goomboora Park only); 6 = River beds and open water

⁴ From direct clearing (within Section 1 OH Component and to accommodate the Freshwater Creek Geotechnical Investigation area in Goomboora Park)



MATTERS OF STATE

ENVIRONMENTAL SIGNIFICANCE

6.1 IMPACT AREAS OF MSES

Relevant MSES prescribed matters for the Project relate to regulated vegetation, protected wildlife habitat, waterways for waterway barrier works, marine plants and protected areas. Based on the *Desktop Protected Matters Assessment Report* (Appendix A) and field survey, these prescribed matters have the potential to be impacted by the Project.

To avoid duplication of offset conditions between jurisdictions, the State Government can only impose an offset condition in relation to a prescribed environmental matter if the same matter has not been subject to assessment under the *EPBC Act*. This is particularly important for the protected wildlife habitat assessment, and as such, only threatened and conservation significant species that are not protected under the *EPBC Act*; considered MNES, have been described in the below assessment for MSES. All other threatened species that have jurisdiction under the *EPBC Act* have been included in the MNES assessment in Section 5 above.

The total area of each verified MSES prescribed matter within the MID Corridor, that was deemed applicable for the Project is provided in Table 17. Note, while a formal property map of assessable vegetation (PMAV) process has not been undertaken to dispute the regulated vegetation management map, the field-verified extents (due to slight differences in vegetation communities between the State-mapped regulation vegetation and our field-verified data) have been provided in the below assessment.

Section 8 Significant Impact Assessment contains the significant impact assessment for the potential impacts on MSES that were confirmed as present within the MID Corridor.

Table 17 Impact area calculations for applicable MSES prescribed matters	Prescribed Environmental Matters		Verification
	Regulated vegetation	Prescribed REs that are endangered and of concern REs	<p>Ground truthing confirmed that the MID Corridor had Category B (Remnant), and Category C (High-value regrowth) vegetation present. Category R (Reef regrowth watercourse vegetation) areas were also mapped by the State throughout many watercourses within the MID Corridor (see <i>Desktop Protected Matters Assessment Report; Appendix A</i>).</p> <p>Prescribed REs that are endangered and of concern REs, include areas of Category B (remnant vegetation). The extent of remnant endangered and of concern REs within the MID Corridor is 6.71ha.</p> <p>Most areas intersecting these REs will be constructed via undercrossing with no clearing proposed. In these areas there will be no direct impacts to this MSES.</p> <p>Some minor clearing of regulated vegetation within the Barron River vicinity in Kamerunga however is required, of which it is anticipated 1.96 ha will be subject to clearing to accommodate construction of the OH component of the transmission line. Minor clearing associated with the Freshwater Geotechnical Investigation area will also occur (0.01 ha). Clearing vegetation that is necessary to carry out a geotechnical survey is considered 'exempt clearing works' under the <i>Vegetation Management Act 1999</i>(Qld) if the area cleared is:</p> <ul style="list-style-type: none">a. for an area in which a survey is conducted—a maximum area of 100m²; andb. for an area necessary for reasonable access to an area in which a survey is conducted—a maximum of 10m wide. <p>As such, vegetation clearing for this purpose meets the criteria for exempt clearing works.</p>
	Protected Wildlife Habitat	An area that is shown as a high-risk area on the flora survey trigger map, that contains plants	<p>High-risk areas on the flora survey trigger map were mapped within the MID Corridor (see maps in the <i>Desktop Protected Matters Assessment Report; Appendix A</i>).</p> <p>No protected plants were identified within these mapped high-risk areas or within other areas of the MID Corridor during the field survey in which the whole MID</p>



Prescribed Environmental Matters		Verification
	that are endangered or vulnerable An area not shown as high risk on the flora trigger map, but contains plants that are endangered or vulnerable	<p>Corridor was traversed. Note, <i>Myrmecodia beccarii</i> individuals were recorded outside of the MID Corridor, with the survey area (Map 5).</p> <p>A full flora survey, in accordance with the <i>Protected Plant – Flora Survey Guidelines</i> (DES 2020) has not been completed as part of this scope for the MID Assessment. A flora survey of high-risk areas will be completed prior to construction to inform a protected plant clearing permit. While a flora survey was not completed for this MID Assessment, the whole MID Corridor, particularly in the vicinity of remnant and regrowth vegetation areas was meandered for the purpose of searching for protected plants (the only deviation from the guidelines was that the full 100m buffer area that extends into areas outside the MID Corridor was not surveyed). Based on this, it was considered unlikely a threatened plant species occurs within the MID Corridor.</p> <p>A flora survey of the Freshwater Creek Geotechnical Investigation area was completed in November 2024. This survey recorded no protected plants, and a Flora Survey Report was development to support an Exempt Clearing Notification for this location (Trend Environmental, 2025b).</p> <p>Hence, there is no known extent of these prescribed matters within the MID Corridor, however some suitable habitat for threatened flora species does exist, with an impact extent of 1.97 ha.</p>
	Habitat for endangered, vulnerable or special least concern animal	<p>Field-verification confirmed there was threatened species habitat within the MID Corridor. Table 18 below details the extent of habitat and the impact extent (subject to vegetation clearing) present for each MSES listed threatened species that has suitable habitat present in the MID Corridor. The total extent and impact extent (subject to vegetation clearing) of each verified MSES within the MID Corridor is provided in Table 18.</p> <p>The following MSES listed threatened species were considered likely or may occur within the MID Corridor, and had suitable habitat verified within, or within near vicinity of, the MID Corridor during the field survey:</p> <ul style="list-style-type: none"> • Four threatened plant species; • Three amphibian species; • One bird species; and • Three mammal species. <p>Impact extents differ depending on the species and their habitat requirements, however generally only 0.01 – 1.96ha of habitat will be impacted by vegetation clearing for the Project.</p>
Waterway for waterway barrier works	Any part of a waterway providing for passage of fish, only if the construction, installation or modification of waterway barrier works will limit passage of fish	Field-verification confirmed the presence of Queensland waterways for waterway barrier works (providing for fish passage) within the MID Corridor. Works associated with UG and OH transmission lines may require access across waterways.
Marine Plants	A marine plant within the meaning of the <i>Fisheries Act 1994 (Qld)</i>	A review of the HAT and field-verification confirmed the presence of 'material' of 'other' marine plants protected under the <i>Fisheries Act 1994 (Qld)</i> within Section 1 OH Component of the MID Corridor, in the vicinity of the Barron River. Map 9 shows the location of the confirmed marine plants. The extent of marine plants within Section 1 OH Component of the MID Corridor that will be impacted is 463m ² .
Protected Area	A protected area	The Kamerunga Conservation Park is a protected area under the <i>Nature Conservation Act 1992 (Qld)</i> . Section 1 OH Component of the Project intersects 0.31ha of this Kamerunga Conservation Park. While regulated vegetation clearing may be required in this Conservation Park, micro-siting of the vegetation clearing requirements will be undertaken prior to construction to avoid tree and shrub clearing where possible to minimise impacts.



Table 18
Extent of MSES in
the MID Corridor

MSES	Type	Species Name	Common Name	Status ¹		Presence ²	Suitable Habitat ³	Survey Area Extent (ha)	Direct Impact Extent (ha)
				QLD	CTH				
Threatened Species	Plants	<i>Acalypha lyonsii</i>	-	VU	-	May occur	2	7.74	1.97
		<i>Wetria australiensis</i>	-	VU	-	Likely	2	7.74	1.97
		<i>Rhodamnia sessiliflora</i>	Iron Malletwood	EN	-	Likely	2	7.74	1.97
		<i>Spathoglottis paulinae</i>	-	NT	-	May occur	3	8.71	Nil
	Amphibians	<i>Litoria nannotis</i>	Waterfall Frog	EN	-	May occur	1	15.71	0.01
		<i>Litoria rheocola</i>	Common Mistfrog	EN	-	Likely	1	15.71	0.01
		<i>Litoria serrata</i>	Tapping Green Eyed Frog	VU	-	May occur	1	15.71	0.01
	Birds	<i>Cyclopsitta diopjthalma macleayana</i>	Macleay's Fig-parrot	VU	-	Likely	2	7.74	1.97
	Mammals	<i>Hipposideros diadema</i>	Diadems Leaf-nosed Bat	NT	-	Confirmed	1	15.71	0.01
		<i>Tachyglossus aculeatus</i>	Short-beaked Echidna	SLC	-	Likely	All	29.95	1.97
		<i>Ornithorhynchus anatinus</i>	Platypus	SLC	-	Likely	5	0.24	Nil

¹ Queensland status, Nature Conservation Act 1992 (QLD; NCA): EX = Extinct, EW = Extinct in Wild, CR = Critically Endangered, EN = Endangered, VU = Vulnerable, NT = Near Threatened, LC = Least Concern

Australian Status (EPBC Act; CTH): EX = Extinct, EW = Extinct in Wild, CR = Critically Endangered, EN = Endangered, VU = Vulnerable - not protected

² Based on the likelihood of occurrence assessment in the Desktop Protected Matters Assessment Report (Trend Environmental 2023), and updated post field survey. Categories include likely to occur, may occur or unlikely to occur.

³ Habitat types include: 1 = Alluvial notophyll to mesophyll vine forest (RE7.3.23a in Goomboora Park only);

2 = Alluvial notophyll to mesophyll vine forest;

3 = Mixed Eucalypt woodland to open forest with vine forest understorey;

4 = Regrowth areas;

5 = Alluvial notophyll to mesophyll vine forest (Freshwater Creek in Goomboora Park only);

6 = Riverbeds and open water



IMPACT ASSESSMENT

7.1 PROJECT EXTENT

The project will involve the following proposed works to construct the high voltage transmission line:

- Approximately 4.3km of 132 kV double circuit OH transmission line (Section 1 OH Component).
- Approximately 11.6km of 132 kV double circuit UG transmission line (Section 2 UG Component), that will include:
 - Construction and installation of the cable through an open cut trench that will be excavated in the roadway.
 - Undercrossing techniques using single shot HDD, encompassed HDD, pipe jacking and augering. Undercrossing techniques will be used where infrastructure needs to be avoided (i.e., major roads, rail lines, watercourses and vegetation). The method of undercrossing will depend on the geotechnical conditions, undercrossing distance and depth.
 - Other associated infrastructure includes cable joint bays and an UGOH structure.
- Construction of the new Barron River Substation.
- The Freshwater Creek Geotechnical Investigation area in Goomboora Park, in Section 2 UG Component.

The MID Corridor varies in extent due to residential land encroaching throughout most of the footprint, but will include:

- Section 1 OH Component (Kamerunga to Redlynch) will use a mostly 40 m wide easement, in line with current Powerlink design standards, which will sit immediately adjacent to the 20 m easement for the existing transmission line. In some sections a new 60 m easement will be applied where the proposed easement does not adjoin the existing line.
- Where the MID Corridor for Section 2 UG Component (Redlynch to Woree) intersects road reserves, the corridor is considered to be the width of the road reserve, from property boundary to property boundary. Where the corridor intersects easements and park land (mostly in the Goomboora Park area), the width will generally be 12 m (i.e., 6 m either side of the centre line) unless in non-remnant areas, where the width may be wider (MID Corridor shown in Map 1).

7.2 BENEFITS OF UNDERGROUND CABLES

Approximately 11.6 km of the proposed transmission line will be constructed underground which has benefits in comparison to OH transmission lines. Unlike conventional OH transmission lines, UG cables require minimal vegetation clearing. Clearing of individual trees for Section 2 UG Component of the Project (Redlynch to Woree) may be required where impacts on the root structure is excessive. Impacts of this nature will be minimised where possible. While impacts to individual trees are yet to be known, no threatened flora species were identified within the MID Corridor or Survey Area. No broadscale regulated vegetation clearing for Section 2 UG Component is proposed. HDD capabilities for UG transmission line construction ensures that vegetation communities can remain intact.

As a result, this project avoids the clearing of 4.13 ha of remnant, and 0.01 ha of regrowth vegetation within Section 2 UG Component of the MID Corridor. This results in the Project avoiding the need to clear a large area of *Lowland tropical rainforest of the Wet Tropics Bioregion TEC*, which is considered suitable habitat for a number of MNES and MSES listed threatened species, special least concern species and migratory species. Vegetation clearing for Section 2 UG Component will be restricted to a handful of amenity/street trees, or trees within Goomboora Park where avoidance to their root structure is not possible within the Freshwater Creek Geotechnical Investigation area in Goomboora Park (proposed 0.01 ha of clearing). Note, proposed vegetation clearing within this area include saplings only with no mature vegetation proposed to be cleared.

In an environment that is already under pressure from vegetation clearing (i.e., Cairns LGA), constructing UG transmission lines using HDD techniques allows sensitive areas such as watercourses and regulated vegetation to remain intact. General benefits of UG transmission lines (as opposed to OH transmission lines) include:

- Ability to avoid sensitive areas and ecological values, for example:
 - Regulated vegetation patches, threatened species habitat and threatened ecological communities.
 - Watercourses and wetlands.
 - Actual or potential animal breeding places.



- Less potential for fauna injury or mortality during construction, as minimal to no vegetation clearing works are being undertaken.
- Less release of greenhouse gasses that are typically emitted during vegetation clearing works.
- Reduced risk of bushfires caused from OH transmission lines e.g., from fallen towers, or conductor clashing or breaks.
- Reduced aesthetic/amenity concerns following construction.

7.3 PROJECT IMPACTS

The proposed transmission line will avoid environmental impacts where possible. Some aspects of construction and operation however have the potential to impact on ecological values. The expected impacts (both direct and indirect) have been described below in Table 19.

Table 19
Impacts from
construction
and operation

Impacts	Description
Regulated vegetation clearing for Section 1 OH Component and the geotechnical investigation	<p>Some regulated vegetation clearing is proposed in the vicinity of the Barron River in Kamerunga (Map 3), where 1.96 ha is proposed to be cleared in this section. This will result in the loss of 0.62 ha of TEC, 1.96ha of threatened species habitat, 463m² marine plants, 0.31 ha of Kamerunga Conservation Park, and a reduction in the amenity of the protected area.</p> <p>An additional 0.01ha of regulated vegetation clearing will be undertaken within the Freshwater Creek Geotechnical Investigation area.. Small-scale geotechnical investigations are considered 'exempt clearing works' under the <i>Vegetation Management Act 1999</i>(Qld).</p>
Marine Plants	Some clearing of marine plants (other marine plants below the HAT) is proposed in the vicinity of the Barron River in Kamerunga (Map 9). It is calculated that 463m ² will be cleared in this section.
Kamerunga Conservation Park (protected area)	<p>Some vegetation clearing may be required within the Kamerunga Conservation Park, which is a protected area under the <i>Nature Conservation Act 1992</i>(Qld). Section 1 OH Component of the Project intersects 0.31ha of this Kamerunga Conservation Park</p> <p>The <i>Kamerunga Regional Park Management Statement</i> defines the park values as including an endangered RE7.2.23a, of which 0.31 ha will potentially have vegetation cleared as part of the Project. This area is recognised as containing habitat for species of conservation significance, including the vulnerable Estuarine Crocodile and Macleay's Fig-parrot, and special least concern species, the Cicadabird (<i>Coracina tenuirostris</i>) and Rainbow Bee-eater (<i>Merops ornatus</i>). Note, while regulated vegetation clearing may be required in this Conservation Park, micro-siting of the vegetation clearing requirements will be undertaken prior to construction to avoid tree and shrub clearing where possible to minimise impacts.</p>
Indirect clearance of amenity/street trees as a result of impacts to the root structure of trees.	<p>While all efforts will be made to avoid the root structures of trees along Section 2 UG Component, some root zones may not be able to be avoided. This is likely to result in the removal of a handful of existing amenity/street trees. This may be the case where underground boring cannot be achieved at a depth to avoid the root zone, or where restrictions within the roadway (from other UG infrastructure) requires the UG component to intersect with the root zone of a tree. While these individual trees that will require clearing are yet to be known, there were no threatened flora species identified in the vicinity, and as such none are expected to be MNES or MSES threatened species.</p> <p>This may result in a reduction in the amenity of the area and marginal impacts to the verified TEC; however, it is unlikely to result in impacts to MNES and MSES threatened species.</p>
Incident of ground subsidence	Ground subsidence may result from faults, earthquakes, changes to groundwater aquifers etc. Construction of UG infrastructure may increase the risk of ground subsidence occurring. Should this occur, it can impact on sensitive areas, such as vegetation communities and watercourses. Subsidence can alter natural drainage, damage vegetation, alter soil profiles, and affect hydrology.



Impacts	Description
Soil and bank destruction	<p>Localised soil and bank damage from excavation and heavy vehicle activity can occur during construction of the UG component. This can have downstream implications for water quality, sedimentation and increased potential from erosion.</p> <p>The proposed construction methodology near watercourses however will be via HDD, and as such, no excavation works are proposed within the bed or banks of watercourses (note, excavation points are shown in Appendix E).</p>
Erosion and Sedimentation	<p>Increased potential for sedimentation and erosion due to soil exposure from excavation. Exposure of soil can result in erosion, scouring of banks, and sediments washing into watercourses during rainfall events.</p> <p>Mobilisation of nutrients is also a potential problem associated with sedimentation because nutrients such as phosphorus have the ability to cling to eroding sediment particles and can be transported to sensitive downgradient areas (e.g., watercourses and wetlands). Sediment deposition in a waterbody can also impact aquatic habitat, and water quality by causing high turbidity, loss of depth, covering of fish spawning areas, and increased algal productivity.</p> <p>Such disturbances are considered to only be temporary (e.g., during construction), assuming that remediate works are completed in a timely manner and are appropriate for the site.</p>
Disruption of soil profile	<p>Impacts to soil resources can occur from inversion of the soil profile, loss of structure, and mixing of layers as a trench is backfilled. This may result in increased erosion and compaction and less productive soil for vegetation growth.</p> <p>Increased soil temperatures may also negatively impact organic matter decomposition, mineralisation of different organic materials, soil water content, conductivity and availability to plants (Onwuka & Mang, 2018).</p>
Watercourses and waterways mapped under State legislation	<p>Queensland waterways for waterway barrier works protected under the <i>Fisheries Act 1994</i> (Qld); and watercourse protected under the <i>Water Act 2000</i> (Qld) and the <i>Vegetation Management Act 1999</i> (Qld) traverse the MID Corridor. Works associated with UG and OH transmission lines may require access across waterways. Indirect impacts from water quality issues or erosion during construction however may also occur.</p>
Water Quality	<p>No direct impacts to water quality within the mapped watercourses are expected with works proposed underground or overhead, both of which avoid works directly within the watercourses. Potential indirect impacts to water quality however may occur as a result of construction, movement of machinery in close proximity to the watercourses and erosion occurred from disturbance of soils.</p>
Contamination from hazardous wastes used during the drilling process or arising from the drilling process.	<p>The drill process for UG construction has the potential to expose hazardous wastes to the environment. Such hazardous wastes can include drill cuttings, drilling fluid and oil, but may also be contaminated sediments brought to the surface from depth during the drilling process (e.g., acid sulfate soils). Any exposure of hazardous wastes can have downstream implications should they be handled inappropriately and enter watercourses.</p> <p>Drilling fluid blow-out may also occur. If the drilling process encounters fractured rock there is a possibility that drilling fluid could be forced up through these fissures to the surface and into watercourses along with any associated drill arisings, with potentially adverse consequences for environmentally sensitive receptors (terrestrial and aquatic life). The most frequently used drilling fluid used for HDD is a slurry of bentonite clay which is very high in suspended solids</p> <p>In addition, there are a variety of other pollutants associated with construction activities. These substances, which can generate hazardous pollution if they are not handled properly, include pesticides, fertilizers, hydrocarbons (e.g., oils, gasoline, hydraulic fluid) from construction vehicles, and rubbish. If not handled correctly, can make their way into watercourses and wetlands, causing impacts.</p>



Impacts	Description
Potential invasive weed spread	Potential for invasive weed spread during construction, which can compete with native vegetation communities, reduce condition of vegetation communities and threaten biodiversity values. Many introduced flora species were recorded throughout the MID Corridor. The most dominant species included <i>Megathyrsus maximus</i> , <i>Mimosa pudica</i> , <i>Rivina humilis</i> , <i>Solanum torvum</i> (Devil's Fig) and <i>Sphagneticola trilobata</i> . <i>Sphagneticola trilobata</i> is listed as a biosecurity matter under the <i>Biosecurity Act 2014</i> (Qld). Active management of invasive weeds during construction is required to reduce impacts.
Biosecurity Concerns	<p>The MID Corridor traverses the Electric Ant biosecurity zone and two restricted areas (Caravonica 5 and Redlynch 10). There is the potential that construction and geotechnical investigations will result in the movement of Electric Ant carriers (i.e., soil), therefore appropriate measures will need to be put in place to reduce the risk of spreading Electric Ants. This includes applying for a Biosecurity Instrument Permit from Biosecurity Queensland.</p> <p>It is recommended that early engagement with Biosecurity Queensland is undertaken to determine whether treatment of Electric Ants can be prioritised within the intercepted biosecurity zones (Map 11) to try and remove movement restrictions prior to construction of this Project.</p>
Noise, lighting and vibration	<p>Dust, light and noise activity is increased during construction, which may impact on adjacent vegetation communities and fauna presence. Noise, lighting and vibration disturbances during construction can potentially disturb breeding and roosting fauna, including threatened fauna with suitable habitat mapped as present within the MID Corridor (Map 6). Night-time works however will be limited and restricted to works that cannot be reasonably undertaken during the day.</p> <p>A nesting pair of Macleay's Fig-parrot (vulnerable under the <i>Nature Conservation Act 1992</i>; Qld; MSES) were observed within 15m of the MID Corridor, as was a Diadem's Leaf-nosed Bat in the vicinity of the Barron River, in Kamerunga (Map 6). Disturbance of these threatened species breeding habitat may also result from noise and vibration if construction is undertaken during their breeding periods.</p>
Dust impacts during construction	Heavy machinery activity, drilling activities and excavation of trenches can contribute to airborne particulate matter which can have negative impacts on the surrounding environment, contributing to air pollution and degradation of air quality. When dust settles on vegetation, it can hinder plant growth. When dust accumulates in watercourses it can lead to sedimentation, degrade water quality and be harmful to aquatic life.

7.4 HIERARCHY OF MANAGEMENT PRINCIPLES

Powerlink have implemented the hierarchy of management principles in the planning and development of the project, which includes avoid, minimise, mitigation, remediate then offset. These principals are described below:

Avoidance: *Designing the MID Corridor to avoid direct impacts to ecological values (e.g., avoid vegetation clearing where practical).*

Minimise: *Minimise direct and indirect impacts where they cannot be completely avoided.*

Mitigate: *Implement mitigation and management measures during construction and operation to reduce direct and indirect cumulative impacts.*

Remediate: *Actively rehabilitate impacted areas where possible to promote long term recovery.*

Offset: *Provide suitable offsets for activities that result in a significant impact to ecological values after all other management principles have been implemented.*

Table 20 describes how impacts on ecological values from the Project will be managed through the hierarchy of management principles approach.



Table 20
Impact
management using
the hierarchy
approach

Management Principles	Measures
Avoidance	<p>Findings from the Powerlink's Options Assessments and Concept Route Identification studies have contributed to determine the best option for the transmission line to go OH or UG, and the preferred route.</p> <p>The preferred and most feasible option for the replacement of the powerline was to proceed with OH for Section 1 OH Component (Kamerunga to Redlynch) and UG construction for Section 2 UG Component (Redlynch to Woree). The underground section avoids major environmental impacts associated with vegetation clearing, but also considered a range of social, environmental, and physical factors identified from desktop and field-based analysis, and engagement with landholders, the wider community, and other stakeholders.</p> <p>By constructing the transmission line underground for Section 2, it avoids the clearing of 4.13 ha of remnant and regrowth regulated vegetation. The proposed route also tracks through mostly road reserves or non-remnant areas, which avoids the potential for impacts to vegetation from a subsidence event.</p>
Minimisation	<p>Where avoidance of impacts from vegetation clearing has not been possible, i.e., REs and marine plants adjacent to the Barron River, impacts have been minimised by co-locating the OH Component with the existing transmission line corridor that traverses the Barron River. In this respect impacts from edge effects are reduced, and impacts are not compounded by having multiple cleared areas in relatively close proximity to each other.</p> <p>In addition, to minimise impacts associated with UG construction, the Project proposes to use undercrossing techniques in sensitive environmental areas (e.g., regulated vegetation areas and watercourses) rather than open cut trenching which would require some vegetation clearing. This will minimise disturbance and impacts for the Project.</p>
Mitigation	<p>Once avoidance and minimisation strategies have been implemented, mitigation and management measures have been determined to reduce direct and indirect cumulative impacts during construction and operation. Mitigation measures planned to be implemented include:</p> <ul style="list-style-type: none"> • Management of depth for undercrossing for the underground section to avoid tree roots and ensure subsidence of vegetated areas and watercourses will not occur. The drill profile will be designed after geotechnical investigations are complete, and the locations of existing obstacles and crossings, such as other utilities, are determined. The drill profile will be designed to allow a minimum depth of cover below surface grade and all obstacles. • Following the completion of backfilling of trenches for the underground section, surface profiles shall be reinstated to match their original profile and substrate material. In this respect, impacts from trenching works are expected to be temporary in nature. • Construction to mostly be undertaken during daylight hours, to limit disturbance to nearby nocturnal fauna within remnant and regrowth vegetation areas. Night-time works, if required, to be limited and restricted to works that cannot be reasonably undertaken during the day. • Threatened species have the potential to be disturbed by noise and vibration should they be actively nesting or roosting at the time of construction works. Interfering with active breeding places of threatened species will be avoided, and indirect impacts during construction will be managed in accordance with conditions of a high-risk SMP, in particular having a fauna spotter catcher present for clearing works and works in close proximity to known nest locations and avoiding disturbance of active breeding places. A high-risk SMP for interfering with a threatened animal's breeding place under the <i>Nature Conservation Act 1992</i> (Qld) should be obtained prior to construction works. The high-risk SMP should be drafted to include threatened species recorded within the survey area (i.e., Macleay's Fig-parrot (vulnerable under the <i>Nature Conservation Act 1992</i>; Qld; MSES) and Diadems Leaf-nosed Bat (near threatened under the <i>Nature Conservation Act 1992</i>; Qld; MSES). • To further reduce impacts to the breeding pair of Macleay's Fig-parrot, construction in this vicinity will be planned outside of their breeding season (August – December). If this is not possible, an experienced fauna spotter catcher is to be engaged to determine whether the pair are actively nesting in the vicinity of where they were recorded, prior to construction works beginning. Should the pair be nesting, construction should be halted in this area until their young have fledged (8 -10 weeks). • Exclusion areas to be demarcated to avoid unauthorised disturbance to native vegetation communities and threatened species habitat. Vehicles will be restricted from moving outside of the construction area. • A CEMP will be developed and implemented and will include mitigation measures for the Project, to be implemented during construction. Such measures will involve management of dust, noise, and light



Management Principles

Measures

impacts; management of erosion through erosion and sediment control measures; topsoil management; chemical storage, spill containment and management requirements; traffic management including speed restrictions; weed and seed washdown requirements for machinery and vehicles; designated construction working hours etc.

- A Pre-construction weed survey of the whole MID Corridor will also be undertaken to inform the development of the CEMP. Weeds will be monitored throughout construction.
- Pest animal and weed management to be undertaken during construction and operation. A Biosecurity Management Plan to be developed and implemented for the Project.
- Ground disturbance to be limited to what is necessary to install the transmission line, to avoid sedimentation and erosion issues.
- When undercrossing, a buffer area to the watercourse will be provided to reduce erosion issues and limit sedimentation from construction activities from entering the watercourse. Storing heavy machinery or materials in the buffer zone should be avoided because compaction of the ground can provide flow paths for sediment and contaminants into local watercourses.
- Appropriate measures will be put in place to reduce the risk of spreading Electric Ants. This includes obtaining a Biosecurity Instrument Permit from Biosecurity Queensland where movement restrictions apply. It is also recommended that Powerlink Queensland undertake early consultation with Biosecurity Queensland (under the Queensland Department of Agriculture and Fisheries) to implement the appropriate permits and mitigation measures, but also to determine whether Biosecurity Queensland can focus eradication efforts to the areas that will be disturbed as a result of this Project. To further prevent the inadvertent spread of Electric Ants, it is best practice to clean down machinery, and other equipment before leaving a site within the restricted zone. Completely remove soil and other electric ant carriers from equipment by physically removing the material (e.g. scraping or blowing), brushing down, washing down or steam cleaning, or air blasting with an air compressor.
- For any vegetation clearing activities, sensitive clearing works to be implemented, including having a fauna spotter catcher undertake pre-clearance ecological surveys and supervise clearing works to safely manage fauna interactions.
- The MID Corridor traverses marine plants. While approval for clearing marine plants is exempt under the Infrastructure Designation process, the Accepted Development Requirements for operational work that is the removal, destruction or damage of marine plants provides guidance to minimise impacts to marine plants, which should be implemented as best practice.
- The MID Corridor traverses the Kamerunga Conservation Park, in which a s34 and s35 – easement arrangement under the *Nature Conservation Act 1992* (Qld) will be obtained. Regulated vegetation clearing may be required within the Kamerunga Conservation Park however, micro-siting of the vegetation clearing requirements will be undertaken prior to construction to avoid tree and shrub clearing where possible to minimise impacts. Specific mitigation measures that will reduce impacts to natural and cultural values of this park include:
 - Management in accordance with the Kamerunga Regional Park Management Statement 2015 (Department of National Parks, Sport and Racing; DNPSR, 2015) including implementation of the following management actions:
 - Life and property on and adjacent to the park is protected.
 - Fire is managed to conserve or maintain the condition of the regional ecosystems through the application of planned burn guidelines.
 - The impacts of existing pest species on neighbouring land uses are mitigated.
 - Pest threats are managed to conserve or maintain the condition of the recognised endangered and of concern regional ecosystems and animal species of conservation significance.
 - Development and implementation of an Environmental Management Plan (EMP) in accordance with the *Guideline for Preparing Environmental Management Plans for Queensland Parks and Wildlife Service and Partnerships authorities*. The EMP will outline the measures taken to minimise impacts on the protected area and provide for ongoing management of the site, including:



Management Principles

Measures

- Micro-siting of the vegetation clearing requirements prior to construction to avoid tree and shrub clearing where possible.
- Weeds to be monitored throughout the life of the Project with management and control strategies implemented in accordance with Powerlink's Construction Biosecurity Management Plan. A Pre-construction weed survey will be undertaken to inform the development of the Construction Biosecurity Management Plan.
- Where possible, liaise and co-ordinate control efforts with the National Parks and Wildlife Service within Kamerunga Conservation Park.
- Erosion and sediment control to be implemented in accordance with Powerlink's existing Environmental Management Plan which is used to manage impacts during the construction phase of projects. Under this Plan, the following impacts will also be managed -dust, noise and light impacts; water quality impacts; topsoil management; chemical storage, spill containment and management requirements; traffic management including speed restrictions; weed and seed washdown requirements for machinery and vehicles; and designated construction working hours etc.
- Any vegetation clearing to be completed under supervision of an experienced and permitted Fauna Spotter Catcher to manage fauna and safely relocate should they be found during clearing works.
- No unauthorised access to Conservation Park areas outside the MID Corridor during construction and operation.
- Dispose of construction waste responsibility within authorised landfill locations outside of the Park.
- The construction company to be made aware of the Conservation Park's management intent and management measures to be implemented during the tender process. Education of such to groundcrews is required during inductions and daily pre-starts.
- When construction activities have been completed, all excavated or disturbed areas will be rehabilitated to ensure the soil is stable and provides a matrix for vegetation establishment to prevent erosion

Offset

Impacts to MNES and MSES have been avoided where possible by planning for Section 2 UG Component to be constructed underground resulting in marginal and mostly indirect impacts to MNES and MSES within this area.

A Significant Impact Assessment for MNES has been undertaken in *Section 8 Significant Impact Assessment* to determine whether offsets under the Commonwealth's *EPBC Act Environmental Offsets Policy 2012* are likely to be required for the Project.

While the Project isn't considered a prescribed activity for impacts to MSES for the purpose of the MID Assessment, the project is considered a prescribed activity for impacts to protected areas; hence an SRI assessment was undertaken in *Section 8 Significant Impact Assessment* to determine the significance of impacts to MSES which could carry offset implications under the *Environmental Offsets Act 2014* (Qld). Further, a SRI assessment has also been completed to determine impacts and assist in providing avoidance and mitigation measures to reduce impacts.

7.5 PRE-CONSTRUCTION REQUIREMENTS

As outlined in the mitigation measures proposed in Table 20, the following details all the pre-construction requirements for the project:

- Development of a high-risk SMP for interfering with a threatened animal's breeding place under the *Nature Conservation Act 1992* (Qld) to be obtained prior to construction works. The high-risk SMP is to be drafted to include threatened species recorded within the survey area (i.e., Macleay's Fig-parrot (vulnerable under the *Nature Conservation Act 1992*; Qld; MSES) and Diadems Leaf-nosed Bat (near threatened under the *Nature Conservation Act 1992*; Qld; MSES).



- Completion of a Flora Survey for high-risk areas on the flora survey trigger map with the whole MID Corridor to inform the requirement for either an Exempt Clearing Notification or Protected Plant Clearing Permit under the *Nature Conservation Act 1992* (Qld).
- A CEMP to be developed that will include mitigation measures for the Project, to be implemented during construction.
- A Pre-construction weed survey of the whole MID Corridor to be undertaken to inform the development of the CEMP.
- Obtaining a Biosecurity Instrument Permit from Biosecurity Queensland where Electric Ant movement restrictions apply.
- Development and implementation of an EMP in accordance with the *Guideline for Preparing Environmental Management Plans for Queensland Parks and Wildlife Service and Partnerships authorities* for protection of the Kamerunga Conservation Park.



SIGNIFICANT IMPACT ASSESSMENT

8.1 MNES

Environmental offset conditions may be imposed for MNES under the *EPBC Act* if the activity will or is likely to have a significant impact on a matter. A significant impact assessment has been undertaken for MNES confirmed as present or considered likely to or may occur based on habitat values within the MID Corridor, in accordance with the *EPBC Act MNES Significant Impact Guidelines 1.1* (DoE 2013; Table 21).

After considering potential impacts, avoidance and minimisation measures, and the significant impact criteria provided, it is not expected there will be a significant impact on any MNES within the MID Corridor as a result of the Project.

8.2 MSES

As the Project will obtain a 'Use' approval through the MID process, under Section 44(6)b of the *Planning Act 2016* (Qld), the development becomes 'accepted development' under subsequent legislation e.g., *Vegetation Management Act 1999* (Qld), *Fisheries Act 1994* (Qld) and the *Water Act 2000* (Qld), meaning that development approvals are not required, and offsets cannot be imposed under Queensland's *Environmental Offsets Act 2014* (Qld) for impacts to MSES recognised under these legislation.

Impacts under the *Nature Conservation Act 1992* (Qld) however (e.g., impacts to protected areas) are not considered accepted development as a result of the MID process, and could carry offset implications under the Queensland's *Environmental Offsets Act 2014* (Qld).

While offsets cannot be imposed for MSES recognised under the *Planning Act 2016* (Qld), an assessment against the *Significant Residual Impact Guideline* (SDIP, 2014) has been undertaken to evaluate direct and indirect impacts. This assessment also informs recommendations for avoidance and mitigation measures to minimise overall environmental harm during the construction and operation of the Project.

For impacts relating to protected areas, an assessment against the *Significant Residual Impact Guideline* (Department of Environment, Heritage Protection; (DEHP, 2014a) has been undertaken to evaluate impacts and identify offset implications for the project under the *Environmental Offsets Act 2014* (Qld).

The outcome of the SRI assessments for each identified MSES has been provided in Table 22. After considering potential impacts, avoidance and minimisation measures, and the State SRI criteria provided within the *Significant Residual Impact Guideline* (DSDIP 2014), the Project is unlikely have an SRI on most MSES triggered by the project being a prescribed activity due to the Infrastructure Designation process under the *Planning Act 2016* (Qld; e.g., regulated vegetation, protected wildlife habitat, threatened species habitat and waterway barrier works), however the **Project is likely to have an SRI on marine plants.**

For MSES triggered by the project being a prescribed activity from impacts to protected areas, being conducted under an authority granted under the *Nature Conservation Act 1992* (Qld), there will be an SRI based on criteria provided within the *Significant Residual Impact Guideline* (DEHP, 2014a).

To reduce the adversity of these impacts to marine plants and protected areas however, Powerlink proposes to micro-site the vegetation clearing requirements in these areas to avoid where possible the clearing of trees and shrubs.



Table 21
Significant
impact
assessment
for MNES in
the MID
Corridor

Matters	Significant Impact Criteria	Assessment of a Significant Impact
<div>MNES</div>	TECs - <i>Lowland tropical rainforest of the Wet Tropics</i> An action is likely to have a significant impact on an endangered species or ecological community if there is a real chance or possibility that it will: <ul style="list-style-type: none"> • Lead to a long-term decrease in the size of a population • Reduce the area of occupancy of the species • Fragment an existing population into two or more populations • Adversely affect habitat critical to the survival of a species • Disrupt the breeding cycle of a population • Modify, destroy, remove, isolate, or decrease the availability or quality of habitat to the extent that the species is likely to decline. • Result in invasive species that are harmful to a critically endangered or endangered species becoming established in the endangered or critically endangered species' habitat • Introduce disease that may cause the species to decline, or • Interfere with the recovery of the species 	Unlikely While 4.74 ha of TEC is present within the MID Corridor, only marginal clearing of the TEC is proposed. It is anticipated that 0.62 ha of impacts from vegetation clearing will take place in the vicinity of the Barron River in Kamerunga to support construction of the OH component of the transmission line (Section 1 OH Component). It is also anticipated that 0.01ha of vegetation clearing will be required for the Freshwater Creek Geotechnical Investigation area in the Goomboora Park area (Section 2 UG Component). This combined area is minor compared to the whole MID Corridor which is 85.08 ha. This minor clearing, of a maximum width of 40 m is unlikely to fragment the TEC, and the linear clearing is unlikely to impact on gene flow. With the Section 2 UG Component of the Project being designed underground, this avoids the need to clear most TEC areas. As such, these TEC areas will be protected, provided that the proposed minimisation, mitigation and remediation measures are implemented to avoid indirect impacts from subsidence, sedimentation and erosion. Note, while the TEC areas in the vicinity of the Barron River are currently degraded as a result of the flooding associated with Tropical Cyclone Jasper, the Approved Conservation Advice for this TEC recognises the regularity of such disturbance events on the condition of the TEC from cyclones, such that it states it is common that parts of the community are naturally in a highly-disturbed state (DAWE, 2021). Given marginal clearing is proposed within the TEC, it is considered unlikely that these marginal impacts would result in a significant impact even with many parts of the TEC likely to be degraded throughout the region post Tropical Cyclone Jasper. The marginal clearing proposed is unlikely to result in a long-term decrease in the size of a population or reduce the area of occupancy. The clearing proposed will not fragment the existing population or interfere with the recovery of the greater TEC community. As a result, impacts are unlikely to be considered 'significant' under the <i>EPBC Act MNES Significant Impact Criteria 1.1</i> (Department of Environment, 2013).
	Endangered Species	Unlikely The project being designed mostly underground avoids the need to clear most of the regulated vegetation and species' habitat, avoiding direct impacts to endangered species that were considered potentially present within the MID Corridor. The minor clearing proposed for the Project is 1.96 ha in Section 1 OH Component (noting the total MID Corridor is 85.08 ha) and 0.01 ha within the Freshwater Creek Geotechnical Investigation area, in Goomboora Park (Section 2 UG Component). No threatened flora species were recorded within the areas expected to be cleared, and all conservation significant fauna considered likely or may occur are mobile species capable of dispersing across the 40m corridor. The remaining habitat outside the MID Corridor is expected to be able to absorb any displaced fauna, therefore impacts are considered minor and temporary. With limited clearing of regulated vegetation proposed (1.97 ha), the Project is unlikely to lead to a long-term decrease in the population size; reduce the area of occupancy of the species; fragment an existing population; adversely affect habitat critical to the survival of a species; disrupt the breeding cycle of a population; modify, destroy, remove, isolate, or decrease the availability or quality of habitat to the extent that the species is likely to decline; or result in invasive species that are harmful to the species becoming established in the endangered or critically endangered species' habitat. Hence, it is unlikely the Project will result in a significant impact to endangered species.



Table 21
Significant
impact
assessment
for MNES in
the MID
Corridor

Matters	Significant Impact Criteria	Assessment of a Significant Impact
MNES	Vulnerable species An action is likely to have a significant impact on a vulnerable species if there is a real chance or possibility that it will: <ul style="list-style-type: none"> • Lead to a long-term decrease in the size of an important population of a species • Reduce the area of occupancy of an important population • Fragment an existing important population • Adversely affect habitat critical to the survival of a species • Disrupt the breeding cycle of an important population • Modify, destroy, remove, or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline • Result in invasive species that are harmful to the species becoming established in the vulnerable species' habitat • Introduce disease that may cause the species to decline, or • Interfere substantially with the recovery of the species. 	Unlikely Given that the Project has been designed to occur mostly underground, the need to clear most of the regulated vegetation and species' habitat has been avoided, thus reducing direct impacts to vulnerable species that were considered potentially present within the MID Corridor. The minor clearing proposed for the Project is 1.96 ha in Section 1 OH Component (noting the total MID Corridor is 85.08 ha) and 0.01ha associated with the Freshwater Creek Geotechnical Investigation area, in Goomboora Park (Section 2 UG Component). No MNES threatened flora species were recorded within the area expected to be cleared, though suitable habitat for vulnerable species was confirmed to occur. All conservation significant fauna considered likely or may occur are however mobile species capable of dispersing across the 40m corridor. The remaining habitat outside the MID corridor is expected to be able to absorb any displaced fauna, therefore impacts are considered minor and temporary. With limited clearing of regulated vegetation proposed (1.97 ha), the Project is not likely to lead to a long-term decrease in the size of an important population; reduce the area of occupancy of an important population; fragment an important population into two or more populations; adversely affect habitat critical to the survival of a species; disrupt the breeding cycle of an important population; modify, destroy, remove, isolate, or decrease the availability or quality of habitat to the extent that the species is likely to decline; result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat; or introduce disease that may cause the species to decline or interfere with the recovery of the species. Hence, it is unlikely the Project will result in a significant impact to vulnerable species.
	Migratory Species An action is likely to have a significant impact on a migratory species if there is a real chance or possibility that it will: <ul style="list-style-type: none"> • Substantially modify (including by fragmenting, altering fire regimes, altering nutrient cycles, or altering hydrological cycles), destroy or isolate an area of important habitat for a migratory species • Result in an invasive species that is harmful to the migratory species becoming established in an area of important habitat for the migratory species, or • Seriously disrupt the lifecycle (breeding, feeding, migration or resting behaviour) of an ecologically significant proportion of the population of a migratory species. 	Unlikely Given that the Project has been designed to occur mostly underground, the need to clear most of the regulated vegetation and species' habitat has been avoided thus reducing direct impacts to migratory species that were considered potentially present within the MID Corridor. All migratory fauna considered likely to or may occur are mobile species capable of dispersing across the 40 m corridor. The remaining habitat outside the MID corridor is expected to be able to absorb any displaced fauna, therefore impacts are considered minor and temporary. With limited clearing of regulated vegetation proposed (1.97 ha), the Project is not likely to substantially modify (including by fragmenting, altering fire regimes, altering nutrient cycles, or altering hydrological cycles), destroy or isolate an area of important habitat for a migratory species; or result in an invasive species that is harmful to the migratory species becoming established in an area of important habitat for the migratory species, or seriously disrupt the lifecycle (breeding, feeding, migration or resting behaviour) of an ecologically significant proportion of the population of a migratory species. Hence, it is unlikely the Project will result in a significant impact to migratory species.



Table 22
SRI
Assessment
for MSES in
the MID
Corridor

MSES	Prescribed Matters			SRI Guideline Criteria	SRI
	Regulated vegetation	Prescribed that endangered or of concern	REs area or of concern	An action is LIKELY to have an SRI on an 'endangered' or 'of concern' RE if the action will result in: (a) clearing of more than 5ha of 'endangered' or 'of concern' RE vegetation; (b) clearing that results in an overall area (not confined to property boundaries) of 'endangered' or 'of concern' RE vegetation of less than 5ha; OR (c) clearing that results in the physical separation of 'endangered' and 'of concern' RE communities within and on adjoining sites. Notwithstanding the above, an action is UNLIKELY to have an SRI if the action will result in: (a) lineal clearing (that is for a purpose under section 22A of the <i>Vegetation Management Act 1999; Qld</i>) within 'endangered' or 'of concern' REs not exceeding the width and area thresholds specified in Table 1, State Development Assessment Provisions (SDAP) State Code 16 by more than 25%; where an equivalent area which can be mapped as 'endangered' or 'of concern' in the future is being rehabilitated on the subject site; (b) clearing of less than 10% of the total mapped area of 'endangered' or 'of concern' REs intersecting the property boundaries of the Project, if total clearing is under 5ha; and where an equivalent area which can be mapped as endangered or of concern in the future, is rehabilitated through other locations on the subject site; (c) clearing of 'endangered' or 'of concern' REs not exceeding the width thresholds specified in Table 1, SDAP Module 8 by more than 100% or the area threshold by 50%; where rehabilitated on the subject site; (d) clearing of 'endangered' or 'of concern' REs within width thresholds specifies in Table 1, SDAP Module 8 and not exceeding the area threshold by more than 50%, to a maximum area of 5ha; (e) removal of up to 5% of the total mapped area of 'endangered' REs intersecting the property boundaries of the Project, where not greater than 25m in width; for the purposes of removing fragments, patches, uneven edges or protruding vegetation; (f) removal of up to 10% of the total mapped area of 'of concern' RE intersecting the property boundaries of the Project, where not greater than 50m in width; for the purposes of removing fragments, patches, uneven edges or protruding vegetation; (g) clearing of 'endangered' or 'of concern' vegetation that is equivalent in size/area to existing exempt clearing to be protected via the proposal (i.e. realignment of a boundary which results in a shorter length of exempt clearing through an existing endangered or of concern area than allowed via the existing boundary); OR (h) clearing of REs less than 1.1ha in size where surrounding land uses are zoned for urban purposes or future urban purposes under a local planning instrument.	No Only minor clearing of 1.97 ha of endangered and of concern REs will be required to construct Section 1 OH Component and within the Freshwater Creek Geotechnical Investigation area in Goomboora Park (Section 2 UG Component). This combined area is below the trigger limits (5 ha) for a significant impact on this prescribed matter.



Table 22

SRI
Assessment
for MSES in
the MID
Corridor

MSES	Prescribed Matters		SRI Guideline Criteria	SRI
	Protected Wildlife Habitat	An area that is shown as a high-risk area on the flora survey trigger map, that contains plants that are endangered or vulnerable An area not shown as high risk on the flora trigger map, but contains plants that are endangered or vulnerable	<p>PLANTS - Protected wildlife habitat (plants that are 'endangered' or 'vulnerable' wildlife)</p> <p>An action is UNLIKELY to have an SRI on a plant that is 'endangered' or 'vulnerable' wildlife if the action will result in:</p> <ul style="list-style-type: none"> (a) Clearing of plants that are threatened wildlife and not located within a natural setting (i.e., does not meet the definition of 'in the wild' under the Nature Conservation Act 1992) where the proposal includes translocation; (b) Clearing of up to 10% of the total number of plants that are threatened wildlife occurring on a site where the proposal results in 90% of all plants that are threatened wildlife being retained and protected as a reserve or similar (c) Clearing of regenerating plants that are threatened wildlife which have previously been cleared within the last five years and that are historically maintained through slashing or grazing; OR (d) The proposed relocation of an area of plants that are threatened wildlife less than 1000m² not occurring in a relatively natural ecological situation (e.g., bushland), to a permanent retention area via an approved management plan. 	<p>No</p> <p>A full flora survey, in accordance with the <i>Protected Plant – Flora Survey Guidelines</i> (DES 2020) has not been completed as part of this scope for the MID Assessment. A flora survey of high-risk areas will be completed prior to construction to inform a protected plant clearing permit. While a flora survey was not completed for this MID Assessment, the whole MID Corridor, particularly in the vicinity of remnant and regrowth vegetation areas was meandered for the purpose of searching for protected plants (the only deviation from the guidelines was that the full 100m buffer area that extends outside the MID Corridor was not surveyed). No protected plants were recorded during these meanders and as such it is considered unlikely a threatened plant occurs within the MID Corridor</p> <p>A flora survey was completed for the Freshwater Creek Geotechnical Investigation area in November 2024. No protected plants were recorded. A Flora Survey Report was developed to support an Exempt Clearing Notification for this location (Trend Environmental, 2025b).</p> <p>Therefore, the Project is unlikely to have an SRI on a plant that is 'endangered' or 'vulnerable' wildlife as minimal regulated vegetation clearing is required (1.97 ha of clearing proposed). No amenity/street trees that may need clearing were identified as listed threatened species.</p>
	A habitat for an endangered wildlife or vulnerable wildlife or special least concern animal		<p>ANIMALS - Protected wildlife habitat (habitat for an animal that is 'endangered' or 'vulnerable' wildlife or a special least concern animal)</p> <p>An action is LIKELY to have an SRI on habitat for an animal that is 'endangered' or 'vulnerable' wildlife if the action will:</p> <ul style="list-style-type: none"> (e) lead to a long-term decrease in the size of a local population; (f) reduce the extent of occurrence of the species; (g) fragment an existing population; (h) avoid genetically distinct populations forming as a result of habitat isolation; (i) result in invasive species that are harmful to an endangered or vulnerable species (j) becoming established in the endangered or vulnerable species' habitat; (k) introduce disease that may cause the population to decline, (l) interfere with the recovery of the species; OR (m) cause disruption to ecologically significant locations (breeding, feeding, nesting, migration or resting sites) of a species. 	<p>No</p> <p>The project is unlikely to have an SRI on an animal that is 'endangered' or 'vulnerable' wildlife as minimal regulated vegetation clearing of threatened species' habitat is required.</p> <p>No threatened fauna species were recorded within the MID Corridor or the parts expected to be cleared. In addition, all conservation significant fauna considered possible to occur are mobile species capable of dispersing across the 40 m corridor. The remaining habitat outside the MID corridor is expected to be able to absorb any displaced fauna, therefore impacts are considered minor and temporary.</p>



Table 22
SRI
Assessment
for MSES in
the MID
Corridor

MSES	Prescribed Matters		SRI Guideline Criteria	SRI
	Protected Area	A protected area	<p>Under section 8(2) of the <i>Environmental Offsets Act 2014</i> (Qld), an impact on a protected area is significant if a prescribed activity results, or will or is likely to result, in one or more of the following:</p> <ul style="list-style-type: none"> • The authorised clearing or inundation of all or part of the protected area for the construction of private or publicly owned infrastructure on the area; • The exclusion of, or reduction in, the public use or enjoyment of all or part of the protected area; • A reduction in the natural values or cultural values of all or part of the protected area. 	<p>Yes</p> <p>0.31 ha of the Kamerunga Conservation Park is within the MID Corridor area. Within this 0.31 ha of the park, some regulated vegetation clearing may be required, however micro-siting of the vegetation clearing requirements will be undertaken prior to construction to avoid tree and shrub clearing where possible to minimise impacts. The purpose of the vegetation clearing is for publicly owned infrastructure.</p> <p>The clearing within the 0.31 ha may result in:</p> <ul style="list-style-type: none"> • A loss or reduction of public use or enjoyment of the very eastern part of the protected area, directly adjacent to an existing transmission line corridor. This area, however, is not open parkland for use by the public, but rather vegetated area with nil access. • A reduction of natural values, specifically 0.31 ha of endangered RE7.2.23a which the conservation park is known to protect, as defined in the <i>Kamerunga Regional Park Management Statement</i>. <p>Therefore, the proposed 0.31ha of clearing within the protected area would be considered a significant residual impact which will carry offset implications, with the Project considered a prescribed activity for impacts to protected areas (project conducted under an authority granted, made, issued or given under the <i>Nature Conservation Act 1992</i> (Qld), section 34 in a protected area).</p>
	Marine Plants	A marine plant within the meaning of the <i>Fisheries Act 1994</i> (Qld)	<p>An action is LIKELY to have an SRI on marine plants if:</p> <p>(a) more than 50m² of marine plants above tidal limits will be permanently removed as a result of the Project; AND</p> <p>(b) onsite rehabilitation or restoration will not result in an equal or larger area of marine plants, providing equal or better fisheries values, within 5 years of clearing.</p>	<p>Yes</p> <p>The extent of marine plant clearing within Section 1 OH Component of the MID Corridor is 463m² with no rehabilitation proposed. Micro-siting of the vegetation clearing requirements within this vicinity however will take place prior to construction in order to reduce tree and shrub clearing and ultimately reduce impacts.</p> <p>Therefore, the proposed 463m² of marine plant clearing would be considered a significant residual impact.</p>



ENVIRONMENTAL OFFSETS

9.1 MNES

Under the *EPBC Act Environmental Offsets Policy*, offsets for a project may be required to compensate for adverse or significant impacts to MNES. When offsets to MNES are considered possible and appropriate, the principles within this Policy will apply when determining what constitutes a suitable offset.

Based on the results of our significant impact assessment (Section 8), there is unlikely to be a significant impact to MNES and therefore it is unlikely that offsets will be required to compensate for impacts to MNES. The effective implementation of the hierarchy of management principles of avoid, minimise, mitigate, the remediate provided in *Section 7.4 Hierarchy of Management* will ensure that impacts from the Project will remain low and will not be considered 'significant' which would trigger the need for offsets.

9.2 MSES

For MSES, the Project is unlikely to have a significant residual impact on MSES regulated vegetation or wildlife habitat, however for MSES protected areas and marine plants, significant residual impacts are likely, based on the MSES Significant Residual Impact Guidelines (SDIP, 2014). While this is the case, an offset under the *Environmental Offsets Act 2014* (Qld) would not be required for impacts to marine plants, with the Infrastructure Designation process under the *Planning Act 2016* (Qld) not considered a prescribed activity for the purpose of providing an offset for significant residual impacts to prescribed environmental matters (recognised as MSES). But an offset will be required for impacts to protected areas as this will be conducted under an authority granted, made, issued or given under the *Nature Conservation Act 1992* (Qld), section 34 in a protected area, which is listed as a prescribed activity under Schedule 1 of the *Environmental Offsets Regulation 2014* (Qld).

The *General guide for the Queensland Environmental Offsets Framework* (DEHP, 2024) outlines that an offset is required for significant residual impacts on a protected area to compensate for the loss of unique values for which the land was set aside as a protected area including natural and cultural values, public enjoyment and appreciation, iconic geological and landscape values, tourism and recreational values, and significance to Traditional Owners. When an offset is required as a result of significant residual impacts on a protected area, the offset should be delivered by financial settlement, or with agreement of the Chief Executive of the Department, as a proponent-driven offset. Proponent-driven offsets are considered on a case-by-case basis. In the case of a financial settlement offset for a protected area, the financial settlement will be determined in accordance with Chapter 2 of the Offsets Policy. Once the financial settlement has been agreed between the proponent and the Department, the proponent will be required to transfer the agreed amount to the Department's offset account for receipting. The Chief Executive of the Department will then transfer the funds to Queensland Parks and Wildlife Service and Partnerships for delivery of an activity that provides a social, cultural, economic or environmental benefit to any protected area.

An offset calculation was completed for impacts to 0.31 ha of Kamerunga Conservation Park (located in the Cairns Regional Council LGA, Wet Tropics bioregion, and Innisfail Subregion). **The notional offset area for a proponent-driven offset was 5ha, while financial offset was \$63,620.**



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APPENDIX A

DESKTOP PROTECTED MATTERS
ASSESSMENT REPORT



DESKTOP PROTECTED MATTERS ASSESSMENT REPORT

KAMERUNGA TO WOREE TRANSMISSION LINE
UPGRADE PROJECT

Trend  Environmental
Consultants

August
2025

Prepared on behalf of
JBS&G



EXECUTIVE SUMMARY

Powerlink are the leading Australian providers of high-voltage electricity transmission network services, providing electricity to more than five million Queenslanders, and 253,000 businesses, with the network extending 1,700 kilometres (km) from Cairns to the New South Wales border, and comprising 15,345 circuit km of transmission lines and 147 substations.

Part of this network includes a 132 kilovolt (kV) transmission line in Cairns, Queensland, from the Kamerunga Substation to the Woree Substation. The transmission line provides the critical service of connecting the Barron Gorge power station to the transmission network, supplying power to northern Cairns.

Both the transmission line, and the Kamerunga Substation are reaching the end of their design life and as such are scheduled for replacement. As such, Powerlink are seeking approval to undertake a transmission line replacement project for the 132 kV transmission line between the existing Kamerunga and Woree Substations, with a new 132 kV transmission line. To support this, geotechnical investigations are required along the proposed alignment. In addition, Powerlink are looking to construct a replacement Substation for the Kamerunga Substation (the replacement Substation is referred to herein as the 'new Barron River Substation'). Collectively, the proposed transmission line, the new Barron River Substation and the geotechnical investigation locations are herein referred to as the 'Project'. Approval for the project is being sought via the Ministerial Infrastructure Designation (MID) process under the Queensland *Planning Act 2016* (Planning Act).

The total length from Kamerunga and Woree is approximately 15.9 km) and will be replaced in two sections, Kamerunga to Redlynch (4.3 km) and Redlynch to Woree (11.6 km):

- **Section 1 Overhead (OH) Component (Kamerunga to Redlynch)** will be replaced with an OH transmission line that will be a 132 kV double circuit the same configuration as the existing line. Some limited overlap between the proposed and existing easements may occur at isolated locations. The existing transmission line will be decommissioned and dismantled following completion of the Project. The length of this section is approximately 4.3 km.
- **Section 2 Underground (UG) Component (Redlynch to Woree)** will be replaced with an UG cable. The UG transmission line will include two electrically separate circuits installed in trenches and filled with an engineered thermal backfill. The cable will be restricted mostly to State-controlled and Local Government roadways, with other associated infrastructure including cable joint bays and an underground to overhead (UGOH) structure. Undercrossing techniques will be utilised where required to avoid existing infrastructure such as major roads, rail lines, watercourses, and regulated vegetation. The method of undercrossing will depend on the geotechnical conditions, undercrossing distance and depth. Undercrossing types include single shot Horizontal Directional Drilling (HDD), encompassed HDD, pipe jacking and augering. The length of this section is approximately 11.6 km.

The width of the alignment (referred to throughout the report as the MID Corridor, shown in Map 1) will vary due to road infrastructure and residential land encroaching throughout most of the footprint. For the purpose of the ecological assessment, the MID Corridor includes the following widths:

- **Section 1 OH Component (Kamerunga to Redlynch)** will use mostly a 40 metre (m) wide easement, in line with current Powerlink design standards, which will sit immediately adjacent to the 20 m easement containing the existing transmission line. In some sections a new 60 m easement will be applied where the proposed easement does not adjoin the existing line.
- Where **Section 2 UG Component (Redlynch to Woree)** intersects road reserves, the MID Corridor is considered to be the width of the road reserve, from property boundary to property boundary. Where the corridor intersects easements and park land, the width will generally be 12 m (i.e., 6 m either side of the centre line) unless in non-remnant areas, where the width may be wider.
- The **New Barron River Substation** will encompass a footprint of 220m x 110m.
- The **geotechnical investigation** locations throughout Section 1 OH and Section 2 UG Components each encompass 0.01 hectares (ha).



The existing transmission line will be decommissioned and dismantled following completion of the Project; however, this will be undertaken as a separate project. This report supports approval for Sections 1 and 2 of the Project (encompassing the OH and UG transmission lines, the new Barron River Substation and the geotechnical investigation locations).

This report describes the results of a desktop protected matters assessment that was undertaken for both sections of the proposed transmission line plus the Substation construction and geotechnical assessment from Kamerunga to Redlynch to Woree. This desktop assessment aimed to determine the ecological values that potentially exist in the project area, as these have the potential to be impacted by construction of the project. These ecological values include matters of national environmental significance (MNES) and matters of state environmental significance (MSES). A likelihood of occurrence assessment was completed, as well as a risk assessment to determine the risk rating of impacts likely to occur. The results of this desktop protected matters assessment will inform the field assessment for the project, which will aim to confirm the ecological values that occur within the vicinity of the Project.

Matters of National Environmental Significance

The MNES considered likely to occur or may occur within the MID Corridor, based on desktop mapped habitat values, that have the potential to be impacted by the project include:

- A listed National Heritage Place, the Wet Tropics of Queensland (natural values).
- An endangered threatened ecological community (TEC), *Lowland tropical rainforest of the Wet Tropics*, which has corresponding regional ecosystems mapped within the MID Corridor.
- Eleven Commonwealth listed threatened¹ flora species, 15 threatened fauna species (one amphibian, four birds and ten mammals), and eight migratory species.

Matters of State Environmental Significance

The MSES considered likely to occur or may occur within the MID Corridor, based on desktop mapped habitat values, that have the potential to be impacted by the project include:

- Regulated vegetation including prescribed regional ecosystems that are endangered regional ecosystems.
- Protected wildlife habitat that includes high-risk areas for protected plants on the flora survey trigger map, and habitat for endangered or vulnerable wildlife, or special least concern animals.
- Waterways for fish passage (waterway barrier works).
- Protected area – Kamerunga Conservation Park.
- Marine plants²

Risk Assessment

The risk assessment identified a 'medium' risk of impacts to most MNES and MSES should they be found present within the MID Corridor; and identified a 'low' risk of impacts to the Wet Tropics of Queensland (listed National Heritage Place for its natural values) which while not present within the MID Corridor, does occur within 5km.

While several MNES and MSES were determined likely to occur within the MID Corridor, the medium and low risk ratings were given due to the project being considered low impact for multiple reasons. The project is linear infrastructure with a low width extent, with one section designed to go underground to avoid regulated vegetation clearing and impacts to sensitive areas such as watercourses. The MID Corridor is also located within an already developed urban area with low natural values, and the project will have a relatively short-term impact timeframe, with rehabilitation proposed following construction.

Field ecological surveys are however required to verify the on-ground presence of the MNES and MSES considered likely to occur within the MID Corridor. If the on-ground presence is verified and impacts are likely, these should be avoided, minimised or mitigated wherever possible to reduce impacts.

¹ Threatened wildlife - Wildlife species listed as vulnerable, endangered, or critically endangered under the Environment Protection and Biodiversity Conservation Act 1999 (Cth) or the Nature Conservation Act 1992 (Qld), due to risks of extinction from habitat loss, environmental pressures, or other threats.

² Where the HAT is mapped along the Barron River, the vine forest species that occur would be considered 'material' of an 'other' plant on tidal land, making them a marine plant protected under the Fisheries Act 1994 (Qld).



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INTRODUCTION

1.1 PROJECT BACKGROUND AND LOCATION

Powerlink are the leading Australian providers of high-voltage electricity transmission network services, providing electricity to more than five million Queenslanders, and 253,000 businesses, with the network extending 1,700 kilometres (km) from Cairns to the New South Wales border, and comprising 15,345 circuit km of transmission lines and 147 substations.

Part of this network includes a 132 kilovolt (kV) transmission line in Cairns, Queensland, from the Kamerunga Substation to the Woree Substation. The transmission line provides the critical service of connecting the Barron Gorge power station to the transmission network, supplying power to northern Cairns.

Both the transmission line, and the Kamerunga Substation are reaching the end of their design life and as such are scheduled for replacement. As such, Powerlink are seeking approval to undertake a transmission line replacement project for the 132 kV transmission line between the existing Kamerunga and Woree Substations, with a new 132 kV transmission line. To support this, geotechnical investigations are required along the proposed alignment. In addition, Powerlink are looking to construct a replacement Substation for the Kamerunga Substation (the replacement Substation is referred to herein as the 'new Barron River Substation'). The new Barron River Substation is proposed on Lot 1 on RP716266 and Lot 3 on SP173007 (Map 1). Collectively, the proposed transmission line, the new Barron River Substation and the geotechnical investigation locations are herein referred to as the 'Project'. Approval for the Project is being sought via the Ministerial Infrastructure Designation (MID) process under the *Queensland Planning Act 2016* (Planning Act).

The total length from Kamerunga and Woree is approximately 15.9 km and will be replaced in two sections, Kamerunga to Redlynch (4.3 km) and Redlynch to Woree (11.6 km):

- **Section 1 Overhead (OH) Component (Kamerunga to Redlynch)** will be replaced with an OH transmission line that will be a 132 kV double circuit the same configuration as the existing line. Some limited overlap between the proposed and existing easements may occur at isolated locations. The existing transmission line will be decommissioned and dismantled following completion of the Project. The length of this section is approximately 4.3 km.
- **Section 2 Underground (UG) Component (Redlynch to Woree)** will be replaced with an UG cable. The UG transmission line will include two electrically separate circuits installed in trenches and filled with an engineered thermal backfill. The cable will be restricted mostly to State-controlled and Local Government roadways, with other associated infrastructure including cable joint bays and an underground to overhead (UGOH) structure. Undercrossing techniques will be utilised where required to avoid existing infrastructure such as major roads, rail lines, watercourses, and regulated vegetation. The method of undercrossing will depend on the geotechnical conditions, undercrossing distance and depth. Undercrossing types include single shot Horizontal Directional Drilling (HDD), encompassed HDD, pipe jacking and augering. The length of this section is approximately 11.6 km.

The width of the alignment (referred to throughout the report as the MID Corridor, shown in Map 1) will vary due to road infrastructure and residential land encroaching throughout most of the footprint. For the purpose of the ecological assessment, the MID Corridor includes the following widths:

- **Section 1 OH Component (Kamerunga to Redlynch)** will use mostly a 40 metre (m) wide easement, in line with current Powerlink design standards, which will sit immediately adjacent to the 20 m easement containing the existing transmission line. In some sections a new 60 m easement will be applied where the proposed easement does not adjoin the existing line.
- Where **Section 2 UG Component (Redlynch to Woree)** intersects road reserves, the MID Corridor is considered to be the width of the road reserve, from property boundary to property boundary. Where the corridor intersects easements and park land, the width will generally be 12 m (i.e., 6 m either side of the centre line) unless in non-remnant areas, where the width may be wider.
- The **New Barron River Substation** will encompass a footprint of 220m x 110m.
- The **geotechnical investigation** locations throughout Section 1 OH and Section 2 UG Components each encompass 0.01 hectares (ha).

The existing transmission line will be decommissioned and dismantled following completion of the Project; however, this will be undertaken as a separate project. This report supports approval Sections 1 and 2 of the Project (encompassing the OH and UG transmission lines, the new Barron River Substation and the geotechnical investigation locations).

KAMERUNGA TO WOREE TRANSMISSION LINE MAP 1 PROJECT LOCATION

Legend

- MID Corridor
- Woree Substation
- New Barron River Substation
- Survey Area
- Freshwater Creek Geotechnical Investigation area

Transmission Line

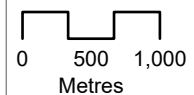
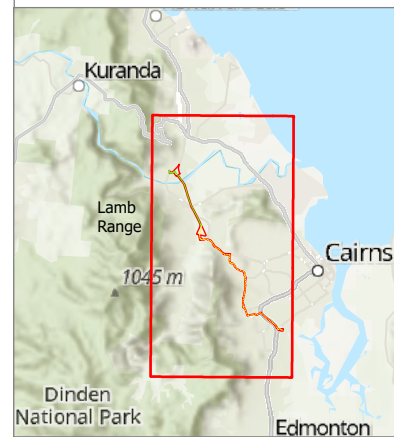
- Section 1 OH Component
- Section 2 UG Component

Mount Whitfield
Conservation Park

Goomburra
Park

Lamb Range

Freshwater Creek Geotechnical Investigation area



Scale: 1:55,000

Coordinate System: GDA 1994 MGA Zone 55

Trend Environmental
Consultants

Sources: MID, Substation Infrastructure, GeoTech area (Powerlink), Ecological Data (Trend), Desktop Planning & Environment Data (QSPatial)

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Prepared: MG

Checked: EK

Date: 01 Aug 2025

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Map 1: KAMERUNGA TO WOREE TRANSMISSION LINE PROJECT LOCATION



1.2 PURPOSE OF THE DESKTOP PROTECTED MATTERS ASSESSMENT AND REPORT

The primary purpose of this Desktop Protected Matters Assessment Report was to document the ecological values that are most likely to occur within the MID Corridor, or within close proximity, that have the potential to be impacted by the project. These ecological values include matters of national environmental significance (MNES) and matters of state environmental significance (MSES). This Desktop Protected Matters Assessment Report has been drafted to support the MID proposal for the project.

The objectives of the desktop assessment were to:

- Undertake a desktop assessment (review of all available databases and relevant information) to determine the key ecological values that are likely to occur within or within close proximity to the MID Corridor.
- Assess the potential for the area to support habitat for threatened species by undertaking a likelihood of occurrence assessment.
- Undertake a risk assessment that determines the level of risk of impacts to MNES and MSES to allow mitigation measures to be implemented from the get-go to reduce impacts.

1.3 TERMINOLOGY

The below terms have been adopted throughout this report, and shown on the various figures where relevant:

- **MID Corridor:** A corridor encompassing the transmission line which is widened to allow the Design, Procure and Construct Contractor sufficient area to carry out the design for the final alignment. The MID Corridor encompasses Section 1 OH Component, Section 2 UG Component (including the geotechnical investigation locations and the new Barron River Substation).
- **Survey Area:** The area surveyed by ecologists, which was generally taken to be a 100m buffer area (larger in some areas) around the MID Corridor. The Survey Area was used to adequately capture ecological values adjacent to the proposed transmission line, to evaluate impacts upon the environment.
- **Section 1 OH Component:** The OH component of the transmission, which will be constructed from the Kamerunga Substation in Kamerunga, to Redlynch, approximately 600 m north of Goomboora Park. This section also contains the new Barron River Substation that is proposed to be constructed as part of the Project and includes geotechnical investigation areas.
- **Section 2 UG Component:** The UG component of the transmission, which will be constructed from north of Goomboora Park in Redlynch to the Woree Substation. The section also contains geotechnical investigation areas, including the Freshwater Creek Geotechnical Investigation area.
- **New Barron River Substation:** A new substation proposed on Lot 1 on RP716266 and Lot 3 on SP173007.
- **Freshwater Creek Geotechnical Investigation Area:** Geotechnical investigation area proposed along the UG component of the transmission line, adjacent to Freshwater Creek in Goomboora Park.

The MID Corridor, Section 1 OH Component, Section 2 UG Component, the Freshwater Creek Geotechnical Investigation area and the new Barron River Substation are shown in Map 1.

1.4 ENVIRONMENTAL SETTING

The transmission line is aligned from Kamerunga to Woree, approximately 5 km to the west of Cairns City, in north Queensland. The MID Corridor is approximately 15.9 km long, passing through the suburbs of Caravonica, Kamerunga, Redlynch, Kanimbla, Mooroolool, Earlville and Woree and comprises freehold properties for Section 1 OH Component of the MID corridor and the new Barron River Substation, and mostly road reserves for Section 2 UG Component, but also an easement and freehold parkland (Goomboora Park).

The Project is located within the Wet Tropics bioregion but does not intersect the Wet Tropics World Heritage Area. The Cairns region is warm and temperate, with annual rainfall 1,992 millimetres (BoM 2023).

The catchment for the MID Corridor is the Wet Tropics region. The MID Corridor is located within two drainage basins, the Barron Basin in the north, and Mulgrave Basin in the south. Several freshwater ephemeral and permanent streams flow throughout the MID Corridor. No groundwater dependent ecosystems were mapped as present in the Cairns Local Government Area (LGA) on Queensland Globe.



The MID Corridor contains mostly non-remnant vegetation, however there are some patches of remnant and regrowth vegetation that are typically associated with ephemeral or permanent watercourses. Vegetation communities present in these remnant and regrowth areas include alluvial notophyll to mesophyll vine forest, and mixed eucalypt open forest to woodland with a vine forest understorey.

1.5 BIOREGION AND SUBREGION

The MID Corridor is located within the Wet Tropics bioregion but does not intersect the Wet Tropics World Heritage Management Area (Wet Tropics Management Authority). This bioregion is dominated by rugged topography that is divided by a number of major basins, including the Daintree River, Mossman River, Barron River, Mulgrave-Russell River, Johnstone River, Tully River, Murray River and the Herbert River basins.

The MID Corridor traverses the relatively flat urban environment of the Cairns LGA and has elevations between 7 – 55 m Australian Height Datum (AHD), which predominantly consist of reddish-brown sand clay loam with metamorphic rock gravels, clay and silty loam on alluvium.

1.6 PROJECT DETAILS

1.6.1 Project Proponent

The owner, developer, operator and maintainer of the proposed transmission line is:

Powerlink Queensland

Address 33 Harold St, Virginia Queensland 4014
PO Box 1193, Virginia Queensland 4014
Telephone: (07) 3860 2111, 1800 635 369
Website: www.powerlink.com.au

1.6.2 Preliminary Studies Completed to Date

Powerlink has completed several separate studies examining a range of study corridors and concept alignments within a broader study area for the replacement, considering both OH and UG components and the new Barron River Substation. These studies have included concept route identification and engineering reviews to determine the most feasible construction option, route and construction techniques to be employed. A list of studies completed to date include but may not be limited to:

- CP.01489 Woree – Kamerunga Easement Acquisition. Project Proposal, version 2.0 (Powerlink Queensland, 2021a).
- CP.01489 Woree – Kamerunga Preliminary Investigation Report, version 2.0 (Powerlink Queensland, 2018).
- CP. 02731 Redlynch to Woree Concept Route Identification, version 1.0.3 (Powerlink Queensland, 2020).
- CP. 02731 Route Selection and Evaluation for a Dual Circuit 132kV Underground Connection between Redlynch and Woree (Cable Systems Engineering, 2021).
- Redlynch to Woree Overhead Line Route Concept Report (Callaghan, 2021).
- CP.02731 Existing Overhead Alignment Use Options Summary (Powerlink Queensland, 2021b).
- CP.02731 Redlynch to Woree Easement Acquisition Options Summary (Powerlink Queensland, 2022).

This Desktop Protected Matters Assessment Report examines the alignment that has been deemed the most feasible, which is OH for Section 1 (Kamerunga to Redlynch) and UG for Section 2 (Redlynch to Woree) constructed using both trenching and undercrossing construction techniques.

1.6.3 Design

Section 1 Kamerunga to Redlynch (Overhead)

The replacement OH transmission line will be a 132 kV double circuit, the same configuration as the existing. Construction of the proposed transmission line will involve a series of field activities which are broadly grouped as follows – site set out including establishment of laydowns areas and access tracks; pre-construction surveys, vegetation clearing; foundation installation; structure assembly and erection; conductor and earth wire stringing; site rehabilitation and demobilisation.



Section 2 Redlynch to Woree (Underground)

The UG transmission line will include two electrically separate circuits installed in trenches and filled with an engineered thermal backfill. Where an easement is required (for example freehold lots) the transmission line will be within a 12 m wide easement (6 m either side of the cable). Where the UG transmission line is located where an easement is not able to be granted (for example Road Parcels) agreement will be obtained from the landowner or manager. Concrete cable joint bays will be installed every 800 – 1,000 m to join each drum of cable together. Each joint bay is approximately 13 m by 2.5 m in size. The project will include nine sections, with a total of eight joint bays. Additionally, an UGOH structure will be required at the Redlynch transition site to transition the OH transmission line from Kamerunga Substation, to UG.

The construction of the Redlynch to Woree UG transmission line will involve two different construction techniques:

- Construction of a trench that will be excavated in the roadway.
- Undercrossing techniques using single shot HDD, encompassed HDD, pipe jacking and augering. Undercrossing techniques will be used where infrastructure needs to be avoided (i.e., major roads, rail lines, watercourses or regulated vegetation). The method of undercrossing will depend on the geotechnical conditions, undercrossing distance and depth.

The following outlines the construction details:

- Trenched Design - The trenching and conduit will typically take one to two years to construct, and involve site set out, excavation of 12 – 14 m of trench per day, installing of conduits, backfilling with thermal backfill, temporary surface reinstatement then surface reinstatement.
- Undercrossing Design - The use of HDD technologies is a process referred to as undercrossing. It is typically applied to areas where an open cut trench is either impractical or unfeasible. These undercrossings will typically take one year to construct, and involve site set out, establishing launch and retrieval locations, installing undercrossings and site reinstatement.
- Joint Bays - Joint bays will be approximately every kilometre and approximately 13 m by 2.5 m in size. They will typically take one to two years to construct, and involve site set out, excavation, installation of framework, pouring of concrete footing and walls, and installation of covers.
- Cable installation and jointing - Cable installation and jointing will typically take two to three years to construct, and involve cleaning conduits, setting up cable drums and winching equipment, pulling cable in, making joints, and testing and commissioning.

New Barron River Substation

The new Barron River Substation is proposed on a site that is predominately level and characterised by open grassland with a very sparse tree layer. The new Barron River Substation is proposed on Lot1 on RP716266 and Lot 3 on SP173007. The location of the new Barron River Substation is shown in Map 1. The substation will encompass a footprint of approximately 220 m x 110 m.

The requirement for earthworks for the new substation is likely to be minimal, and vegetation removal is likely to be restricted to scraping back of the ground layer, with removal of a low number of trees. A pad will be constructed to raise the new substation site above Q200 flood levels to avoid flood impacts. The construction period is anticipated to commence in 2026 and to take around three years.

The majority of infrastructure will generally be in the form of prefabricated concrete structures, transported to the substation site and assembled. Once all non-electrical support structures have been erected, the busbars and high voltage electrical equipment will be placed in position and all electrical connections made. Cables that carry the control and protection signals to the control equipment located in the bay buildings will be laid and all connections made. Conductors are strung between the high-level gantries and connections made to the high voltage equipment. The final connection to be made is that of the incoming transmission lines.

Associated with the construction of the new substation, is the phased decommissioning of the existing Kamerunga substation, followed by the removal of redundant equipment. This will form part of a separate scope. The summary of overall works (in staging order) at the substations will comprise design, civil works; electrical erection, secondary systems installation, construction testing, cut in / energisation works and decommissioning and removal of redundant equipment.

Geotechnical Assessment Locations

The Project will be subject to geotechnical investigations. Most of these investigation locations are within already disturbed areas, for example road ways or urban land. The Freshwater Creek Geotechnical Investigation area however will be located adjacent to Freshwater Creek in Goomboura Park which is within a remnant vegetation area. The location of the Freshwater Creek Geotechnical Investigation area is shown in Map 1. This Geotechnical Investigation location will encompass a footprint of 0.01 ha and from herein will be the only geotechnical investigation area referred to for impact assessment purposes due to its potential for impacts to ecological values



REGULATORY FRAMEWORK

The environmental legislation described in Table 1 are relevant to the project and were investigated to determine the potential constraints in terms of environmental approvals, based on potential impacts from the project on key ecological values.

Table 1	Legislation	Description	Relevance
Relevant environmental legislation	COMMONWEALTH (cth)	<i>Environment Protection and Biodiversity Conservation Act 1999</i> The purpose of the <i>EPBC Act</i> (Cth). Is to protect and manage nationally and internationally important flora and fauna, ecological communities, and heritage places. These are considered MNES. The EPBC Act recognises 10 nine MNES, including listed threatened species and communities, listed migratory species, RAMSAR wetlands and world heritage properties. The Act applies to all land tenures, where a development is likely to have a significant impact on an MNES, in which the project is to be referred to the Department of Climate Change, Environment, Energy and Water (DCCEEW) for assessment as to whether the action is a 'controlled action', requiring Commonwealth approval. A protected matters database search can be conducted which lists all MNES that are considered known or likely to occur within a given area. This search determines what MNES are most relevant to the project which therefore have the potential to be impacted. Offsets under the <i>EPBC Act Environmental Offsets Policy</i> may be a requirement to compensate for any significant impacts of a controlled action on an MNES after avoidance and mitigation measures have been considered.	A significant impact assessment is required for any MNES found present within the MID Corridor, which will inform the requirement for an EPBC Referral. If impacts are deemed significant and they cannot be avoided or mitigated, environmental offsets may apply under the <i>EPBC Act Environmental Offsets Policy</i> . A significant impact assessment will be included within the Ecological Assessment Report that includes the results of the field ecological assessments for the project.
		Australian Weed Strategy The Australian Weeds Strategy provides a framework to provide guidance and identify priorities for weed management on a national level, with the aim of minimising the impact of weeds on Australia's environmental, economic, and social assets. Under the Australian Weeds Strategy, 32 weeds of national significance (WoNS) are currently recognised. These weeds have been identified due to their invasiveness, potential for spread, and environmental and socio-economic impacts. A targeted plan for each WoNS is available.	The presence of WoNS within the MID Corridor needs to be assessed prior to construction to ensure control strategies can be implemented to limit the spread of these invasive weeds. WoNS identified within the MID Corridor during ecological surveys will be described within the Ecological Assessment Report that includes the results of the field ecological assessments for the project.
		<i>The Planning Act 2016</i> The <i>Planning Act 2016</i> (Qld) aims to establish an efficient and accountable system of land-use planning and development assessment, that balances the protection of ecological processes and economic development at local, regional, and state levels. The Act achieves this through state planning policies, planning schemes, and the development assessment system. The <i>Planning Regulation 2017</i> (Qld) sets out planning controls for proposed development under the Act, and defines prohibited, assessable, and accepted development when dealing with key ecological values (e.g., koala habitat in southeast Queensland; SEQ wetland protection areas and native vegetation), which then are assessed under separate legislation (e.g., the <i>Nature Conservation Act 1992</i> , <i>Vegetation Management Act 1999</i> or <i>Fisheries Act 1994</i> ; Qld). Under the Act, infrastructure development under a designation (i.e., MID) is considered 'accepted development', meaning no further development approvals are required under the <i>Planning Act 2016</i> (Qld). Therefore, any legislation relevant under the Act and Regulation aren't triggered.	Chapter 2, Part 5 of the <i>Planning Act 2016</i> (Qld) allows for the Minister of the Department of State Development, Infrastructure, Local Government and Planning (DSDILGP) to designate premises for the development of infrastructure, prescribed by Schedule 5 of the <i>Planning Regulation 2017</i> (Qld). The project is defined as 'electricity operating works' under Schedule 5, Part 2, Item 7 of the <i>Planning Regulation 2017</i> (Qld) and as such will be subject to designation. Hence, the project will be considered 'accepted' development under the <i>Planning Act 2016</i> (Qld).
	STATE		



Legislation	Description	Relevance
<i>Electricity Act 1994</i>	The <i>Electricity Act 1994 (Qld)</i> sets out the requirements in which all electricity industry participants must follow to ensure a safe, efficient, and reliable supply of electricity. It also requires that the supply of electricity is undertaken in an environmentally sound manner.	Under section 31(1b) of the <i>Electricity Act 1994 (Qld)</i> , 'a transmission entity is required to properly consider the environmental effects of its activities under the transmission authority'. As such, this report has been prepared to assess the projects impacts on ecology matters.
STATE	<p>The purpose of the <i>Nature Conservation Act 1992 (Qld)</i> is to protect Queensland's natural areas and biota, through the creation of national parks, reserves, conservation areas and the protection of threatened and special flora and fauna. The Act regulates development in protected areas and where protected species have been recorded by upholding a permit and licensing system for the taking and keeping of native wildlife. The Regulations (<i>Nature Conservation (Animals)</i> and <i>Nature Conservation (Plants) Regulations 2020</i>) provide lists of flora and fauna species that are extinct, extinct in the wild, critically endangered, vulnerable, near threatened, and special least concern. Should these species or their habitat be present in the vicinity of any project, this may result in permit requirements under the Act to interfere with them, such as Species Management Programs for interfering with animal breeding places.</p> <p>The Act also regulates development within koala habitat areas through the <i>Nature Conservation (Koala) Conservation Plan 2017</i>, and provides the flora survey trigger mapping, which shows 'high-risk' areas for protected plants (those protected under the Act) within non-protected areas which is used to assist flora survey and clearing permit requirements for impacted developments.</p>	<p>The MID Corridor contains high-risk mapping for protected plants on the flora survey trigger map. It is therefore a requirement that a flora survey be undertaken by a suitably qualified person prior to construction, and a clearing permit applied for, should protected plants be present.</p> <p>The MID Corridor will also need to be assessed for animal breeding places prior to construction. Should these exist within the footprint and are likely to be impacted by construction, a Species Management Program will be required.</p> <p>The MID Corridor also contains a protected area [estate], the Kamerunga Conservation Park, which will require a s34 and s35 – easement arrangement under the Nature Conservation Act 1992 (Qld). While regulated vegetation clearing may be required in this Conservation Park, micro-siting of the vegetation clearing requirements will be undertaken prior to construction to avoid tree and shrub clearing where possible to minimise impacts.</p>
	<p><i>Vegetation Management Act 1999</i></p> <p>The purpose of the <i>Vegetation Management Act 1999 (Qld)</i> is to regulate the clearing of native vegetation in Queensland, through conserving native vegetation, preventing the loss of biodiversity and maintaining ecological processes. The Act applies to all vegetation, other than that in state forests, national parks and certain other tenures defined under the <i>Forestry Act 1959 (Qld)</i> and the <i>Nature Conservation Act 1992 (Qld)</i>. The Act uses a series of maps to determine what vegetation is regulated and would require assessment should it be cleared for development. Regulated vegetation is categorised¹¹ by its level of protection, including Category A (Vegetation offsets/compliance notices), Category B (Remnant vegetation), Category C (High-value regrowth vegetation), Category R (Reef regrowth watercourse vegetation), and Category X (Exempt clearing work on Freehold, Indigenous and Leasehold land).</p> <p>Categories containing remnant or regrowth vegetation are classified into protection types for regional ecosystems (RE): endangered, of concern or least concern. The Act also regulates the clearing of vegetation that is considered essential habitat for species of state significance or is in close proximity to mapped wetlands and watercourses.</p>	<p>The project is considered 'accepted' development under the <i>Planning Act 2016 (Qld)</i> as it will be subject to a MID. Therefore, operational works within regulated vegetation areas specified within Part 3 of <i>Planning Regulation 2017 (Qld)</i> do not require approval for this project.</p> <p>This is also listed under section 112A of the <i>Electricity Act 1994 (Qld)</i>, whereby the project is considered 'accepted development' for clearing native vegetation under the <i>Vegetation Management Act 1999 (Qld)</i>, on land that is designated by the Minister under the <i>Planning Act 2016 (Qld)</i>.</p>



Legislation	Description	Relevance
<i>Fisheries Act 1994</i>	The <i>Fisheries Act 1994</i> (Qld) is responsible for ensuring Queensland fisheries resources remain economically viable and socially acceptable; and any development is ecologically sustainable. This Act regulates development which is likely to impact on marine plants (e.g., mangroves); fish passage when development is considered waterway barrier works; and declared fish habitat areas.	<p>A review of the Highest Astronomical Tide (HAT) mapping on Queensland Globe suggests that the Barron River in the vicinity of the MID Corridor crossing is tidal and as such may contain marine plants protected under the Fisheries Act.</p> <p>The project contains mapped waterways for waterway barrier works that could be impacted by the project.</p> <p>The project is considered 'accepted' development under the <i>Planning Act 2016</i> (Qld) as it will be subject to a MID. Therefore, operational works within fisheries areas specified within Part 3 of <i>Planning Regulation 2017</i> (Qld) do not require approval.</p>
STATE <i>Environmental Protection Act 1994</i>	The <i>Environmental Protection Act 1994</i> (Qld) lists obligations and duties to prevent environmental harm, nuisances, and contamination. The Act provides the regulatory framework to help reduce and eliminate pollution into the air, land, and water. The Act provides maps under the <i>Environment Protection Regulation 2019 (Qld)</i> that identify the location of wetland protection areas (WPA), which are buffer areas that protect high ecologically significant (HES) wetlands from high impact earthworks, as defined under the <i>Planning Regulation 2017</i> (Qld).	<p>The project is considered 'accepted' development under the <i>Planning Act 2017</i> as it will be subject to a MID. Therefore, operational works within WPAs specified within Part 3 of <i>Planning Regulation 2017</i> (Qld) do not require approval.</p>
<i>Water Act 2000</i>	The purpose of the <i>Water Act 2000</i> (Qld) is to sustainably plan, manage and protect the state's water resources. Waters mapped in the watercourse identification map are protected. Activities within 'mapped' waters may require a riverine protection permit, including activities such as destroying vegetation, excavating, or placing fill.	<p>The project is considered 'accepted' development under the <i>Planning Act 2016</i> (Qld) as it will be subject to a MID. Therefore, operational works within protected watercourses under the <i>Water Act 2000</i> (Qld) as specified within Part 3 of <i>Planning Regulation 2017</i> (Qld) do not require approvals for this project.</p> <p>Also, an electrical entity under the <i>Electricity Act 1994</i> (Qld) is an approved entity considered exempt from applying for a Riverine Protection Permit under the <i>Water Act 2000</i> (Qld).</p>



Legislation	Description	Relevance
STATE	<p><i>Environmental Offsets Act 2014</i></p> <p>Under the <i>Environmental Offsets Act 2014</i> (Qld) an environmental offset is defined as an activity undertaken to counterbalance a 'significant residual impact' of a prescribed activity on a prescribed environmental matter. An environmental offset may be required as a condition of an approval under various legislation, where following consideration of avoidance and mitigation measures, a prescribed activity is likely to result in a significant residual impact on a prescribed environmental matter. Significant residual impacts for prescribed activities listed in the <i>Planning Regulation 2017</i> (Qld) are determined through the application of criteria outlined in the <i>Significant Residual Impact Guidelines</i> (SDIP, 2014).</p> <p>Prescribed activities that may require offsets are outlined in Schedule 1 of the <i>Environmental Offsets Regulation 2014</i> (Qld). A prescribed environmental matter can be a matter of national, state, or local environmental significance, and includes but are not limited to protected areas, endangered or vulnerable wildlife, essential habitat, prescribed regional ecosystems, connectivity areas, wetlands and watercourses, fish habitat areas, waterways for fish passage and marine plants.</p>	<p>Environmental offsets may be required if impacts from a prescribed activity on prescribed environmental matters under the <i>Environmental Offsets Act 2014</i> (Qld), are deemed to be significant after avoidance and mitigation measures have been implemented.</p> <p>The Infrastructure Designation process under the <i>Planning Act 2016</i> (Qld) is not considered a prescribed activity for the purposes of providing an offset under the <i>Environmental Offset Act 2014</i> (Qld). Regardless, the avoid, minimise, mitigate approach to the Project should be employed. In this regard, a significant impact assessment should be completed to determine mitigation measures to reduce impacts on MSES.</p> <p>The project will however be considered a prescribed activity for:</p> <ul style="list-style-type: none"> • Impacts to protected areas as this will be conducted under an authority granted, made, issued or given under the <i>Nature Conservation Act 1992</i> (Qld), section 34 in a protected area. • The taking of a protected plant within the meaning of the <i>Nature Conservation Act 1992</i> (Qld; should these be confirmed within the clearing impact area and cannot be avoided) under a protected plant clearing permit under the <i>Nature Conservation (Plants) Regulation 2020</i> (Qld).
	<p><i>Coastal Protection and Management Act 1995</i></p> <p>The <i>Coastal Protection and Management Act 1995</i> (Qld) provides for the protection, conservation, rehabilitation and management of the coastal zone, including its resources and biological diversity and works with the Planning Act 2016 to guide land use planning and development assessment decisions on Queensland's coast. Development activities can have significant impacts on the processes and ecological values of coastal areas including beaches, dunes and foreshores. Regulating development in these areas helps protect and conserve environmental, social and economic values of coastal resources and enhances the resilience of coastal communities to coastal hazards.</p>	<p>The project is considered 'accepted' development under the <i>Planning Act 2016</i> (Qld) as it will be subject to a MID. Therefore, operational works within coastal areas specified within Part 3 of <i>Planning Regulation 2017</i> (Qld) do not require approval for this project within coastal areas.</p>
	<p><i>Biosecurity Act 2014</i></p> <p>The <i>Biosecurity Act 2014</i> (Qld) provides management measures to protect the environment from pests and diseases. Under the Act, invasive plants and animals are categorised as either a 'prohibited matter' or 'restricted matter'. Local governments in Queensland are required to develop a Biosecurity Plan to manage these matters that are present within the local area.</p>	<p>Invasive plants and animals need to be assessed in the field to support the MID process.</p> <p>A Biosecurity Management Plan should be developed to support construction of the project and to achieve requirements under the <i>Biosecurity Act 2014</i> (Qld).</p> <p>Interfering with or moving biosecurity matters may require a biosecurity certificate or biosecurity instrument permit prior to construction.</p>



METHODOLOGY

3.1 DESKTOP ASSESSMENT

The desktop assessment was undertaken to characterise and identify potential ecological values that may be present within the MID Corridor. This desktop assessment included a review of literature, and a review of all relevant publicly available environmental databases, and maps (Table 2).

Table 2
Information
sources reviewed
during the desktop
assessment

Type	Source
Legislation	State <i>Vegetation Management Act 1999, Nature Conservation Act 1992, Fisheries Act 1994, Water Act 2000, Environmental Protection Act 1994, Coastal Protection and Management Act 1995, Environmental Offsets Act 2014, Biosecurity Act 2014</i>
	Commonwealth <i>EPBC Act 1999</i>
Imagery	Queensland Globe 2024
	Google Earth Pro 2024
	QImagery Historic Imagery
	NearMap Imagery
Database searches and maps	Department of Climate Change, Energy, Environment and Water (DCCCEEW) EPBC Act Protected Matters Search Tool (PMST; 20km buffer)
	Department of Natural Resources, Mines and Energy (DNRME) Regulated Vegetation and Regional Ecosystem Mapping
	Department of Environment, Science and Innovation (DESI) Flora Survey Trigger Mapping
	Queensland Wetland Environmental Values Maps (High and General Ecological Significant wetlands)
	Queensland Waterways for Waterway Barrier Works Map
	Fish Habitat Area Map (Development Assessment Mapping Systems; DAMS)
	Matters of State Environmental Significance Mapping (Queensland Globe)
	Matters of State Environmental Significance Report (DESI)
	Protected Areas Mapping (Queensland Globe)
	DESI WildNet species record database (20km buffer)
	Atlas of Living Australia Occurrence Records
	Highest Astronomical Tide (Queensland Globe)

3.2 LIKELIHOOD OF OCCURRENCE ASSESSMENT

Threatened species, if found present within the MID Corridor, cause constraints to development due to the potential for impacts. From a desktop perspective, a likelihood of occurrence assessment can be undertaken to determine the likelihood these species will be found within the MID Corridor, which provides an indication of potential impacts for the project. This assessment also informs the field ecological assessment component of the project.

The *EPBC Act* PMST uses bio-climatic modelling to predict suitable habitat for MNES, and where MNES may be present, but does not necessarily indicate the actual presence of MNES. Whilst the WildNet species list provides verified records of threatened species within a given search extent. To determine the likelihood of the species identified in the *EPBC Act* PMST and the WildNet species list occurring within the MID Corridor, a likelihood of occurrence assessment was undertaken. This determined the species that were considered 'likely to occur', 'may occur' or 'unlikely to occur' based on the definitions provided in Table 3 below. The likelihood of occurrence assessment results have been provided in Appendix A of this report.

**Table 3**

Explanation of terms used in the likelihood of occurrence assessment

Terms	Definition
Likely to occur	The MID Corridor supports the species preferred habitat, with associated habitat attributes (e.g., microhabitats), AND recent (<10 years) and adjacent (<5km) individuals have been recorded, OR its potential presence was identified by other means (e.g., habitat suitability model) and its likelihood could not be discounted.
May occur	The MID Corridor may contain suitable habitat and associated habitat attributes for the species, AND/OR recent (<10 years) and adjacent (<5km) individuals have been recorded.
Unlikely	The MID Corridor does not support the species habitat and associated habitat features, OR the species was not identified following comprehensive surveying, OR surveys identified that the MID Corridor was void of associated habitat features critical for the species persistence and survival.



RESULTS

4.1 MATTERS OF NATIONAL ENVIRONMENTAL SIGNIFICANCE

The PMST report (updated 21 June 2023) identified MNES that were known to occur or may occur within the vicinity (EPBC Protected Matters Search results provided in Appendix B). This report identified:

- Two world heritage properties: The Great Barrier Reef (GBR) and the Wet Tropics of Queensland.
- Three National Heritage Places: The Wet Tropics World Heritage Area (Indigenous Values), Great Barrier Reef, and Wet Tropics of Queensland (Natural Values).
- Three threatened ecological communities (TECs).
- 63 threatened species (22 flora and 41 fauna).
- 68 migratory species.

The GBR is unlikely to be impacted by the project given the transmission line is linear infrastructure with a relatively narrow footprint and is set back over 4km from the coast. The project is also not located within the Wet Tropics World Heritage Area but is located within the Wet Tropics of Queensland (natural values). Impacts to the natural values of this region need to be determined.

A determination of the likelihood of presence of the TECs was undertaken by reviewing whether any of the corresponding RE listed within the DCCEEW Conservation or Listing Advice were mapped within the MID Corridor. Based on these, one TEC was considered likely to occur within the Corridor (Table 4).

The likelihood of occurrence assessment for MNES threatened flora and fauna species, and migratory species (Appendix A) identified eleven Commonwealth listed flora species, 15 Commonwealth listed fauna species (one amphibian, four birds and ten mammals), and eight migratory species as likely to occur, or may occur within the MID Corridor (summarised in Table 6 and Table 7 respectively).

Table 4
Threatened
Ecological
Communities

TEC Community	Status ¹	Presence	Corresponding REs ²
Broad leaf tea-tree (<i>Melaleuca viridiflora</i>) woodlands in high rainfall coastal north Queensland	EN	Unlikely	No corresponding REs that constitute this TEC are mapped within MID Corridor.
Lowland tropical rainforest of the Wet Tropics	EN	Likely to occur	to RE7.3.10, 7.3.23 7.11.7^ mapped in the study area could constitute this TEC.
Littoral Rainforest and Coastal Vine Thickets of Eastern Australia	CE	Unlikely	No corresponding REs that constitute this TEC are mapped within MID Corridor.

¹ EPBC Act Status: CE = Critically Endangered, EN = Endangered, VU = Vulnerable.

² Patches of vegetation characterised by these REs are only considered the TEC if they meet the key diagnostic criteria within the relevant Conservation or Listing Advice. State-mapped REs mapped throughout the MID Corridor are shown in Map 2.

Notes: TECs that are unlikely to be present in the MID Corridor due to lack of corresponding REs, have been greyed out.

4.2 MATTERS OF STATE ENVIRONMENTAL SIGNIFICANCE

4.2.1 Regulated Native Vegetation

In Queensland, remnant and high value regrowth vegetation is described and mapped by the Queensland Herbarium as REs. REs are vegetation communities within a bioregion that consistently associate with a particular combination of geology, landform and soil (Neldner et al., 2023). REs mapped within the MID Corridor have been described in Table 5, and shown on Map 2.

Most of the MID Corridor is mapped as non-remnant vegetation that has previously been cleared to support urban development. There are however some mapped scattered patches of Category B (Remnant), Category C (High-value regrowth) and Category R (Reef regrowth watercourse vegetation) vegetation throughout the MID Corridor (Map 2). These areas are mapped as least concern, of concern or endangered REs. The mapped REs are present as homogenous polygons.



Table 5	RE	Category ¹	Description	VMA Class ²
Dominant REs mapped within the MID Corridor	7.3.10a	B, C and R	<i>Mesophyll vine forest. Moderately to poorly drains alluvial plains, of moderate fertility. Lowlands of the very wet and wet zone. Not a wetland.</i>	OC
	7.3.12a	R	<i>Eucalyptus tereticornis</i> (Queensland Blue Gum), <i>Corymbia tessellaris</i> (Moreton Bay Ash), <i>Eucalyptus pellita</i> (Large-fruited Red Mahogany), <i>Corymbia intermedia</i> (Pink Bloodwood), <i>Melaleuca dealbata</i> (Blue Paperbark) and <i>Lophostemon suaveolens</i> (Swamp Mahogany) woodland to open forest, often with a secondary tree layer of <i>Acacia mangium</i> (Brown Salwood) and <i>Acacia crassicaarpa</i> (Northern Wattle). Alluvial plains of lowlands. Not a wetland.	EN
	7.3.23a	B and R	<i>Simple-complex, semi-deciduous notophyll to mesophyll vine forest. Lowlands on alluvium, predominantly riverine levees of the moist and dry rainfall zones. Riverine.</i>	EN
	7.3.26	B	<i>Casuarina cunninghamiana</i> woodland to open forest on alluvium fringing streams	OC
	7.3.28a	B	<i>Open water within natural non-tidal rivers. Rivers and creeks. Riverine.</i>	OC
	7.3.45b	R	<i>Corymbia clarksoniana</i> (Clarkson-s Bloodwood) woodland to open forest. May include small areas of <i>Acacia leptostachya</i> shrubland. Alluvial plains. Not a wetland.	LC
	7.11.7a	R	<i>Complex notophyll vine forest (with emergent Agathis robusta; Kauri Pine). Foothills and uplands of areas excluding the Seaview Range Subregion. Moist rainfall zone. Not a wetland.</i>	LC
	7.11.18a	R	<i>C. intermedia</i> open forest to tall open forest. Coastal metamorphic headlands and near-coastal foothills. Not a wetland.	OC
	7.11.19a	R	<i>C. intermedia, E. tereticornis, Allocasuarina torulosa</i> (Forest Oak), <i>Allocasuarina littoralis</i> (Black Sheoak) and <i>L. suaveolens</i> open forest, low open forest and woodland with <i>Acacia cincinnata</i> (Daintree Wattle), <i>Acacia flavescens</i> (Yellow Wattle), <i>Banksia aquilonia</i> (Northern Banksia) and <i>Xanthorrhoea johnsonii</i> (Grass Tree). Uplands on metamorphics. Not a wetland.	OC
	7.11.44	B and C	<i>E. tereticornis</i> open forest to woodland on coastal metamorphic foothills.	OC

¹ Regulated vegetation category: Category B (remnant vegetation), Category C (high-value regrowth), and Category R (reef regrowth watercourse vegetation).

² Vegetation Management Act 1999 (Qld; VMA) Status: EN = Endangered, OC = Of Concern, LC = Least Concern

4.2.2 Wetlands and Waterways

Catchment Context

The catchment for the MID Corridor is the Wet Tropics region, in which most of the Corridor is within the Mulgrave Basin. The very northern section of the Corridor is located within the Barron Basin. The Mulgrave-Russell basin covers an area of 198,197 ha and is home to many important marine, estuarine, freshwater and terrestrial species with connections to the GBR. Rainforests are the most prevalent coastal ecosystem of this basin; however, only small, isolated patches of remnant rainforest remain within urban areas.

Urban development and sugar cane production dominates the land use of the basin, with dry land grazing and banana plantations being the other significant agriculture practices undertaken within the basin. Coastal ecosystems in this basin have been modified, affected by decades of substantial modifications to the floodplain and floodplain function (Great Barrier Reef Marine Park Authority; GBRMPA 2013). The condition grade for the Mulgrave Basin in 2021-2022 was 'good' (Wet Tropics Waterways 2023a).














The Barron Basin occupies an area of 218,900 ha. This basin consist of 29% natural/minimal use lands, 31% grazing, 18% forestry, 8% other crops (including bananas), 3% sugar cane, 3% dairy, 5% urban and 4% other land uses. The Barron River is the most modified river in the Wet Tropics region. The condition grade for the Barron Basin in 2021-2022 was 'moderate' (Wet Tropics Waterways 2023b).

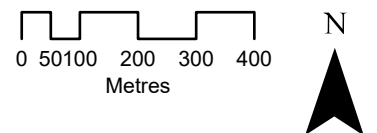
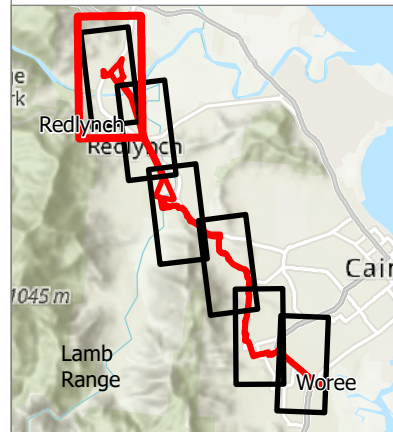
KAMERUNGA TO WOREE TRANSMISSION LINE

MAP 2 VMA RE, Essential habitat & VM Watercourses

1 of 6

Legend

-  New Barron River Substation
-  MID Corridor
-  Survey Area
- Transmission Line**
 -  Section 1 OH Component
 -  Essential habitat
 -  Vegetation Management Watercourse/ drainage feature (Stream Order)
- Vegetation management regional ecosystem map**
 -  Category A or B containing endangered
 -  Category A or B containing of concern
 -  Category A or B that is of least concern
 -  Category C or R containing endangered
 -  Category C or R containing of concern
 -  Category C or R that is of least concern
 -  non-remnant



Scale: 1:13,000

Coordinate System: GDA 1994 MGA Zone 55

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Prepared: MG
Checked: EK
Date: 02 Jul 2025

Map 2: VMA RE, Essential habitat & VM Watercourses. This map is part of a series of maps showing the proposed transmission line corridor and its impact on the environment. The map is based on aerial imagery and other data sources. The map is not to scale and is for informational purposes only. The map is subject to change without notice.

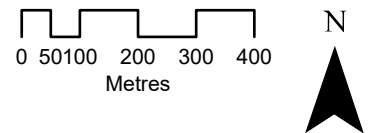
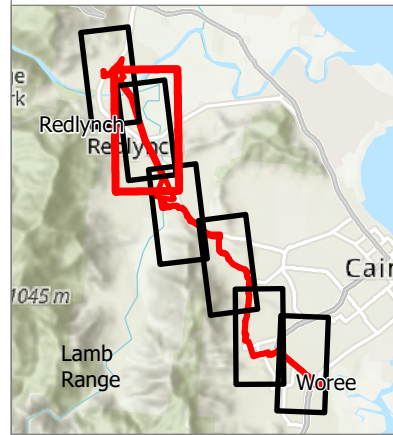
KAMERUNGA TO WOREE TRANSMISSION LINE

MAP 2 VMA RE, Essential habitat & VM Watercourses

2 of 6

Legend

- New Barron River Substation
- MID Corridor
- Survey Area
- Transmission Line**
 - Section 1 OH Component
 - Section 2 UG Component
- Essential habitat
- Vegetation Management
 - Watercourse/ drainage feature (Stream Order)
- Vegetation management regional ecosystem map**
 - Category A or B containing endangered
 - Category A or B containing of concern
 - Category A or B that is of least concern
 - Category C or R containing endangered
 - Category C or R containing of concern
 - Category C or R that is of least concern
 - non-remnant



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Map 2 VMA RE, Essential habitat & VM Watercourses

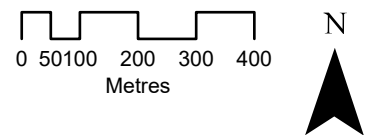
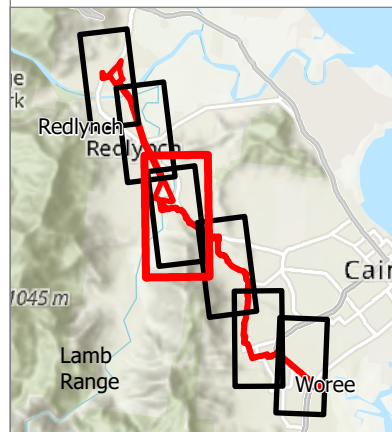
KAMERUNGA TO WOREE TRANSMISSION LINE

MAP 2 VMA RE, Essential habitat & VM Watercourses

3 of 6

Legend

- MID Corridor
- Survey Area
- Freshwater Creek Geotech
- Transmission Line**
 - Section 1 OH Component
 - Section 2 UG Component
 - Essential habitat
- Vegetation Management**
 - Category A or B containing endangered
 - Category A or B containing of concern
 - Category A or B that is of least concern
 - Category C or R containing endangered
 - Category C or R containing of concern
 - Category C or R that is of least concern
 - non-remnant
- Vegetation management regional ecosystem map**
 - Category A or B containing endangered
 - Category A or B containing of concern
 - Category A or B that is of least concern
 - Category C or R containing endangered
 - Category C or R containing of concern
 - Category C or R that is of least concern
 - non-remnant



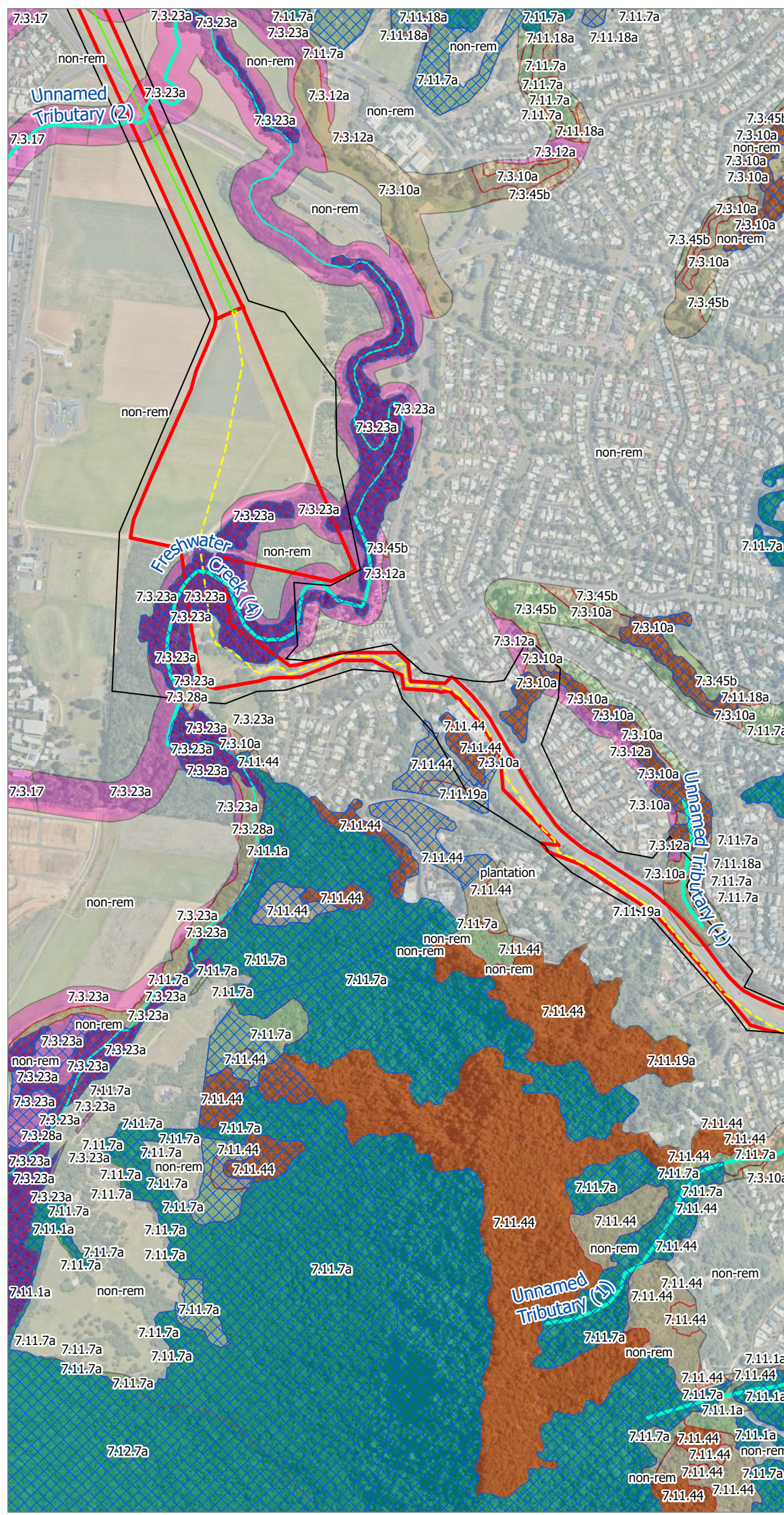
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
KAMERUNGA TO WOREE TRANSMISSION LINE

MAP 2 VMA RE, Essential habitat & VM Watercourses


4 of 6


Legend


 MID Corridor

 Survey Area


Transmission Line


 Section 2 UG Component


 Essential habitat


 Vegetation Management
Watercourse/ drainage feature
(Stream Order)


Vegetation management regional ecosystem map


 Category A or B containing of
concern

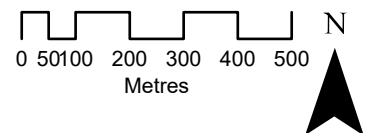
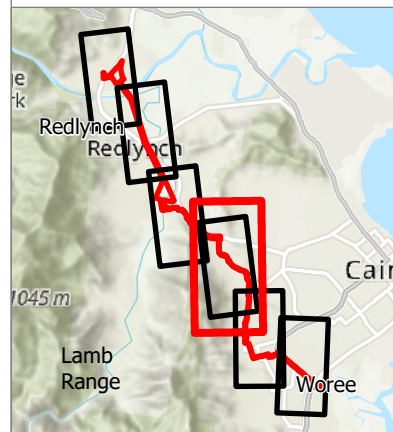
 Category A or B that is of least
concern

 Category C or R containing
endangered

 Category C or R containing of
concern

 Category C or R that is of
least concern

 non-remnant



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Map 2 VMA RE, Essential habitat & VM Watercourses. This map is a derivative of the VMA RE, Essential habitat & VM Watercourses map. It is not to be used for any other purpose without the written consent of Trend Environmental Consultants. The map is a derivative of the VMA RE, Essential habitat & VM Watercourses map. It is not to be used for any other purpose without the written consent of Trend Environmental Consultants.


KAMERUNGA TO WOREE TRANSMISSION LINE

MAP 2 VMA RE, Essential habitat & VM Watercourses


5 of 6


Legend


 MID Corridor

 Survey Area


Transmission Line


 Section 2 UG Component


 Essential habitat


 Vegetation Management
Watercourse/ drainage feature
(Stream Order)


Vegetation management regional ecosystem map


 Category A or B containing of
concern

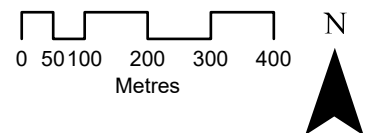
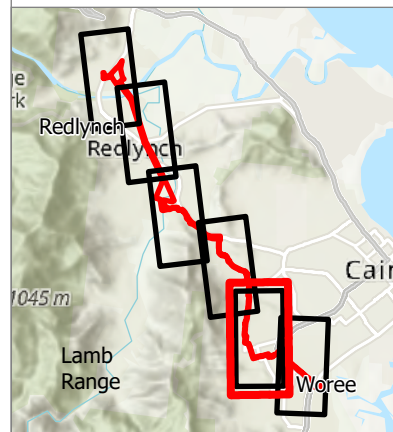
 Category A or B that is of least
concern

 Category C or R containing
endangered

 Category C or R containing of
concern

 Category C or R that is of
least concern

 non-remnant



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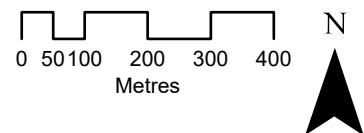
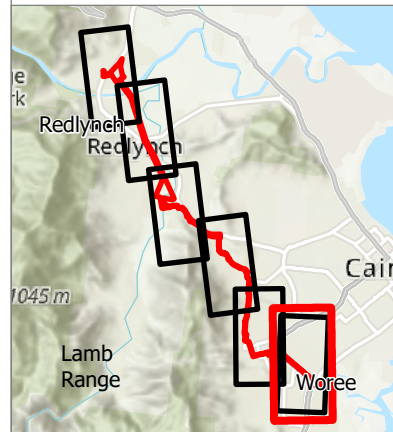
KAMERUNGA TO WOREE TRANSMISSION LINE

MAP 2 VMA RE, Essential habitat & VM Watercourses

6 of 6

Legend

- MID Corridor
- Survey Area
- Woree Substation
- Transmission Line**
 - Section 2 UG Component
 - Essential habitat
 - Vegetation Management Watercourse/ drainage feature (Stream Order)
- Vegetation management regional ecosystem map**
 - Category A or B containing endangered
 - Category A or B containing of concern
 - Category A or B that is of least concern
 - Category C or R containing endangered
 - Category C or R containing of concern
 - Category C or R that is of least concern
 - non-remnant
 - Water



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Vegetation Management Act Watercourses and Wetlands

A review of the Vegetation Management Supporting Map (Map 2; Regulated Vegetation Mapping provided in Appendix B) identified no wetland areas mapped within the MID Corridor; however, a number of mapped watercourses did occur:

- Five stream order 1 watercourses.
- Four stream order 2 watercourses.
- One stream order 4 watercourse.
- One stream order 7 watercourse

A review of the wetland values (from RE data) showed riverine, palustrine, lacustrine and estuarine wetland areas that are associated within REs throughout the MID Corridor (Map 2) These could potentially support fauna habitat.

Fish Passage (Waterway Barrier Works) watercourses

Numerous waterways considered 'waterways for barrier works' (fish passage), protected under the *Fisheries Act 1994* (Qld; Map 3) were mapped within the MID Corridor, including:

- Four green (low risk of impact) waterways.
- Two amber (moderate risk of impact) waterways.
- One red (high risk of impact) waterways.
- Two purple (major risk of impact) waterways.

Water Act 2000

A review of the watercourse identification map under the *Water Act 2000* (Qld) identified four watercourse features intersecting the MID Corridor (from Queensland Globe), including Freshwater, Chinaman, Clarkes and Gordon Creeks (Map 4).

High Ecological Significant Wetlands and Watercourses, and Great Barrier Reef Wetlands

A review of the high ecological value wetlands or watercourses, and GBR wetland protection areas defined under the *Environmental Protection Regulation 2019* (Qld) was undertaken using Queensland Globe.

This review identified that no high ecological value wetlands or watercourses, or GBR wetland protection areas were mapped within the MID Corridor (Queensland Globe).

Fish Habitat Areas

No fish habitat areas, protected under the *Fisheries Act 1994* (Qld) were mapped within the MID Corridor.

4.2.3 State-listed Threatened Species

Protected Flora Survey Trigger Mapping

Areas of 'high-risk' for protected plants on the flora survey trigger map occur in the vicinity of the Barron River, in Kamerunga and Freshwater Creek in Redlynch (Map 4). Due to this high-risk mapping, there is a requirement for a protected plant flora survey to be conducted prior to construction works. This survey should target those protected plants considered likely to occur within the MID Corridor. Should protected plants be identified during the survey, and these cannot be avoided by the works, a protected plant clearing permit will be required.

Essential Habitat

Essential habitat is defined under the *Vegetation Management Act 1999* (Qld) as habitat for endangered, vulnerable or near-threatened wildlife (protected wildlife; EVNT) prescribed under the *Nature Conservation Act 1992* (Qld). The MID Corridor intersects some areas of essential habitat mapping (Map 2).


This essential habitat corresponds to habitat for the endangered Southern Cassowary (southern population; *Casuarus casuarus johnsonii*), the vulnerable Western Alaskan Bar-tailed Godwit (*Limosa lapponica baueri*), the Estuarine Crocodile (*Crocodylus porosus*) and the Macleay's Fig-parrot (*Cyclopsitta diophthalma macleayana*; Regulated Vegetation Mapping provided in Appendix B). These essential habitat areas intersect Category B (Remnant) areas throughout the northern half of the MID Corridor.

KAMERUNGA TO WOREE TRANSMISSION LINE


MAP 3 WATERWAY BARRIER WORKS WATERWAYS AND WETLANDS

1 of 6


Legend

 New Barron River Substation

 MID Corridor

 Survey Area

Transmission Line


 Section 1 OH Component

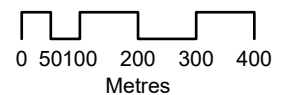
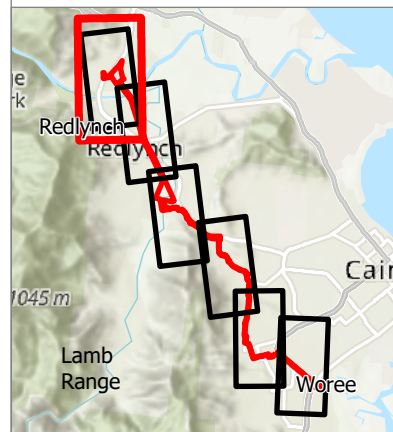
Queensland waterways for waterway barrier works

Risk rating

 Low

 Moderate

 Major



Scale: 1:13,000

Coordinate System: GDA 1994 MGA Zone 55

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KAMERUNGA TO WOREE TRANSMISSION LINE


MAP 3 WATERWAY BARRIER WORKS WATERWAYS AND WETLANDS

2 of 6


Legend


 New Barron River Substation

 MID Corridor

 Survey Area

Transmission Line

 Section 1 OH Component

 Section 2 UG Component

Queensland waterways for waterway barrier works

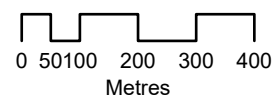
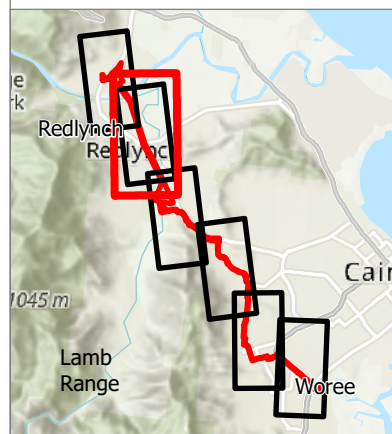
Risk rating

 Low

 Moderate

 High

 Major



Scale: 1:13,000

Coordinate System: GDA 1994 MGA Zone 55

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KAMERUNGA TO WOREE
TRANSMISSION LINE

MAP 3 WATERWAY BARRIER
WORKS WATERWAYS AND
WETLANDS

3 of 6

Legend

- MID Corridor
- Survey Area
- Freshwater Creek Geotech

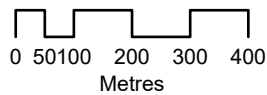
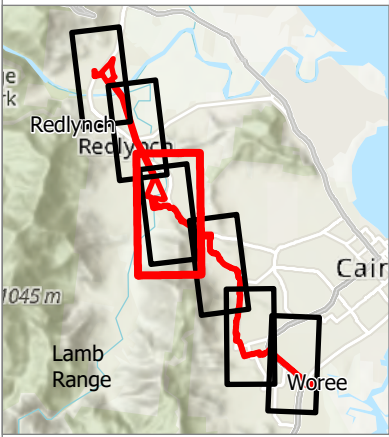
Transmission Line

- Section 1 OH Component
- Section 2 UG Component

Queensland waterways for
waterway barrier works

Risk rating

- Low
- Moderate
- High
- Major



Scale: 1:13,000

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KAMERUNGA TO WOREE
TRANSMISSION LINE

MAP 3 WATERWAY BARRIER
WORKS WATERWAYS AND
WETLANDS

4 of 6

Legend

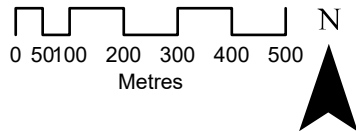
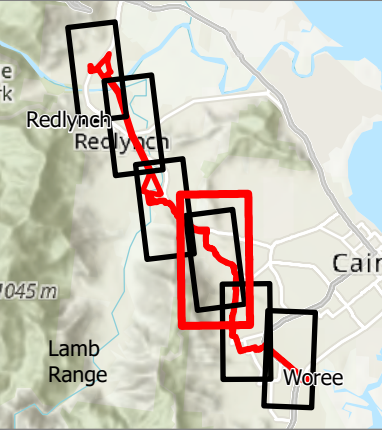
- MID Corridor
- Survey Area

Transmission Line

- Section 2 UG Component

Queensland waterways for
waterway barrier works

- Risk rating
- Low
 - Moderate



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
KAMERUNGA TO WOREE TRANSMISSION LINE

MAP 3 WATERWAY BARRIER WORKS WATERWAYS AND WETLANDS


5 of 6

Legend


 MID Corridor


 Survey Area

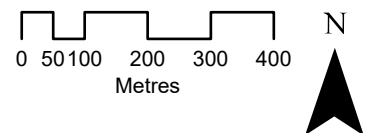
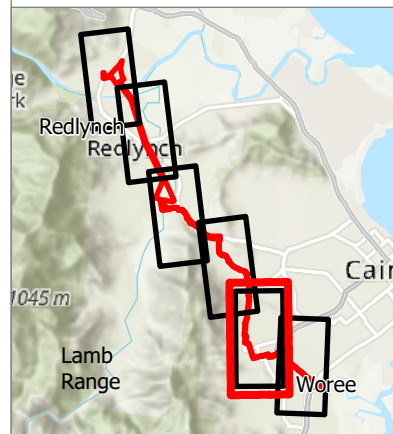
Transmission Line

 Section 2 UG Component

Queensland waterways for waterway barrier works

Risk rating
 Low

 Moderate



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

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KAMERUNGA TO WOREE TRANSMISSION LINE



MAP 3 WATERWAY BARRIER WORKS WATERWAYS AND WETLANDS

6 of 6

Legend




-  MID Corridor
-  Survey Area
-  Woree Substation

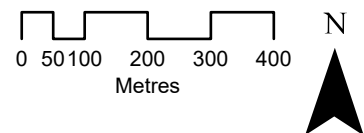
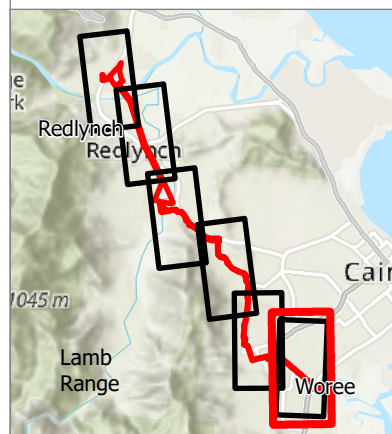
Transmission Line

-  Section 2 UG Component
-  Directory of important wetlands

Queensland waterways for waterway barrier works

Risk rating

-  Low
-  Moderate
-  High



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
Date: 02 Jul 2025

KAMERUNGA TO WOREE TRANSMISSION LINE






MAP 4 WILDLIFE HABITAT, FLORA SURVEY TRIGGER MAP AND WATER ACT WATERCOURSES

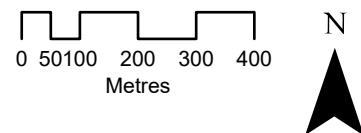
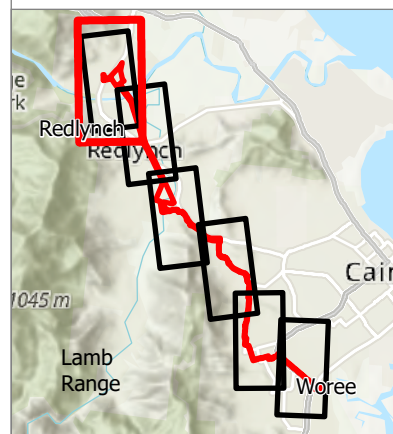
1 of 6

Legend

-  MID Corridor
-  New Barron Substation
-  Survey Area

Transmission Line

-  Section 1 OH Component
-  MSES wildlife habitat special least concern animal
-  MSES wildlife habitat endangered or vulnerable wildlife
-  Flora Survey Trigger Map
-  Watercourse [defined by Water Act 2000]



Scale: 1:13,000

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
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KAMERUNGA TO WOREE TRANSMISSION LINE







MAP 4 WILDLIFE HABITAT, FLORA SURVEY TRIGGER MAP AND WATER ACT WATERCOURSES

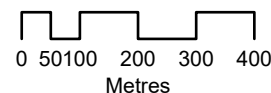
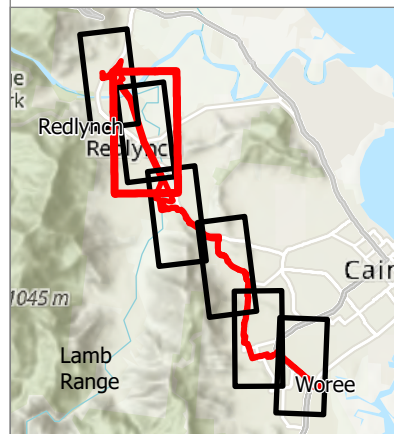
2 of 6

Legend

-  MID Corridor
-  T274 Substation
-  Survey Area

Transmission Line

-  Section 1 OH Component
-  Section 2 UG Component
-  MSES wildlife habitat special least concern animal
-  MSES wildlife habitat endangered or vulnerable wildlife
-  Flora Survey Trigger Map
-  Watercourse [defined by Water Act 2000]



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







Map 4 Wildlife Habitat, Flora Survey Trigger Map and Water Act Watercourses

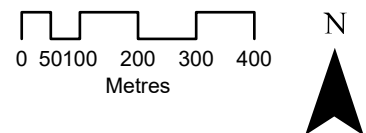
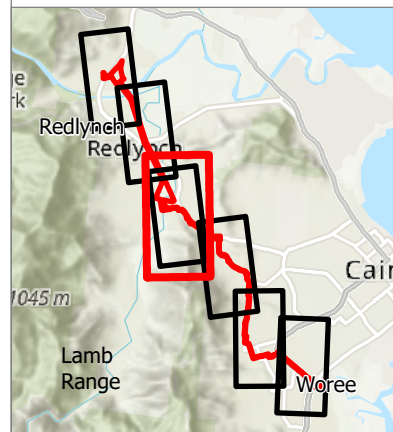
KAMERUNGA TO WOREE TRANSMISSION LINE

MAP 4 WILDLIFE HABITAT, FLORA SURVEY TRIGGER MAP AND WATER ACT WATERCOURSES

3 of 6

Legend

-  MID Corridor
-  Survey Area
-  Freshwater Creek Geotech
- Transmission Line**
 -  Section 1 OH Component
 -  Section 2 UG Component
-  MSES wildlife habitat special least concern animal
-  MSES wildlife habitat endangered or vulnerable wildlife
-  Flora Survey Trigger Map
-  Watercourse [defined by Water Act 2000]



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Map 4 Wildlife Habitat, Flora Survey Trigger Map and Water Act Watercourses


KAMERUNGA TO WOREE TRANSMISSION LINE

MAP 4 WILDLIFE HABITAT, FLORA SURVEY TRIGGER MAP AND WATER ACT WATERCOURSES


4 of 6


Legend


 MID Corridor


 Survey Area


Transmission Line

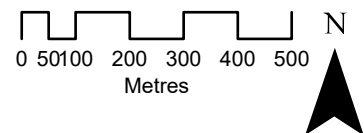
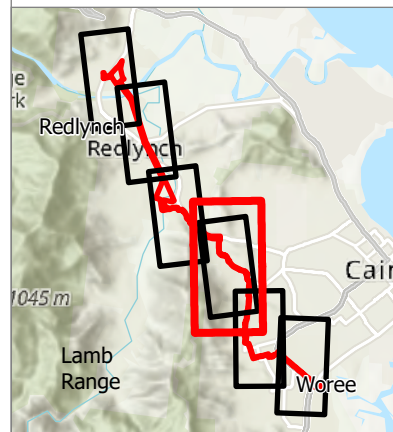
 Section 2 UG Component

 MSES wildlife habitat special least concern animal

 MSES wildlife habitat endangered or vulnerable wildlife

 Flora Survey Trigger Map

 Watercourse [defined by Water Act 2000]



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
KAMERUNGA TO WOREE TRANSMISSION LINE

MAP 4 WILDLIFE HABITAT, FLORA SURVEY TRIGGER MAP AND WATER ACT WATERCOURSES


5 of 6


Legend


 MID Corridor


 Survey Area


Transmission Line

 Section 2 UG Component

 MSES wildlife habitat special
least concern animal

 MSES wildlife habitat
endangered or vulnerable
wildlife

 Flora Survey Trigger Map

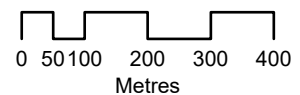
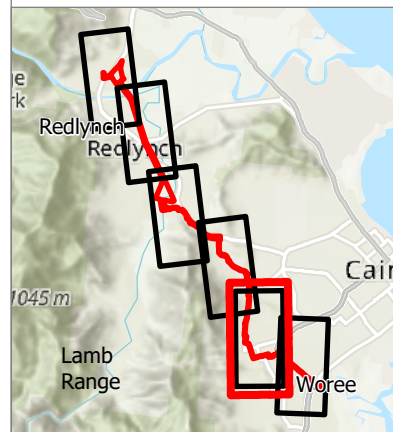
 Watercourse [defined by
Water Act 2000]

Chinaman Creek

unnamed tributary
of Clarkes Creek

Clarkes Creek

Gordon
Creek



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





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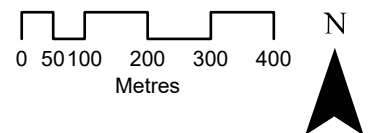
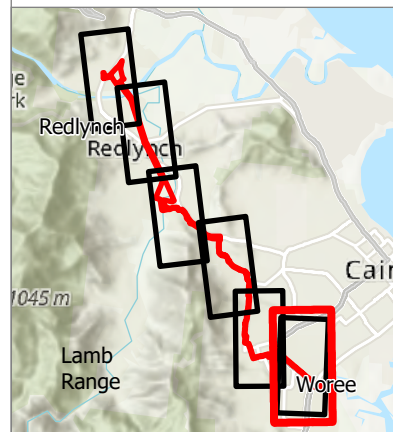
KAMERUNGA TO WOREE TRANSMISSION LINE

MAP 4 WILDLIFE HABITAT, FLORA SURVEY TRIGGER MAP AND WATER ACT WATERCOURSES

6 of 6

Legend

-  MID Corridor
-  Woree Substation
-  Survey Area
- Transmission Line**
 -  Section 2 UG Component
 -  MSES wildlife habitat special least concern animal
 -  MSES wildlife habitat endangered or vulnerable wildlife
 -  Flora Survey Trigger Map
 -  Watercourse [defined by Water Act 2000]



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WildNet Conservation Significant Species Records (5km buffer)

The WildNet conservation significant species database provides threatened species records for a specified area. Thirty-two State-listed threatened flora and fauna species were recorded within 5km of the Study alignment by the WildNet database, including five amphibians, 13 birds, four mammals, one reptile and nine plants (WildNet Species List provided within Appendix B).

State-listed Threatened Wildlife Habitat

Modelled habitat mapping for threatened species provides an indication of where State-listed threatened species habitat is likely to occur. The MSES modelled habitat suitability mapping based on State-mapped regulated vegetation mapping identified extensive areas of wildlife habitat for state-listed endangered or vulnerable wildlife, or special least concern species throughout the northern half of the MID Corridor (Map 4).

Results of the Likelihood of Occurrence Assessment

The likelihood of occurrence assessment for the MID Corridor revealed 14 State-listed threatened flora species (Table 6) and 18 fauna species (four amphibians, five birds, eight mammals and one reptile; Table 7) that were considered likely to occur or may occur within the MID Corridor (Likelihood of occurrence assessment results provided in Appendix A). These species were determined from the *EPBC Act* PMST Report, the WildNet conservation significant species database results (provided in Appendix B) and known distributions for special least concern fauna species.

Table 6
Commonwealth
and State listed
threatened flora
species considered
likely to occur or
may occur

Family	Scientific Name	Common Name	Status ¹		Likelihood of Occurrence ²
			QLD	AUS	
PLANTS					
Apocynaceae	<i>Leichhardtia araujacea</i>	-	CR	CR	May occur
Athyriaceae	<i>Diplazium cordifolium</i>	-	VU	VU	May occur
Burseraceae	<i>Canarium acutifolium</i>	-	VU	VU	Likely to occur
Euphorbiaceae	<i>Acalypha lyonsii</i>	-	VU	-	May occur
Euphorbiaceae	<i>Wetria australiensis</i>	-	VU	-	May occur
Hymenophyllaceae	<i>Polyphlebium endlicherianum</i>	Middle Filmy Fern	VU	EN	May occur
Lycopodiaceae	<i>Phlegmariurus filiformis</i>	Rat's Tail Tassel-fern	LC	EN	May occur
Lycopodiaceae	<i>Phlegmariurus squarrosus</i>	Water Tassel-Fern	CR	CR	May occur
Lycopodiaceae	<i>Phlegmariurus tetrastichoides</i>	Square Tassel Fern	VU	VU	May occur
Menispermaceae	<i>Carronia pedicellata</i>	-	EN	EN	Likely to occur
Myrtaceae	<i>Rhodamnia sessiliflora</i>	Iron Malletwood	EN	-	Likely to occur
Orchidaceae	<i>Dendrobium nindii</i>	Blue Orchid	EN	EN	May occur
Orchidaceae	<i>Spathoglottis paulinae</i>	-	NT	-	May occur
Rubiaceae	<i>Myrmecodia beccarii</i>	Ant Plant	VU	VU	Likely to occur
Proteaceae	<i>Alloxylon flammeum</i>	Queensland Waratah	VU	VU	May occur

¹ Queensland status, Nature Conservation Act 1992 (QLD; NCA): EX = Extinct, EW = Extinct in Wild, CR = Critically Endangered, EN = Endangered, VU = Vulnerable, NT = Near Threatened, LC = Least Concern

Australian Status (EPBC Act; AUS): EX = Extinct, EW = Extinct in Wild, CR = Critically Endangered, EN = Endangered, VU = Vulnerable - not protected

² Data in the 'Likelihood of Occurring' column corresponds to information provided in Appendix A. Categories used include likely to occur, may occur or unlikely to occur.

Notes: - in Common Name = no common name exists for this species.



Table 7
Commonwealth
and State listed
threatened fauna
species considered
likely to occur or
may occur

Family	Scientific Name	Common Name	Status ¹		Likelihood of Occurrence ²
			QLD	AUS	
AMPHIBIANS					
Hylidae	<i>Litoria dayi</i>	Australian Lacelid	VU	VU	Likely to occur
Hylidae	<i>Litoria nannotis</i>	Waterfall Frog	EN	-	May occur
Hylidae	<i>Litoria rheocola</i>	Common Mistfrog	EN	-	Likely to occur
Hylidae	<i>Litoria serrata</i>	Tapping Green-eyed Frog	VU	-	May occur
BIRDS					
Accipitridae	<i>Erythrotriorchis radiatus</i>	Red Goshawk	EN	VU	May occur
Apodidae	<i>Hirundapus caudacutus</i>	White-throated Needletail	VU	VU	Likely to occur
Casuariidae	<i>Casuarius casuarius johnsonii</i> (southern)	Southern Cassowary	EN	EN	Likely to occur
Psittaculidae	<i>Cyclopsitta diopjthalma macleayana</i>	Macleay's Fig-parrot	VU	-	Likely to occur
Tytonidae	<i>Tyto novaehollandiae kimberli</i>	Masked Owl (northern)	VU	VU	May occur
MAMMALS					
Dasyuridae	<i>Dasyurus hallucatus</i>	Northern Quoll	LC	EN	Likely to occur
Dasyuridae	<i>Dasyurus maculatus gracilis</i>	Spotted-tailed Quoll (northern)	EN	EN	May occur
Emballonuridae	<i>Saccolaimus saccolaimus nudicluniatus</i>	Bare-rumped Sheathtail Bat	EN	VU	Likely to occur
Hipposideridae	<i>Hipposideros diadema reginae</i>	Diadems Leaf-nosed Bat	NT	-	May occur
Hipposideridae	<i>Hipposideros semoni</i>	Semon`s Leaf-nosed Bat	EN	VU	May occur
Muridae	<i>Mesembriomys gouldii rattoides</i>	Black-footed Tree-rat	LC	VU	May occur
Ornithorhynchidae	<i>Ornithorhynchus anatinus</i>	Platypus	SLC	-	Likely to occur
Phascolarctidae	<i>Phascolarctos cinereus</i>	Koala	EN	EN	May occur
Potoroidae	<i>Bettongia tropica</i>	Northern Bettong	EN	EN	May occur
Pseudocheiridae	<i>Petauroides minor</i>	Northern Greater Glider	VU	VU	May occur
Pteropodidae	<i>Pteropus conspicillatus</i>	Spectacled Flying-fox	EN	EN	Likely to occur
Rhinolophidae	<i>Rhinolophus robertsi</i>	Large-eared Horseshoe Bat	LC	VU	May occur
Tachyglossidae	<i>Tachyglossus aculeatus</i>	Short-beaked Echidna	SLC	-	Likely to occur
REPTILES					
Crocodylidae	<i>Crocodylus porosus</i>	Estuarine Crocodile	VU	M, Mi	Likely to occur
MIGRATORY SPECIES^					
Apodidae	<i>Apus pacificus</i>	Fork-tailed Swift	LC	M, Mi	Likely to occur
Cuculidae	<i>Cuculus optatus</i>	Oriental Cuckoo	LC	Mi	Likely to occur
Dicruridae	<i>Monarcha melanopsis</i>	Black-faced Monarch	LC	M, Mi	Likely to occur
Dicruridae	<i>Myiagra cyanoleuca</i>	Satin Flycatcher	LC	M, Mi	Likely to occur
Dicruridae	<i>Rhipidura rufifrons</i>	Rufous Fantail	LC	M, Mi	Likely to occur
Dicruridae	<i>Symposiachrus trivirgatus</i>	Spectacled Monarch	LC	M, Mi	Likely to occur
Hirundinidae	<i>Hirundo rustica</i>	Barn Swallow	LC	Mi	May occur

¹ Queensland status, Nature Conservation Act 1992 (QLD; NCA): EX = Extinct, EW = Extinct in Wild, CR = Critically Endangered, EN = Endangered, VU = Vulnerable, NT = Near Threatened, LC = Least Concern

Australian Status (EPBC Act; AUS): EX = Extinct, EW = Extinct in Wild, CR = Critically Endangered, EN = Endangered, VU = Vulnerable - not protected

² Data in the 'Likelihood of Occurring' column corresponds to information provided in Appendix A. Categories include likely to occur, may occur or unlikely to occur.

Notes: - in Common Name = no common name exists for this species.

³ Due to the large number of migratory species (68) listed in the PMST, only migratory species that have the potential to occur based on habitat preferences within the MID Corridor have been included in the likelihood of occurrence assessment in Appendix A and summarised within this table.



4.2.4 Marine Plants

Marine plants are protected under the *Fisheries Act 1994* (Qld), as are inherent marine plants, plant material on tidal land and adjacent marine plants. A summarised definition of each has been provided below, based on the definition under the *Fisheries Act 1994* (Qld):

- Marine plants – a plant that usually grows on, or adjacent to, tidal land, whether it is living or dead, standing or fallen; the material of a tidal plant, or other plant material on tidal land; a plant, or material of a plant, prescribed under a regulation or management plan to be a marine plant but does not include prohibited or restricted matters, or a controlled biosecurity matter of regulated biosecurity matter under the *Biosecurity Act 2014* (Qld). Examples of marine plants include mangroves, saltmarsh, seagrass and algal communities.
- Inherent marine plants – Inherent marine plants include all true mangroves, salt couch, seagrasses, mangrove fern, marine algae and coastal samphires regardless of their location being on or above tidal land.
- Plant material on tidal land – Material of a tidal plant, or other plant material on tidal land is protected as a marine plant given its significant contribution to fisheries productivity. Material of plants, whether they be tidal or other plants, relates to entire plants and/or parts of plants, such as bark, leaves, stems, roots, flowers or seeds. Terrestrial plants, such as river gums and terrestrial grasses that are growing on tidal land, are considered ‘material’ of an ‘other’ plant on tidal land and are therefore a marine plant.
- Adjacent marine plants – Adjacent marine plants include a range of plant species that usually grow adjacent to tidal land and provide valuable habitat to our native fish when hydrologically connected to the marine environment. These plants include a range of saltmarsh species, casuarinas, melaleucas and cottonwood, and are often found interspersed with inherent marine plants.

While the Barron River in the vicinity of the MID Corridor is not mapped as a tidal waterway for waterway barrier works, a review of the HAT suggests that the Barron River in the vicinity of the MID Corridor can be tidal during large spring tides. As a result, where tidal waters potentially inundate, the vegetation requires assessment to determine the presence of marine plants, inherent marine plants, plant material on tidal land or adjacent marine plants protected under the *Fisheries Act 1994* (Qld).

4.2.5 Protected Areas

The Kamerunga Conservation Park occurs in Section 1 OH Component of the Project (shown on Map 5). Section 1 OH Component of the Project intersects 0.31 ha of this Kamerunga Conservation Park. Conservation Parks are protected under the *Nature Conservation Act 1992* (Qld); and are considered a prescribed environmental matter (MSES) under the *Environmental Offsets Act 2014* (Qld).

4.2.6 Corridors and Connectivity

Connectivity areas are considered an MSES prescribed environmental matter under the *Environmental Offsets Act 2014* (Qld). A review of the Terrestrial Biodiversity and Aquatic Conservation Values for the area of interest identified riparian corridors, and state and regional corridor buffers intersecting the northern section of the MID Corridor associated with Freshwater Creek (Map 6). This northern section of the MID Corridor contains remnant and regrowth REs, with unconstrained habitat connectivity to the Lamb Range (west) which is considered a connectivity area. Lamb Range also contains both regional and state biodiversity corridors and is considered State habitat for endangered, vulnerable and near threatened (EVNT) taxa (Map 6).

4.2.7 Biosecurity Zones

A review of the Department of Agriculture and Fisheries biosecurity zones identified the following within the MID Corridor:

- *Asian Honey Bee Known Infested Area* – all sightings outside of this area need to be reported to Biosecurity Queensland.
- *Northern Banana Biosecurity Zone* – regulates the movement of banana plants (other than fruit), soil on which a banana plant has been growing, or machinery used in production of the plants out of any banana biosecurity zone, or into the Northern Banana Biosecurity Zone. To move banana material, a Biosecurity Certificate is needed.
- *State Grape Phylloxera Risk Zone* - regulates movement from Grape Phylloxera Risk Zones into Exclusion Zones.
- *Sugar Cane Biosecurity Zone 1* - This zone regulates the movement of Sugar Cane plant material between zones and requires Sugar Cane machinery to be cleaned and inspected if being moved between zones.
- *Electric Ant Biosecurity Zone* – regulates the movement of Electric Ant carriers within the biosecurity zone.



- *Cattle tick Infested Zone* - regulates livestock movement into cattle tick free areas.

4.2.8 Terrestrial Weeds

The search of the Queensland WildNet species database identified 149 introduced flora species records (WildNet Species List provided in Appendix B). Two of these species are listed as category 3 restricted invasive plants under the *Biosecurity Act 2014* (Qld) as well as WoNs. These include *Lantana camara* (Lantana) and *Annona glabra* (Pond Apple).

4.2.9 Pest Animals

The search of the Queensland WildNet species database identified 19 introduced fauna species (WildNet Species List provided in Appendix B). Of these, the Feral Cat (*Felis catus*), Feral Pig (*Sus scrofa*), Mosquito Fish (*Gambusia holbrooki*) and Spotted Tilapia (*Tilapia mariae*) are listed as restricted invasive terrestrial animals under the *Biosecurity Act 2014* (Qld).

4.2.10 Biosecurity Zones

The MID Corridor traverses the Electric Ant Biosecurity Zones with some parts traversing restricted zones: Caravonica 5, and Redlynch 10 (Map 7). Electric Ants are a Category 1 restricted matter under the *Biosecurity Act 2014* (Qld). Under the Act, all Queenslanders have a general biosecurity obligation to manage biosecurity risks and threats that are under their control, they know about, or they are expected to know about.

Electric Ants live in soil and most materials that touch soil, including plant and inorganic materials. Moving these materials poses a serious risk of spreading electric ants. To prevent the spread of Electric Ants, the Queensland Government has implemented movement controls in areas affected by this pest species. Movement controls in place within the biosecurity zone are designed to prevent Electric Ants from spreading and are essential to the eradication effort. The biosecurity zone has two levels of restrictions, depending on the level of risk. These are the restricted zone and lesser restrictions area.

Within the restricted zone, movement of Electric Ant carriers (e.g., soil) is restricted. Geotechnical assessments and construction in these restricted areas will require a Biosecurity Instrument Permit from Biosecurity Queensland for moving an electric ant carrier from a property within the Electric Ant Biosecurity Zone.

KAMERUNGA TO WOREE
TRANSMISSION LINE

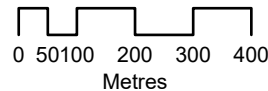
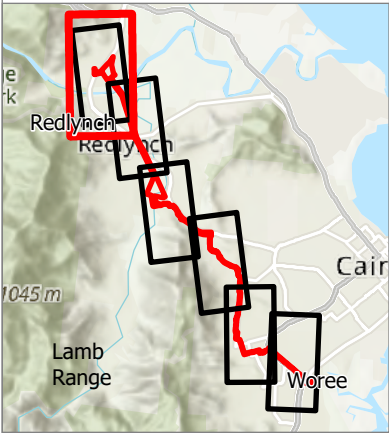
MAP 5 PROTECTED AREAS OF
QUEENSLAND

Legend

- MID Corridor
- New Barron River Substation
- Survey Area

Transmission Line

- Section 1 OH Component
- Section 2 UG Component
- Protected areas and forests of Queensland



Scale: 1:13,000

Coordinate System: GDA 1994 MGA Zone 55

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Prepared: MG
Checked: EK





Date: 02 Jul 2025

KAMERUNGA TO WOREE TRANSMISSION LINE


MAP 6 STATEWIDE BIODIVERSITY CORRIDORS AND CORRIDOR TRIGGERED VEGETATION

1 of 6

Legend

-  MID Corridor
-  New Barron River Substation
-  Survey Area
-  Freshwater Creek Geotech

Transmission Line

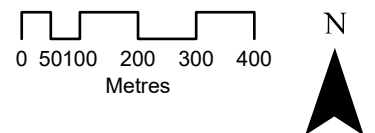
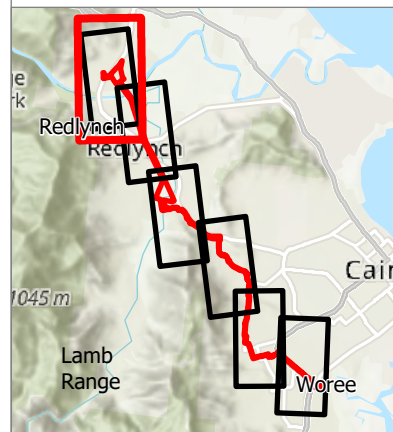
-  Section 1 OH Component

Corridor Triggered Vegetation

-  Regional
-  State

Statewide Corridor Buffer

-  Regional
-  State



Scale: 1:13,000

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TRANSMISSION LINE



MAP 6 STATEWIDE BIODIVERSITY
CORRIDORS AND CORRIDOR
TRIGGERED VEGETATION

2 of 6

Legend

-  MID Corridor
-  New Barron River Substation
-  Survey Area
-  Freshwater Creek Geotech

Transmission Line

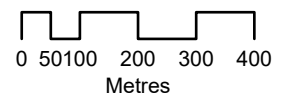
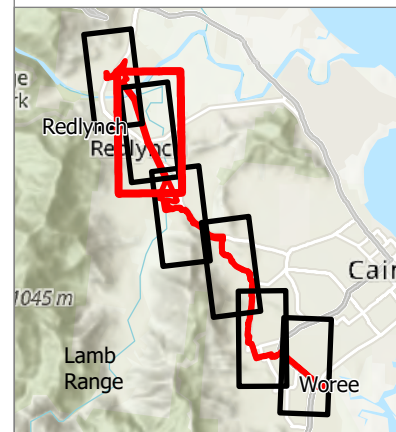
-  Section 1 OH Component
-  Section 2 OH Component

Corridor Triggered Vegetation

-  Regional
-  State

Statewide Corridor Buffer

-  Regional
-  State



Scale: 1:13,000

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MAP 6 STATEWIDE BIODIVERSITY CORRIDORS AND CORRIDOR TRIGGERED VEGETATION

3 of 6



Legend

-  MID Corridor
-  Survey Area
-  Freshwater Creek Geotech

Transmission Line

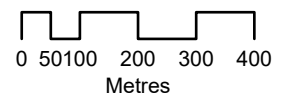
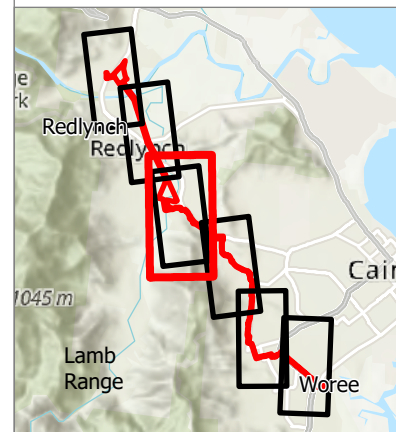
-  Section 1 OH Component
-  Section 2 OH Component

Corridor Triggered Vegetation

-  Local
-  Regional
-  State

Statewide Corridor Buffer

-  Regional
-  State



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

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KAMERUNGA TO WOREE TRANSMISSION LINE


MAP 6 STATEWIDE BIODIVERSITY CORRIDORS AND CORRIDOR TRIGGERED VEGETATION

4 of 6

Legend

-  MID Corridor
-  Survey Area
-  Freshwater Creek Geotech

Transmission Line

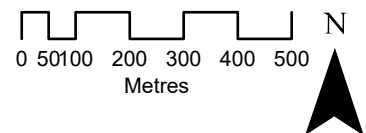
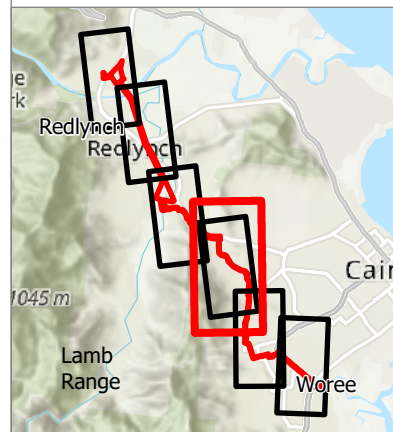
-  Section 2 OH Component

Corridor Triggered Vegetation

-  State

Statewide Corridor Buffer

-  Regional
-  State



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**KAMERUNGA TO WOREE
TRANSMISSION LINE**

**MAP 6 STATEWIDE BIODIVERSITY
CORRIDORS AND CORRIDOR
TRIGGERED VEGETATION**
5 of 6

Legend

-  MID Corridor
-  Survey Area
-  Freshwater Creek Geotech

Transmission Line

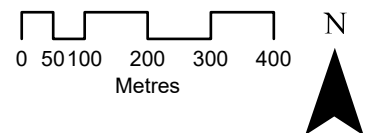
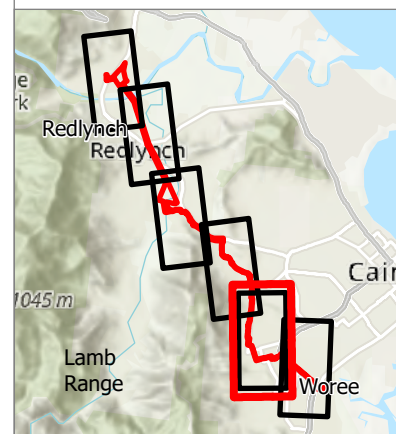
-  Section 2 OH Component

Corridor Triggered Vegetation

-  State

Statewide Corridor Buffer

-  Regional
-  State



Scale: 1:12,000

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

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KAMERUNGA TO WOREE TRANSMISSION LINE


MAP 6 STATEWIDE BIODIVERSITY CORRIDORS AND CORRIDOR TRIGGERED VEGETATION

6 of 6

Legend

-  MID Corridor
-  Woree Substation
-  Survey Area
-  Freshwater Creek Geotech

Transmission Line

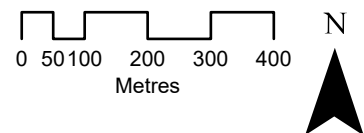
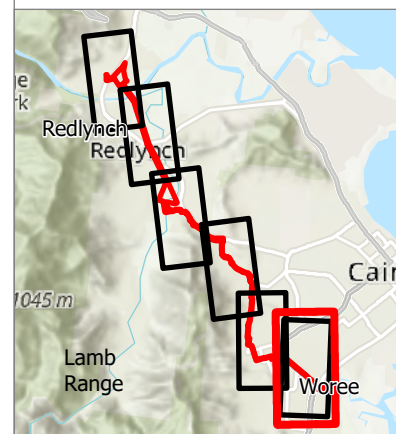
-  Section 2 OH Component

Corridor Triggered Vegetation

-  State

Statewide Corridor Buffer

-  Regional
-  State



Scale: 1:12,000

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MAP 7 ELECTRIC ANT ZONES

Legend

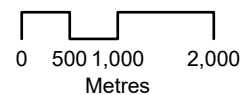
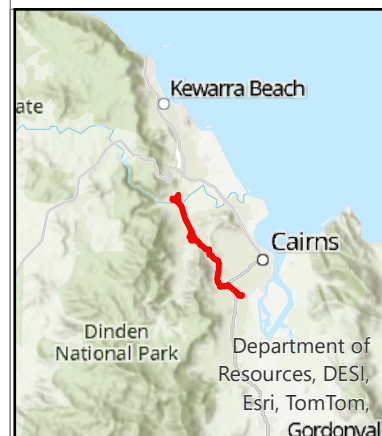
- MID Corridor
- Woree Substation
- New Barron River Substation
- Survey Area
- Freshwater Creek Geotech

Transmission Line

- Section 1 OH Component
- Section 2 OH Component

Electric Ant Zones

- Electric Ant Restricted Zone
- Electric Ant Biosecurity Zone



Scale: 1:53,097
Coordinate System: GDA 2020 MGA Zone 55

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Map 7 - Electric Ant Zones



4.3 SUMMARY OF RELEVANT ECOLOGICAL VALUES

Ecological values for this report have been defined as MNES and MSES. Table 8 outlines the MNES and MSES that are applicable to the proposed project, based on this desktop review of ecological values mapped within the MID Corridor. Should these applicable MNES and MSES be confirmed within the MID Corridor, and impacts to these are deemed 'significant', then offsets may apply.

Significant impacts to MNES may require offsets to compensate for impacts under the *EPBC Act Environmental Offsets Policy*. While significant residual impacts to MSES from a prescribed activity may require offsets to compensate for impacts under the *Environmental Offsets Act 2014* (Qld).

Under the *Environmental Offsets Act 2014* (Qld), an environmental offset is required for a prescribed activity under Schedule 1, on a prescribed environmental matter under Schedule 2 of the *Environmental Offsets Regulation 2014* (Qld). The proposed works are not considered a prescribed activity for the purpose of the MID Assessment due to it being considered 'accepted development' when subject to the infrastructure designation process under the *Planning Act 2016* (Qld). Regardless, the avoid, minimise, mitigate approach to the project will be employed. In this regard, a significant impact assessment following the field ecological assessments will be completed to determine mitigation measures to reduce impacts on MSES. The project is however considered a prescribed activity of impacts to protected areas and to protected plants within the meaning of the *Nature Conservation Act 1992* (Qld), hence the SRI assessment is required to determine the significance of impacts which could carry offset implications under the *Environmental Offsets Act 2014* (Qld).

Table 8	Ecological Values / Prescribed Matters		Relevance	
Applicable MNES and MSES for the project (matters not applicable have been greyed out)	World Heritage Properties		Applicable Wet Tropics of Queensland present in vicinity. Impacts need to be assessed.	
	TECs		Applicable TECs potentially present that require field verification.	
	Listed Threatened and Migratory Species		Applicable Listed threatened species habitat may occur, requiring field verification.	
	Regulated vegetation	Prescribed REs that are endangered REs	Applicable outside of urban areas Endangered and of concern REs mapped that require field verification. Some sections of the MID Corridor are located in urban areas, as such these REs will not be considered a prescribed environmental matter in urban areas. REs within Section 1 OH Component, and in the vicinity of Goomboora Park in Section 2 UG Component will likely be considered prescribed environmental matters as these occur outside urban areas.	
		Prescribed REs that are of concern regional ecosystems		
		Prescribed REs that intersect with a wetland on the vegetation management wetlands map		Not applicable No wetlands present.
		Prescribed REs that are areas of essential habitat for an EVNT plant or animal		Applicable outside of urban areas Essential habitat is mapped as present throughout the MID Corridor. Where this habitat occurs in urban areas, it would not be considered a prescribed environmental matter. However, within Section 1 OH Component, and in the vicinity of Goomboora Park in Section 2 UG Component, these areas will likely be considered a prescribed environmental matter, as they occur outside urban areas.
		Prescribed RE located within a defined distance from the defining banks of a relevant watercourse or drainage feature		Applicable outside of urban areas Watercourses are mapped as present throughout the MID Corridor. Where these occur in urban areas, prescribed REs within a defining bank would not be considered a prescribed environmental matter. However, watercourses within Section 1 OH Component, and in the vicinity of Goomboora Park in Section 2 UG Component, will likely be considered a prescribed environmental matter, as these occur outside of urban areas.
Connectivity Areas	Prescribed REs containing remnant vegetation required for ecosystem functioning	Applicable outside of urban areas Some connectivity areas are present within Section 1 OH Component, and in the vicinity of Goomboora Park in Section 2 UG Component. Where these occur outside of an urban area it would be considered a prescribed environmental matter.		



Ecological Values / Prescribed Matters		Relevance
Wetlands and Watercourses	A wetland in a wetland protection area or a HES wetland on map of referable wetlands	Not applicable None present in the MID Corridor.
	A wetland or watercourse in high ecological value waters	Not applicable None present in the MID Corridor.
Designated precinct	Designated precinct in a strategic environmental area	Not applicable Not a prescribed environmental matter in urban areas.
Protected Wildlife Habitat	A high-risk area on the flora survey trigger map, that contains endangered or vulnerable plants	Applicable High-risk mapping occurs within the MID Corridor, potentially containing endangered or vulnerable plants.
	An area not high risk on the flora trigger map, but contains endangered or vulnerable plants	Applicable Endangered or vulnerable plants species habitat may occur, requiring field verification.
	A koala habitat area	Not applicable None present in the MID Corridor.
	A habitat for an endangered or vulnerable wildlife or special least concern animal	Applicable Endangered or vulnerable wildlife species habitat may occur, requiring field verification.
Protected Areas	A protected area	Applicable The Kamerunga Conservation Park occurs in Section 1 OH Component of the Project, protected under the <i>Nature Conservation Act 1992</i> (Qld), and considered a prescribed environmental matter (MSES) under the <i>Environmental Offsets Act 2014</i> (Qld).
Highly Protected Zones	Highly protected zones of State marine parks	Not applicable None present in the MID Corridor.
Fish Habitat Areas	An area declared under the <i>Fisheries Act 1994</i> (Qld) to be a fish habitat area	Not applicable None present in the MID Corridor.
Waterway (Fish Passage)	Any part of a waterway providing fish passage, if waterway barrier works will limit fish passage	Applicable outside of urban areas (Section 1 OH Component) Mapped waterways for waterway barrier works occur within the MID Corridor. Some sections of the MID Corridor are located in urban areas, as such these waterways would not be considered a prescribed environmental matter in urban areas. Waterways within Section 1 OH Component, and in the vicinity of Goomboora Park in Section 2 UG Component will likely be considered prescribed environmental matters. However, works associated with underground and overhead transmission lines are not likely to be considered waterway barrier works affecting fish habitats.
Marine Plants	A marine plant under the <i>Fisheries Act 1994</i> (Qld)	Applicable A review of the Highest Astronomical Tide mapping on Queensland Globe suggests that the Barron River in the vicinity of the MID Corridor crossing is tidal and as such may contain marine plants protected under the Fisheries Act. Presence of marine plants requires field-verification.
Legally Secured Offset Areas	A legally secured offset area	Not applicable None present in the MID Corridor.



RISK ASSESSMENT

5.1 RISK ASSESSMENT METHODOLOGY

A risk assessment considers potential direct and indirect project impacts on MNES and MSES by determining consequences and the likelihood of consequences occurring. Results have been evaluated via a risk matrix to identify the associated level of risk from a desktop perspective.

The overarching objectives of the risk assessment are to appropriately determine the potential impacts to ecological values and to manage these impacts through the environmental management hierarchy of avoid, minimise, mitigate, rehabilitated then offset. The risk assessment also allows for the prioritisation of key risks and residual adverse impacts that require additional mitigation measures. A risk assessment has been developed, which has used modified risk matrices from those defined in Aurecon 2019 but customised for the proposed project and the ecological values likely to be present.

Following the desktop assessment, the consequence of potential impacts and proposed avoidance and mitigation measures (if any) were identified. These mitigation measures have the potential to reduce the consequence rating and level of risk associated with impacts by:

- Avoiding a risk, by preventing an activity from occurring (e.g., physical separation of an activity or process from the ecological value).
- Reducing the likelihood of a risk eventuating (e.g., transforming, changing the methodology or realigning an activity to reduce the likelihood of a potential impact occurring)
- Retaining the risk but developing plans to manage the outcomes if the risk is realised (e.g., emergency and disaster planning).

5.2 RISK MATRIX

Risk matrices in order to determine the risk, were development for the following:

- Sensitivity of the ecological values present;
- Magnitude and spatial extent of potential impacts;
- Consequence of impacts; and
- Likelihood of impacts

These risk matrices are explained in detail below.

The risk assessment involves the determination of the sensitivity of the ecological values and the magnitude of the potential impacts identified. The magnitude of the potential impact and the sensitivity of the ecological value are used to determine the consequence of the potential impacts. This assists in identifying the management priorities for the project prior to determining appropriate mitigation measures.

DURATION AND SPATIAL EXTENT OF IMPACTS

The magnitude of a potential impact directly relates to the duration of the potential impact and the spatial extent of the impact (see below).

Once the duration and spatial scale of a potential impact are identified, the consequence of the impact can be determined using the magnitude matrix. The magnitude of the potential impacts are assessed without considering any mitigation measures (i.e. maximum potential impact identified).

The magnitude matrix is presented to the right..

DURATION OF POTENTIAL IMPACTS	
MAGNITUDE	DURATION OF IMPACT
Temporary	Days to months, or one season
Short Term	Up to a year
Medium Term	<ul style="list-style-type: none">1-4 years
Long Term	<ul style="list-style-type: none">5-9 years
Permanent/ Irreversible	<ul style="list-style-type: none">In excess of ten years.

SPATIAL EXTENT OF POTENTIAL IMPACT	
SENSITIVITY	DESCRIPTION
Undetectable	Not noticeable or detectable
Contained Extent	<ul style="list-style-type: none">Localised impact contained within direct vicinity of the study area (e.g., within 100m of the study area)Overall impact area is relatively small (e.g., <10ha)
Local Area	<ul style="list-style-type: none">Impact occurs in the direct area and adjacent areas (e.g., >100m of the study area)Overall impact area is moderate to large in size (e.g., 100ha)
Extensive	<ul style="list-style-type: none">Uncontained and potentially extensive within the receiving environment.Overall impact area is very large (e.g., >100ha)

MAGNITUDE MATRIX				
DURATION	SPATIAL EXTENT OF POTENTIAL IMPACT			
	Undetectable	Contained Extent	Local Area	Extensive
Undetectable	Negligible	N/A	N/A	N/A
Temporary	N/A	Low	Low	High
Short Term	N/A	Low	Moderate	High
Medium Term	N/A	Moderate	Moderate	Very High
Long Term	N/A	Moderate	High	Very High
Permanent/Irreversible	N/A	Moderate	High	Very High

CRITERIA	
MAGNITUDE	DESCRIPTION
Negligible	Impact is not detectable and has no noticeable change to the existing population or community.
Low	The impact is generally recognised as being contained and temporary or short term in duration; OR the impact extends to the local area , with the impact being temporary .
Moderate	The impact is generally recognised as extending to the local area , and lasting from the short to medium term ; OR the impact is contained , with the impact is lasting a medium term to permanent in duration.
High	The impact is recognised as extending to the local area and lasting for the long term ; OR if the impact is extensive , the impact is temporary to short term in duration.
Very High	The impact is recognised as being extensive and medium to long term in duration or resulting in potentially permanent and irreversible changes; OR any other impact, regardless of spatial extent, that would be considered permanent or irreversible .

CONSEQUENCE AND SENSITIVITY

CONSEQUENCE OF POTENTIAL IMPACTS

The consequence of a potential impact is a function of the sensitivity of the ecological value and the magnitude of the potential impact. The consequence of potential risks are determined both prior to and after the implementation of mitigation measures .

While the sensitivity of the ecological value will not change, the magnitude of the potential impact can change from pre-mitigation to post-mitigation. Estimating the consequence of potential impacts before and after the implementation of mitigation measures therefore provides a comparative analysis of the potential benefits of the proposed mitigation measures.

SENSITIVITY OF ECOLOGICAL VALUES

To assess the consequence of potential impacts on ecological values, sensitivity categories were applied. The sensitivity categories are split into four discrete groups. These groupings are based on qualitative assessments utilising information related to the sensitivity in the environment, in addition to the values occurrence (e.g., listing status) and likelihood of presence.

SENSITIVITY CRITERIA OF ECOLOGICAL VALUES	
SENSITIVITY	DESCRIPTION
Low	• Ecological value not listed on any recognised or statutory register. May be recognised locally by relevant organisations.
	• Ecological value in poor condition due to threatening processes.
	• Is abundant and widespread throughout the landscape.
	• Not sensitive to change or further impacts do no degrade the ecological value.
Moderate	• Ecological value important at a regional level and may have been nominated for listing on recognised or statutory registers.
	• Ecological value in moderate - good condition despite threatening processes.
	• Is relatively well represented throughout the landscape.
	• Sensitive to change and further impacts may degrade the ecological value, however replacement of unavoidable losses is possible due to its abundance and presence throughout the landscape.
High	• Ecological value important at a state and federal level, including vulnerable or migratory species and their habitat, and vulnerable ecological communities
	• Ecological value in high condition retaining its intrinsic value, despite threatening processes.
	• Sensitive to change and further impacts may result in the loss of a portion of the community or population.
	• Ecological value important at a state and federal level, including endangered or critically endangered species and their habitat, and ecological communities
Very High	• Ecological value in very high condition or intact, retaining its intrinsic value despite threatening processes.
	• Very sensitive to change and further impacts may result in the loss of a significant portion of the community or population.

CONSEQUENCE MATRIX				
MAGNITUDE	SENSITIVITY OF ECOLOGICAL VALUE			
	Low	Moderate	High	Very High
Negligible	Negligible	Negligible	Low	Low
Low	Low	Low	Moderate	High
Moderate	Low	Moderate	High	Very High
High	Moderate	High	Very High	Very High
Very High	Moderate	High	Very High	Very High

CONSEQUENCE CRITERIA	
CONSEQUENCE RATING	DESCRIPTION
Negligible	Minimal change to the existing situation, including impacts which are below levels of detection.. Recovery periods associated with these impacts are within 3 to 6 months
Low	Impacts are recognisable but considered acceptable. These impacts tend to be shorter, or temporary. Recovery periods of 6 - 12 months, and at the local scale.
Moderate	Ecological values are moderately sensitive and have moderate resilience/adaptive capacity and/or the impacts are local or regionally significant. Impacts tend to range from short to long term. Recovery periods of 1 - 4 years, and occur over medium scale areas or focussed within a localised area.
High	Ecological values are moderately to highly sensitive, have low to moderate resilience/adaptive capacity and/or the impacts are of state and national significance. They tend to be permanent or otherwise medium term to long term. Recovery periods of 5 - 9 years and can occur over medium or large-scale areas.
Very High	Ecological values are extremely sensitive, have low resilience/adaptive capacity and the impacts are of national significance. They tend to be permanent, or irreversible, or if recovery is possible, it is likely to take in excess of 10 years; or otherwise, long term and can occur over large scale areas.

LIKELIHOOD AND RISK

LIKELIHOOD

Likelihood refers to the chances of a potential impact occurring, assuming the effective implementation of the proposed mitigation measures. There are five categories, ranging from rare (i.e., less than 1% chance of occurring over the life of the project) to almost certain (i.e., greater than 90% probability of occurring).

RISK

Risk is the effect of uncertainty on objectives or expected outcomes. For this risk assessment, the uncertainty is the result of the lack of information relating to the understanding or knowledge of a potential impact, its consequence, or the likelihood of it occurring.

The risk level of potential impacts is a product of the consequence of the potential impacts and the likelihood of their occurrence assuming the effective implementation of the proposed mitigation measures.

LIKELIHOOD	
FREQUENCY	DESCRIPTION
Rare	Highly unlikely to occur but theoretically possible during the life of the project. Probability is less than 1% chance of occurring.
Unlikely	Unlikely but possible. May occur during life of the project but probability < 50% chance of occurring.
Possible	Less likely than not, but still considerable; probability of about 50% chance of occurring over the life of the project.
Likely	Likely to occur during life of the project or during a 12 month timeframe; probability up to 90% chance of occurring.
Almost Certain	Very likely and expected to occur during life of the project or during a 12 month timeframe; likely to occur multiple times during relevant period. Probability of 90% or greater chance of occurring.

RISK MATRIX					
LIKELIHOOD	CONSEQUENCE				
	Negligible	Low	Moderate	High	Very High
Rare	Negligible	Negligible	Low	Medium	Medium
Unlikely	Negligible	Low	Low	Medium	High
Possible	Negligible	Low	Medium	High	High
Likely	Negligible	Medium	Medium	High	Very High
Almost certain	Low	Medium	High	Very High	Very High

RISK CRITERIA	
FREQUENCY	DESCRIPTION
Negligible risk	No additional management required
Low risk	Manageable by standard mitigation and similar operating procedures
Medium risk	An issue requiring project specific controls and operating procedures
High risk	An issue requiring further detailed investigation and planning to manage and reduce risk; likely to result in a ‘significant’ impact on MNES.
Very high risk	An issue requiring a change in project scope and/or timing; almost certain to result in a ‘significant’ impact on a MNES



5.3 RISK ASSESSMENT RESULTS

5.3.1 Matters of National Environmental Significance

A 'medium' risk rating was calculated for most MNES identified as being applicable to the project, with the risk rating for the Wet Tropics of Queensland being 'low' (Table 9).

Table 9 Risk assessment for MNES		Ecological Value	Consequence rating ¹	Likelihood	Risk rating
	World Heritage Property	Wet Tropics of Queensland (natural values)	Low x High (Moderate)	Rare	Low
	TEC	Lowland tropical rainforest of the Wet Tropics (if present)	Low x Very High (High)	Unlikely	Medium
	Threatened Flora Species (if present)		Low x Very High (High)	Unlikely	Medium
	Threatened Fauna Species (if present)		Low x Very High (High)	Unlikely	Medium

¹ Consequence rating is a function of the sensitivity magnitude criteria x sensitivity criteria x

5.3.2 Matters of State of Environmental Significance

The project was identified as having a 'medium' risk of impacts to MSES relating to regulated vegetation, wildlife habitat, marine plants and protected areas, and identified as having a 'low' risk of impacts to MSES for waterways for waterway barrier works (Table 10).

Table 10 Risk Assessment for MSES		Ecological Value	Consequence rating ¹	Likelihood	Risk rating
	Regulated Vegetation	Endangered Ecosystem (if present)	Low x Very High (High)	Unlikely	Medium
	Wildlife Habitat	Threatened Flora (if present)	Low x Very High (High)	Unlikely	Medium
		Threatened Fauna (if present)	Low x Very High (High)	Unlikely	Medium
	Waterway for waterway barrier works		Low x High (Moderate)	Rare	Low
	Marine Plants		Low x Very High (High)	Unlikely	Medium
	Protected Area – Kamerunga Conservation Park		Low x Very High (High)	Unlikely	Medium

¹ Consequence rating is a function of the magnitude criteria x sensitivity criteria x

5.4 MITIGATION OF IMPACTS

While several MNES and MSES were determined likely to occur within the MID Corridor, the medium and low risk ratings were given due to the project being considered low impact for multiple reasons. The project is linear infrastructure with a low width extent with one section designed to go underground to avoid regulated vegetation clearing and impacts to sensitive areas such as watercourses. The MID Corridor is also located within an already developed urban area with low natural values, and the project will have a relatively short-term impact timeframe, with rehabilitation proposed following construction.

With no high-risk ratings, mitigation measures will not be proposed during this desktop assessment phase, but rather a field ecological assessment is required to determine the actual presence of MNES and MSES within the MID Corridor so that specific avoidance and mitigation measures can be recommended to reduce impacts prior to the construction of the Project.



CONCLUSION

This desktop assessment has highlighted the ecological values that potentially exist within the MID Corridor. These ecological values have been identified through available databases and maps and are the best indication of the ecological values that would be present in the MID Corridor prior to doing a field assessment. These ecological values have the potential to be impacted by the project should they be confirmed as present and cannot be avoided either by design or through the implementation of mitigation measures.

The MNES and MSES of relevance to this project include the Wet Tropics of Queensland (World Heritage Property), a threatened ecological community, Commonwealth and State-listed threatened species and their habitat, migratory species and their habitat, regulated vegetation that contains endangered REs, protected wildlife habitat for either endangered or vulnerable flora or fauna, or special least concern fauna, marine plants and a protected area – Kamerunga Conservation Park.

Field ecological surveys are required to confirm the presence of these MNES and MSES, and determine the actual impacts on these matters. Once results of the field assessment are known, both direct and indirect impacts can be identified and avoidance and mitigation measures implemented using the avoid, minimise, mitigate, rehabilitation, then offset approach. These avoidance and mitigation options will be fundamental in ensuring the project is approved through the reduction of risk of impacts to ecological values.

Once avoidance and mitigation measures have been considered, a significant impact assessment using the *EPBC Act MNES Significant Impact Guidelines 1.1* for MNES (DoE 2013), the *Significant Residual Impact Guideline* for MSES under the *Planning Act 2016* (Qld; DSDIP 2014), and the *Significant Residual Impact Guideline* (DEHP 2014) for MSES under the *Nature Conservation Act 1992* (Qld) should be undertaken.



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APPENDIX

A

LIKELIHOOD OF OCCURRENCE ASSESSMENT



THREATENED FLORA



Table 11
Likelihood of
occurrence for
threatened
flora

Family	Scientific Name	Common Name	Status ¹		Description	Record ²	Likelihood of occurrence	Rational for likelihood ranking
			QLD	AUS				
Apocynaceae	<i>Leichhardtia araujacea</i>	-	CR	CR	A vine species, endemic to the Wet Tropics of northeast Queensland. This species occurs between Townsville and Hope Vale, in lowland gallery forest associated with permanent water (Forster 1995).	1983	May occur	Suitable habitat mapped. Historical record.
Araliaceae	<i>Polyscias bellendenkerensis</i>	-	VU	VU	Known from northeast Queensland, in mountain rainforest and vine thickets at altitudes of 1100 – 1600m (Elliot and Jones 1997; TSSC 2008a).	-	Unlikely	Required altitude does not occur. No species records.
Athyriaceae	<i>Diplazium cordifolium</i>	-	VU	VU	This species is found in rainforest, along creek banks, below 80-100m altitude, although one population in Palmerston valley grows at 475m (TSSC 2008b). This species is known from northeast Queensland.	1938	May occur	May support suitable habitat. Historical record.
Athyriaceae	<i>Diplazium pallidum</i>	-	EN	EN	This species grows in lowland rainforest, particularly near streams, but is not found growing in creeks. It is found on basalt soils (TSSC 2008c). This species occurs in the Wet Tropics of northeast Queensland.	2003	Unlikely	Study area does not support basalt soils. Relatively recent record.
Burseraceae	<i>Canarium acutifolium</i>	-	VU	VU	This species has been identified within mesophyll vine forest along creeks at altitudes of 5 to 200 m (TSSC 2008d). This species occurs between Tully and Mossman in north Queensland.	2024	Likely to occur	May support suitable habitat. Recent record.
Cyperaceae	<i>Eleocharis retroflexa</i>	-	VU	VU	A sedge species known from Queensland and the Northern Territory. In Queensland, it has been recorded in Eubenangee Swamp and Blackfellows Creek near Cairns (TSSC 2008e). Occurs in shallow water on margins of seasonal swamps.	2009	Unlikely	Study area does not support specie swamp habitat. Relatively recent record.
Euphorbiaceae	<i>Acalypha lyonsii</i>	-	VU	-	Endemic to north-eastern Queensland. Known only from two populations near Cairns. Grows in lowland rain forest (CSIRO 2020a)	2003	May occur	May support suitable habitat. Relatively recent record.
Euphorbiaceae	<i>Wetria australiensis</i>	-	VU	-	Occurs in northeast Queensland. Known only from a few collections in Cairns. Grows as an understorey plant in seasonal lowland rain forest (CSIRO 2020b)	2015	Likely	May support suitable habitat. Recent record.
Grammitidaceae	<i>Tomophyllum walleri</i>	-	VU	VU	An epiphyte endemic to north-eastern Queensland, where it occurs at high elevations in the Wet Tropics. Grows on tree trunks in complex notophyll vine forest above 100m altitude (Queensland EPA 2008).	-	Unlikely	Required altitude does not occur. No species records.



Family	Scientific Name	Common Name	Status ¹		Description	Record ²	Likelihood of occurrence	Rational for likelihood ranking		
			QLD	AUS						
Hymenophyllaceae	<i>Polyphlebium endlicherianum</i>	Middle Filmy Fern	VU	EN	Grows on damp rocks and tree trunks, in tropical rainforest, near streams (DoE 2023a). Occurs in northeast Queensland and on Norfolk Island.	-	May occur	May support habitat. No records.		suitable species
Lycopodiaceae	<i>Phlegmariurus filiformis</i>	Rat's Tail tassel-fern	LC	EN	An epiphyte on canopy trees in complex vine forest (Chinnock 1998). Restricted to the Wet Tropics of northeast Queensland.	1972	May occur	May support habitat. Historical record.		suitable
Lycopodiaceae	<i>Phlegmariurus squarrosus</i>	Water Tassel-Fern	CR	CR	A lithophyte or subcanopy epiphyte on riparian trees, near watercourses (Field <i>et. al.</i> , 2022). Restricted to the Wet Tropics of northeast Queensland.	-	May occur	May support habitat. No records.		suitable species
Lycopodiaceae	<i>Phlegmariurus tetrastichoides</i>	Square Tassel Fern	VU	VU	An epiphyte on rainforest trees in north-eastern Queensland, from Mackay to the Daintree (Queensland Herbarium 2008).	-	May occur	May support habitat. No records.		suitable species
Menispermaceae	<i>Carronia pedicellata</i>	-	EN	EN	Grows in complex mesophyll or notophyll vine forest on deep soils derived from basalt, granite, or metamorphic substrates at altitudes from 0 - 520 m (TSSC 2008f). Endemic to northeast Queensland.	2022	Likely	May support habitat. Recent record.		suitable
Myrtaceae	<i>Rhodamnia sessiliflora</i>	Iron Malletwood	EN	-	Endemic to northeast Queensland. Occurs from near sea level to 1000m. Grows in lowland and upland rainforest (CSIRO 2020c).	2023	Likely	May support habitat. Multiple recent records.		suitable
Orchidaceae	<i>Dendrobium mirbelianum</i>	Mangrove Orchid	EN	EN	The species grows on trees in mangroves and coastal swamps in humid locations, and on rocks (TSSC 2008g). Endemic to northeast Queensland.	-	Unlikely	Mangrove/coastal swamp habitat does not occur. No species records.		
Orchidaceae	<i>Dendrobium nindii</i>	Blue Orchid	EN	EN	Species occurs up to 400 m above sea level, growing on trees (including mangroves and palms) in near-coastal swamps, coastal rainforest, mangroves, and low altitude gorges and streams. It has been recorded in rainforest on conglomerate and granite (TSSC 2008h). Endemic to northeast Queensland.	-	May occur	May support habitat. No species records.		suitable
Orchidaceae	<i>Phalaenopsis resenstromii</i>	Native Moth Orchid	EN	EN	An orchis occurring in northeast Queensland from Paluma to Iron Range. It grows on trees in humid airy situations at altitudes 200-500m (Jones 2006a).	1962	Unlikely	Required altitude does not occur. Historical record.		
Orchidaceae	<i>Phaius australis</i>	Lesser Swamp Orchid	EN	EN	An orchid found from northern NSW to northern Queensland. This species associates with coastal heath/sedgeland wetlands, swampy grassland and swampy forest (Barry 2005)	-	Unlikely	Swamp habitat does not occur. No species records.		



Family	Scientific Name	Common Name	Status ¹		Description	Record ²	Likelihood of occurrence	Rational for likelihood ranking
			QLD	AUS				
Orchidaceae	<i>Phaius pictus</i>	Forest Swamp Orchid	VU	VU	Species grows in moist shady sites in mesophyll and simple notophyll vine forests, in leaf litter, adjacent to streams. Altitudinal range 450–820m (DoE 2023b). Endemic to northeast Queensland	-	Unlikely	Required altitude does not occur. No species records.
Orchidaceae	<i>Spathoglottis paulinae</i>	-	NT	-	An orchid that occurs in open forests in wet conditions. Occurs in northeast Queensland from Ingham to Cooktown (ATRO 2023).	1894	May occur	May support suitable habitat. Historical record.
Orchidaceae	<i>Vappodes lithocola</i>	Dwarf Butterfly Orchid	LC	EN	An orchid that grows in rainforest on rocks, boulders and cliff faces on ridges and slopes at altitudes of 300–800m above sea level. Localised between Cairns and the Daintree (Jones 2006b).	1962	Unlikely	Required altitude does not occur. Historical record.
Orchidaceae	<i>Zeuxine polygonoides</i>	Velvet Jewel Orchid	VU	VU	An orchid known from three locations in north east Queensland, between Paluma Range and the Daintree River, at altitudes of 450 – 600m, growing on the floor of rainforests (Dockrill 1992).	2018	Unlikely	Required altitude does not occur. Recent record.
Rhizophoraceae	<i>Bruguiera x hainesii</i>	Haine's Orange Mangrove	CR	CR	Mangrove known only from one population in Trinity Inlet in the Cairns region (Cooper <i>et. al.</i> , 2016).	2016	Unlikely	Mangrove habitat does not occur. Recent record.
Rubiaceae	<i>Myrmecodia beccarii</i>	Ant Plant	VU	VU	A bulbous epiphyte that has a special association (mutualistic symbiosis) with the Golden Ant (<i>Philidris cordatus</i>), which lives in the chambers of the tuber, and the Apollo Jewel Butterfly (<i>Hypochrysops apollo apollo</i> ; listed as vulnerable under the Nature Conservation Act 1992; Qld) lays its egg only on the tuber of this plant (Moss 2014). Grows in lowland coastal woodlands and mangroves, with host trees: <i>Melaleuca viridiflora</i> , <i>Lophostemon suaveolens</i> or mangroves, between Ingham and Cooktown, north Queensland (Forster 2000).	2024	Likely	May support suitable habitat. Local knowledge of records suggests it's likely to be present. Recent record.
Proteaceae	<i>Alloxylon flammeum</i>	Queensland Waratah	VU	VU	Occurs on the Atherton Tablelands, northeast Queensland. Grows in rainforest on basalt and complex notophyll vine forests on metamorphics, and on humus rich gravelly loam from granite (Weston and Crisp 1991).	-	May occur	May support suitable habitat. No species records.

¹ Queensland Status, Nature Conservation Act 1992 (Qld; NCA): EX = Extinct, EW = Extinct in the wild CR = Critically Endangered, EN = Endangered, VU = Vulnerable, NT = Near Threatened, LC = Least Concern
Australian Status (EPBC Act): EX = Extinct, EW = Extinct in the wild CR = Critically Endangered, EN = Endangered, VU = Vulnerable - = not protected under the EPBC Act.

² Most recent date of records known within 5km.

Notes: Greyed out species are considered unlikely to occur.

- in Common Name, means no common name exists for that species.

- in Records means no record exists for this species within 5km of the MID Corridor



THREATENED FAUNA



Table 12
Likelihood of
occurrence for
threatened
fauna

Family	Scientific Name	Common Name	Status ¹		Description	Record ²	Likelihood of occurrence	Rational likelihood ranking	
			QLD	AUS					for
AMPHIBIANS									
Hylidae	<i>Litoria dayi</i>	Australian Lacelid	VU	VU	This species is endemic to the Wet Tropics, originally extending from Paluma to Cooktown in north Queensland. It has however disappeared from many upland sites and is only occasionally recorded in some lowland areas (McDonald 1992; Richards <i>et. al.</i> , 1993). This frog species associates with rainforest and prefers fast flowing rocky streams (Czechura <i>et. al.</i> , 1987).	2020	Likely	Suitable habitat may occur.	Recent record.
Hylidae	<i>Litoria nannotis</i>	Waterfall Frog	EN	-	This frog species that occurs in the Wet Tropics of north-eastern Queensland, restricted to rocky stream habitats in rainforest or wet sclerophyll forest where there is fast flowing water, waterfalls or cascades (McDonald 1992).	2000	May occur	Suitable habitat may occur.	Relative recent record.
Hylidae	<i>Litoria nyakalensis</i>	Mountain Mistfrog	CR	CR	Frog species occurs in upland rainforest and wet sclerophyll forest along fast flowing streams with riffles (McDonald 1992). Species is endemic to the Wet Tropics, originally from Cardwell to the Daintree in north Queensland. It has however disappeared and has not been recorded since 1990 (McDonald 1992).	1972	Unlikely	Suitable upland rainforest does not occur.	Historical record
Hylidae	<i>Litoria rheocola</i>	Common Mistfrog	EN	-	This frog species occurs in rainforests north of the Ingham in the Wet Tropics but is restricted to perennial rainforest streams (Roznik and Alford 2015).	2021	Likely	Suitable habitat may occur.	Recent record.
Hylidae	<i>Litoria serrata</i>	Tapping Green Eyed Frog	VU	-	Occurs in Wet Tropics, within rainforests and adjacent wet sclerophyll forests or paperbark woodland, usually near creeks (Cohen and Cooper 2011)	2001	May occur	Suitable habitat may occur.	Relatively recent record.
BIRDS									
Accipitridae	<i>Erythrotriorchis radiatus</i>	Red Goshawk	EN	VU	Widespread, extending from NSW, north to northern Western Australia and extending inland (TSSC 2015a). A large hawk that inhabits coastal woodlands, tropical savannahs traversed by forested rivers. Rarely breeds in fragmented native vegetation. Large home range for foraging (200km ² ; TSSC 2015a).	1978	May occur	Suitable habitat may occur.	Historical record.
Apodidae	<i>Hirundapus caudacutus</i>	White-throated Needletail	VU	VU, Mi	Recorded from the coast to inland areas west of the Great Dividing Range throughout the east coast of Australia (TSSC 2019b). Occurs over most types of habitats, but often in wooded areas, including open forest and rainforest.	2020	Likely	Suitable habitat may occur.	Multiple recent records.



Family	Scientific Name	Common Name	Status ¹		Description	Record ²	Likelihood of occurrence	Rational for likelihood ranking	
			QLD	AUS					
Burhinidae	<i>Esacus magistrostris</i>	Beach Stone Curlew	VU	-	Shorebird found on undisturbed beaches, mangroves, reefs and tidal sand or mudflats. Occurs throughout coastal eastern Australia (BirdLife International 2016)	2023	Unlikely	Suitable coastal habitat unavailable. Multiple records.	
Casuariidae	<i>Casuaris johnsonii</i> (population)	<i>casuaris</i> (southern) Southern Cassowary (southern population)	EN	EN	Prefers vegetation communities which are relatively dense at altitudes 0-500m, including rainforest, gallery forest, eucalypt forests with vine forest elements, swamp forests and associated adjacent Melaleuca swamps, littoral scrub and mangroves. Often utilises a mosaic of habitats and will disperse across open eucalypt woodlands, canefields and dry ridges to get to preferred habitat patches of rainforest and associated vegetation types (Latch 2007). Endemic to the Wet Tropics of northeast Queensland.	2022	Likely	Suitable habitat may occur. Essential habitat mapped. Recent records.	
Charadriidae	<i>Charadrius leschenaultii</i>	Greater Sand Plover	VU	VU	The Greater Sand Plover occurs in coastal areas throughout Australia. Within Australia, this species is entirely coastal, inhabiting littoral and estuarine habitats (Stewart <i>et. al.</i> , 2007)	2023	Unlikely	Suitable coastal habitat does not occur. Multiple recent records.	
Charadriidae	<i>Charadrius mongolus</i>	Lesser Sand Plover	EN	EN	This species is a migratory shorebird that spends the non-breeding season in Australia (summer). This species inhabits mudflats and sandy beaches along sheltered coasts (Birdlife International 2015).	2022	Unlikely	Suitable coastal habitat does not occur. Multiple recent records.	
Falconidae	<i>Falco hypoleucos</i>	Grey falcon	VU	VU	Occurs over much of inland arid Australia but generally absent from coastal areas and Cape York Peninsula (TSSC 2020). This medium sized raptor is observed in timbered lowland plains, particularly acacia shrublands near vegetated watercourses (TSSC 2020).	2019	Unlikely	Urbanised study area unlikely to support this species. Recent record.	
Psittaculidae	<i>Cyclopsitta macleayana</i>	<i>diopjhalma</i> Macleay's Fig-parrot	VU	-	Occurs from Paluma to Cooktown in northeast Australia in rainforest (Morcombe and Stewart 2013).	2023	Likely	Suitable habitat may occur. Multiple recent records.	
Rostratulidae	<i>Rostratula australis</i>	Australian Painted-Snipe	EN	EN	A wading bird that inhabits shallow freshwater wetlands with a good cover of grasses, rushes, and reeds, with low scrub or open timber forest (TSSC 2013). It is most common throughout east Australia.	1994	Unlikely	Wetland areas do not occur. Historical record.	
Scolopacidae	<i>Calidris canutus</i>	Red Knot	EN	EN	This species is a migratory shorebird from Siberia that spends the non-breeding season in Australia (summer). This species inhabits mudflats and sandy beaches along sheltered coasts (TSSC 2016a).	2023	Unlikely	Suitable coastal habitat does not occur. Multiple recent records.	



Family	Scientific Name	Common Name	Status ¹		Description	Record ²	Likelihood of occurrence	Rational for likelihood ranking		
			QLD	AUS						
Scolopacidae	<i>Calidris ferruginea</i>	Curlew Sandpiper	CR	CR	A migratory shorebird from Siberia, that spends the non-breeding season in Australia (summer). Occurs around the coast but occasionally inland. On the coast, this species inhabits intertidal mudflats, estuaries, bays, and non-tidal swamps (TSSC 2015b).	2023	Unlikely	Suitable habitat occurs.	coastal does not occur. Multiple recent records.	
Scolopacidae	<i>Calidris tenuirostris</i>	Great Knot	CR	CR	This migratory bird species from Siberia migrates to Australia during summer, in its non-breeding season. This species occurs throughout the Australian coast. It inhabits sheltered coastal areas with mudflats and sandflats (Higgins and Davies 1996).	2023	Unlikely	Suitable habitat occurs.	coastal does not occur. Multiple recent records.	
Scolopacidae	<i>Limosa lapponica baueri</i>	Nunivak Godwit	Bar-tailed	VU	VU	A large migratory shorebird, that spends the non-breeding season in Australia (summer). Occurs in coastal New Zealand and north Australia. Species inhabits intertidal sandflats, banks, mudflats, estuaries, bays, and inlets. (Higgins and Davies 1996).	2023	Unlikely	Suitable habitat occurs.	coastal does not occur. Multiple recent records.
Scolopacidae	<i>Numenius madagascariensis</i>	Eastern Curlew		EN	CR	Australia's largest shorebird which migrates from Russia and China to Australian during its non-breeding season (our winter; DCEW 2022). Commonly recorded in sheltered coasts, estuaries, and coastal lagoons, occasionally on beaches and coral reefs (TSSC 2015c).	2023	Unlikely	Suitable habitat occurs.	coastal does not occur. Multiple recent records.
Tytonidae	<i>Tyto novaehollandiae kimberli</i>	Masked Owl (northern subspecies)		VU	VU	The Masked Owl is found from north Queensland to northern Western Australia (Garnett <i>et al.</i> , 2011). This species has been recorded in riparian forest, rainforest, open forest, Melaleuca swamps and mangroves. It requires a large foraging area and large hollowed trees for nesting (TSSC 2015d).	1986	May occur	Suitable habitat occurs.	habitat may occur. Historical records.
FISH										
Gobiidae	<i>Stiphodon semoni</i>	Opal Cling Goby		LC	CR	This species is found in pristine rainforest streams that have significant flow and direct access to marine habitats (DoE 2023c). It is known only from a number of streams in the Wet Tropics of northeast Queensland.	-	Unlikely	Urbanised area unlikely to support this species	study to No records.
MAMMALS										
Dasyuridae	<i>Dasyurus hallucatus</i>	Northern Quoll		LC	EN	This species occupies a range of habitats that include rocky areas, such as eucalypt forest, rainforests, sandy lowlands and beaches, grasslands, and desert (TSSC 2005). The Northern Quoll occurs from Rockhampton to Weipa, north Queensland (McGoldrick 2013).	2022	Likely	Suitable habitat occurs.	habitat may occur. Recent records.



Family	Scientific Name	Common Name	Status ¹		Description	Record ²	Likelihood of occurrence	Rational for likelihood ranking	
			QLD	AUS					
Dasyuridae	<i>Dasyurus maculatus gracilis</i>	Spotted-tailed Quoll (northern subspecies)	EN	EN	This quoll requires large intact vegetated areas consisting of rainforest and vine forest). It has been recorded in adjacent wet sclerophyll forest. It dens at ground level within hollow buttressing roots and rocky outcrops. Occurs in the Wet Tropics of northeast Queensland (Burnett 2001).	2018	May occur	Suitable habitat may occur.	One recent record.
Emballonuridae	<i>Saccolaimus nudiclunatus</i>	Bare-rumped Sheath-tail Bat	EN	VU	This bat occurs in north-eastern Queensland. This species has been recorded mostly in eucalypt woodlands, generally near coastal areas, and can be associated with coastal lowland rainforests. Roosts are in deep tree hollows (TSSC 2016b).	2019	Likely	Suitable habitat may occur.	Recent records.
Hipposideridae	<i>Hipposideros reginae</i>	Diadem Leaf-nosed Bat	NT	-	A bat that occurs in northeast Queensland from Townsville to Cape York. Roosts in caves and disused mines with high ceilings (Hall and Richards 1985).	2012	May occur	Relatively recent record.	May occur if suitable roost habitat occurs.
Hipposideridae	<i>Hipposideros semoni</i>	Semon's Leaf-nosed Bat	EN	VU	This bat occurs from Cooktown to Cape York. The southern limit is unknown. Species inhabits rainforests, wet sclerophyll forest and open savannah. Daytime roosts include tree hollows, road culverts and caves amongst granite boulders (Churchill 2009).	-	May occur	Suitable habitat may occur.	No records.
Megadermatidae	<i>Macroderma gigas</i>	Ghost Bat	EN	VU	This bat occurs from Cape York to Rockhampton. In coastal areas they typically inhabit tropical savanna woodland and rainforests. This species requires large caves or rock crevices for roosting (TSSC 2016c).	2000	Unlikely	No caves present.	Relatively recent record.
Muridae	<i>Mesembriomys rattoides</i>	Black-footed Tree-rat (north Queensland)	LC	VU	A species with little habitat information, but mostly recorded in eucalypt forests, especially where hollows are plentiful (TSSC 2015e). This species has been recorded mostly around Mareeba, with sparse records throughout Cape York.	-	May occur	Suitable habitat may occur, but MID Corridor not in Mareeba.	No records.
Muridae	<i>Xeromys myoides</i>	Water Mouse	VU	VU	A small rodent species that occurs in marine and mangrove areas along the coast of Queensland and the Northern Territory. The species has been recorded along the Jack Barnes Bicentennial Boardwalk, adjacent to Cairns Airport (Ball and Mitchell 2018).	2017	Unlikely	No mangrove habitat occurs.	Multiple recent records
Ornithorhynchidae	<i>Ornithorhynchus anatinus</i>	Platypus	SLC	-	Platypus live along the east coast of Australia, in a diverse array of reliable freshwater streams from altitudes 0-1600m (Australian Platypus Conservancy 2023).	2021	Likely to occur.	Suitable habitat may occur in Freshwater Creek.	Recent records.



Family	Scientific Name	Common Name	Status ¹		Description	Record ²	Likelihood of occurrence	Rational for likelihood ranking	
			QLD	AUS					
Phascolarctidae	<i>Phascolarctos cinereus</i>	Koala	EN	EN	Koalas occur from Cairns, in north Queensland through NSW. Koalas typically inhabit forests and semi-arid vegetation communities dominated by <i>Eucalyptus</i> species (Martin and Handasyde 1999).	-	May occur	Suitable habitat may occur.	No records.
Potoroidae	<i>Bettongia tropica</i>	Northern Bettong	EN	EN	This species prefers wet to dry eucalypt woodland and tall forests (usually with a dense canopy) within proximity to rainforests (usually only a few km). Endemic to northeast Queensland (TSSC 1999).	-	May occur	Suitable habitat may occur.	No records.
Pseudocheiridae	<i>Petauroides minor</i>	Northern Greater Glider	VU	VU	The Greater Glider (northern) is nocturnal and arboreal. Occurs in wet-dry tropical regions of north-east Australia, within the Wet Tropics World Heritage Area and south to Bowen (McGregor <i>et al.</i> , 2020). Found in eucalypt forests and woodlands. They require den trees with large hollows (>10cm; Goldingay 2012).	-	May occur	Suitable habitat may occur.	No records.
Pteropodidae	<i>Pteropus conspicillatus</i>	Spectacled Flying-fox	EN	EN	This species occurs north of Cardwell in Queensland. Historical records however extend as far south as Brisbane. This species occurs in rainforest, with camps located in or near rainforest areas (Richards 1990). Foraging however, can occur in many vegetation types including mangroves, forests, gardens, and orchards (Dennis 2012).	2023	Likely	Suitable habitat may occur.	Multiple recent records.
Rhinolophidae	<i>Rhinolophus robertsi</i>	Large-eared Bat	LC	VU	This bat occurs in north eastern Australian, from Townsville to Cape York. This species inhabits rainforest, riparian forest, eucalypt open forest and woodlands. Daytime roosts include tree hollows, or amongst the canopy (Pavey 1999).	2020	May occur	Suitable habitat may occur.	One recent record.
Tachyglossidae	<i>Tachyglossus aculeatus</i>	Short-beaked Echidna	SLC	-	The Short-beaked Echidna occurs in all states of Australia and lives in forests and woodlands, heath, grasslands, and arid environments (Australian Museum 2023).	2023	Likely to occur.	Suitable habitat may occur.	Multiple recent records.
REPTILES									
Crocodylidae	<i>Crocodylus porosus</i>	Estuarine Crocodile	VU	M, Mi	Occurs in coastal marine environments. It occasionally inhabits open sea, mostly within 40-50km of coastline. Nesting sites are often in vegetated areas of riverbanks (Department of Resources 2022). Typical distribution is coastal environments from central Queensland, north to Broome in Western Australia (Australian Museum 2020)	2021	Likely to occur	Suitable riverine habitat occurs in the Barron River in Kamerunga.	Recent records.

Six marine turtle species were listed as potentially occurring in the EPBC Protected Matter Search however these have not been included due to a lack of marine or beach habitat within the study area.



Family	Scientific Name	Common Name	Status ¹		Description	Record ²	Likelihood of occurrence	Rational likelihood	for ranking
			QLD	AUS					
SHARKS									
Pristidae	<i>Pristis pristis</i>	Freshwater Sawfish	-	VU	Freshwater Sawfish occur in fresh or weakly saline water (Last & Stevens 1994). It has been recorded migrating up rivers during flood periods (DoE 2014). In Queensland, the known distribution is confined to the Laura River, Cape York (DoE 2014) and appears to be confined to freshwater drains and the upper reaches of the estuary (DoE 2014).	-	Unlikely	No river habitat occurs. No records.	
Pristidae	<i>Pristis zijsron</i>	Green Sawfish	-	VU	Green Sawfish occur in inshore coastal waters and estuaries (Stevens et. al., 2005). In Queensland, the known distribution is from the Whitsundays to Cape York (Stevens et. al., 2005).	2003	Unlikely	No river habitat occurs. One relatively recent record.	
MIGRATORY AND MARINE SPECIES									
Apodidae	<i>Apus pacificus</i>	Fork-tailed Swift	LC	M, Mi	Almost exclusively aerial migratory bird. The species does not breed in Australia. In Australia, this species mostly occurs all over Australia through inland plains but sometimes above foothills or in coastal areas. Sometimes occurs over rainforest, wet sclerophyll forest, open forest (Higgins 1999).	2023	Likely	Suitable habitat may occur in which the species would fly over. Multiple recent records.	
Cuculidae	<i>Cuculus optatus</i>	Oriental Cuckoo	LC	Mi	A migratory terrestrial bird that does not breed in Australia but while in Australia occurs in northern and eastern Australia. The species inhabits forests and mixed woodland where it forages for insects in trees and bushes (Higgins 1999).	2023	Likely	Suitable habitat may occur. Multiple recent records.	
Dicruridae	<i>Monarcha melanopsis</i>	Black-faced Monarch	LC	M, Mi	A migratory marine and terrestrial species that occurs throughout coastal areas of the east coast of Australia. The species is mainly observed in rainforest and vine thickets (Schodde and Mason 1999).	2022	Likely	Suitable habitat may occur. Multiple recent records.	
Dicruridae	<i>Myiagra cyanoleuca</i>	Satin Flycatcher	LC	M, Mi	A migratory marine and terrestrial species that occurs throughout coastal areas of the east coast of Australia. The species is mainly observed in heavily vegetated gullies in Eucalypt forests, mangroves and rainforest (Blakers et. al., 1984).	2023	Likely	Suitable habitat may occur. Multiple recent records.	
Dicruridae	<i>Rhipidura rufifrons</i>	Rufous Fantail	LC	M, Mi	A migratory marine and terrestrial bird that does not breed in Australia but while in Australia occurs in northern and eastern coastal Australia. The species inhabits wet sclerophyll forest, often in gullies dominated Eucalypts, rainforest and vine thickets (Higgins et. al., 2006).	2022	Likely	Suitable habitat may occur. Multiple recent records.	



Family	Scientific Name	Common Name	Status ¹		Description	Record ²	Likelihood of occurrence	Rational likelihood ranking
			QLD	AUS				
Dicruridae	<i>Symposiachrus trivirgatus</i>	Spectacled Monarch	LC	M, Mi	A migratory marine and terrestrial species that occurs throughout coastal areas of the east coast of Australia. The species is mainly observed in moist lowland forests, mangrove forests and rainforests (Higgins <i>et. al</i> , 2006).	2023	Likely	Suitable habitat may occur. Multiple recent records.
Hirundinidae	<i>Hirundo rustica</i>	Barn Swallow	LC	Mi	A migratory terrestrial bird that does not breed in Australia but spends the summer non-breeding periods throughout northern Australia. The species utilises open country with water or moist vegetation such as near margins of wetlands. This species usually avoids densely populated areas (Cramp 1988).	2012	May occur	Suitable habitat may occur. Relatively recent record.
Motacillidae	<i>Motacilla flava</i>	Yellow Wagtail	LC	M, Mi	A migratory marine and terrestrial species that does not breed in Australia. It occurs throughout most of Australia. The species is mainly observed in damp, wet environments such as marshes and wetlands (Birdlife International 2023).	1987	Unlikely	No marsh or wetland areas occur. Historical records.

¹ Queensland Status, Nature Conservation Act 1992 (QLD; NCA): EX = Extinct, EW = Extinct in the wild CR = Critically Endangered, EN = Endangered, VU = Vulnerable, NT = Near Threatened, LC = Least Concern
Australian Status (EPBC Act): EX = Extinct, EW = Extinct in the wild CR = Critically Endangered, EN = Endangered, VU = Vulnerable, NT = Near Threatened, - = not protected under the EPBC Act.

² Most recent date of records known within 5km

Notes: Greyed out species are considered unlikely to occur.

- in Common Name, means no common name exists for that species.

- in Records means no record exists for this species within 5km of the study area.

Protected Matters Search Report
WildNet Threatened Species Search Results
WildNet Introduced Species Search Results
Regulated Vegetation Mapping Report
MSES Report

APPENDIX

B

DATABASE SEARCH RESULTS



Australian Government

Department of Climate Change, Energy,
the Environment and Water

EPBC Act Protected Matters Report

This report provides general guidance on matters of national environmental significance and other matters protected by the EPBC Act in the area you have selected. Please see the caveat for interpretation of information provided here.

Report created: 18-Jun-2023

[Summary](#)

[Details](#)

[Matters of NES](#)

[Other Matters Protected by the EPBC Act](#)

[Extra Information](#)

[Caveat](#)

[Acknowledgements](#)

Summary

Matters of National Environment Significance

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

World Heritage Properties:	1
National Heritage Places:	1
Wetlands of International Importance (Ramsar	None
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	None
Listed Threatened Ecological Communities:	2
Listed Threatened Species:	50
Listed Migratory Species:	38

Other Matters Protected by the EPBC Act

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

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

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

Commonwealth Lands:	1
Commonwealth Heritage Places:	None
Listed Marine Species:	37
Whales and Other Cetaceans:	None
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Australian Marine Parks:	None
Habitat Critical to the Survival of Marine Turtles:	None

Extra Information

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

State and Territory Reserves:	5
Regional Forest Agreements:	None
Nationally Important Wetlands:	1
EPBC Act Referrals:	2
Key Ecological Features (Marine):	None
Biologically Important Areas:	None
Bioregional Assessments:	None
Geological and Bioregional Assessments:	None

Details

Matters of National Environmental Significance

World Heritage Properties			[Resource Information]
Name	State	Legal Status	Buffer Status
Great Barrier Reef	QLD	Declared property	In buffer area only

National Heritage Places			[Resource Information]
Name	State	Legal Status	Buffer Status
Natural			
Great Barrier Reef	QLD	Listed place	In buffer area only

Listed Threatened Ecological Communities			[Resource Information]
For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.			
Status of Vulnerable, Disallowed and Ineligible are not MNES under the EPBC Act.			

Community Name	Threatened Category	Presence Text	Buffer Status
Broad leaf tea-tree (Melaleuca viridiflora) woodlands in high rainfall coastal north Queensland	Endangered	Community may occur within area	In feature area
Lowland tropical rainforest of the Wet Tropics	Endangered	Community likely to occur within area	In feature area

Listed Threatened Species			[Resource Information]
Status of Conservation Dependent and Extinct are not MNES under the EPBC Act.			
Number is the current name ID.			

Scientific Name	Threatened Category	Presence Text	Buffer Status
BIRD			
Calidris canutus Red Knot, Knot [855]	Endangered	Species or species habitat known to occur within area	In feature area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area	In feature area
Casuarius casuarius johnsonii Southern Cassowary, Australian Cassowary, Double-wattled Cassowary [25986]	Endangered	Species or species habitat known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Charadrius leschenaultii Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Erythroriorchis radiatus Red Goshawk [942]	Endangered	Species or species habitat likely to occur within area	In feature area
Falco hypoleucos Grey Falcon [929]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area	In feature area
Limosa lapponica baueri Nunivak Bar-tailed Godwit, Western Alaskan Bar-tailed Godwit [86380]	Vulnerable	Species or species habitat known to occur within area	In feature area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area	In feature area
Rostratula australis Australian Painted Snipe [77037]	Endangered	Species or species habitat known to occur within area	In feature area
Tyto novaehollandiae kimberli Masked Owl (northern) [26048]	Vulnerable	Species or species habitat likely to occur within area	In feature area
FISH			
Stiphodon semoni Opal Cling Goby [83909]	Critically Endangered	Species or species habitat may occur within area	In feature area
FROG			
Litoria dayi Australian Lace-lid, Lace-eyed Tree Frog, Day's Big-eyed Treefrog [86707]	Vulnerable	Species or species habitat known to occur within area	In feature area
Litoria nyakalensis Mountain Mistfrog, Nyakala Frog [1820]	Critically Endangered	Species or species habitat likely to occur within area	In buffer area only
MAMMAL			

Scientific Name	Threatened Category	Presence Text	Buffer Status
Dasyurus hallucatus Northern Quoll, Digul [Gogo-Yimidir], Wijingadda [Dambimangari], Wiminji [Martu] [331]	Endangered	Species or species habitat known to occur within area	In feature area
Dasyurus maculatus gracilis Spotted-tailed Quoll (North Queensland), Yarri [64475]	Endangered	Species or species habitat may occur within area	In feature area
Hipposideros semoni Semon's Leaf-nosed Bat, Greater Wart-nosed Horseshoe-bat [180]	Vulnerable	Species or species habitat may occur within area	In feature area
Macroderma gigas Ghost Bat [174]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Mesembriomys gouldii rattoides Black-footed Tree-rat (north Queensland), Shaggy Rabbit-rat [87620]	Vulnerable	Species or species habitat may occur within area	In feature area
Petauroides minor Greater Glider (northern), Greater Glider (north-eastern Queensland) [92008]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Phascolarctos cinereus (combined populations of Qld, NSW and the ACT) Koala (combined populations of Queensland, New South Wales and the Australian Capital Territory) [85104]	Endangered	Species or species habitat likely to occur within area	In feature area
Pteropus conspicillatus Spectacled Flying-fox [185]	Endangered	Species or species habitat known to occur within area	In feature area
Rhinolophus robertsi Large-eared Horseshoe Bat, Greater Large-eared Horseshoe Bat [87639]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Saccolaimus saccolaimus nudicluniatus Bare-rumped Sheath-tailed Bat, Bare-rumped Sheathtail Bat [66889]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Xeromys myoides Water Mouse, False Water Rat, Yirrkoo [66]	Vulnerable	Species or species habitat known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Bruguiera x hainesii Haines's Orange Mangrove [91351]	Critically Endangered	Species or species habitat known to occur within area	In feature area
Canarium acutifolium [23956]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Carronia pedicellata [24178]	Endangered	Species or species habitat likely to occur within area	In feature area
Dendrobium mirbelianum Dark-stemmed Antler Orchid, Mangrove Orchid [14310]	Endangered	Species or species habitat may occur within area	In feature area
Dendrobium nindii an orchid [11289]	Endangered	Species or species habitat may occur within area	In feature area
Diplazium cordifolium [15585]	Vulnerable	Species or species habitat known to occur within area	In feature area
Diplazium pallidum [12764]	Endangered	Species or species habitat likely to occur within area	In feature area
Eleocharis retroflexa a sedge [23672]	Vulnerable	Species or species habitat known to occur within area	In feature area
Leichhardtia araujacea [91900]	Critically Endangered	Species or species habitat known to occur within area	In feature area
Myrmecodia beccarii Ant Plant [11852]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Phaius pictus [22564]	Vulnerable	Species or species habitat likely to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Phlegmariurus filiformis Rat's Tail Tassel-fern [86551]	Endangered	Species or species habitat likely to occur within area	In buffer area only
Phlegmariurus squarrosus Rock Tassel-fern, Water Tassel-fern [86556]	Critically Endangered	Species or species habitat may occur within area	In feature area
Polyphlebium endlicherianum Middle Filmy Fern [87494]	Endangered	Species or species habitat likely to occur within area	In feature area
Vappodes lithocola Dwarf Butterfly Orchid, Cooktown Orchid [78893]	Endangered	Species or species habitat likely to occur within area	In feature area
Zeuxine polygonoides Velvet Jewel Orchid [46794]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only
REPTILE			
Caretta caretta Loggerhead Turtle [1763]	Endangered	Foraging, feeding or related behaviour likely to occur within area	In feature area
Chelonia mydas Green Turtle [1765]	Vulnerable	Foraging, feeding or related behaviour known to occur within area	In feature area
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Foraging, feeding or related behaviour likely to occur within area	In feature area
Eretmochelys imbricata Hawksbill Turtle [1766]	Vulnerable	Species or species habitat known to occur within area	In feature area
Lepidochelys olivacea Olive Ridley Turtle, Pacific Ridley Turtle [1767]	Endangered	Foraging, feeding or related behaviour likely to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Natator depressus Flatback Turtle [59257]	Vulnerable	Foraging, feeding or related behaviour known to occur within area	In feature area
SHARK			
Pristis pristis Freshwater Sawfish, Largetooth Sawfish, River Sawfish, Leichhardt's Sawfish, Northern Sawfish [60756]	Vulnerable	Species or species habitat may occur within area	In feature area
Pristis zijsron Green Sawfish, Dindagubba, Narrowsnout Sawfish [68442]	Vulnerable	Breeding likely to occur within area	In feature area
Sphyrna lewini Scalloped Hammerhead [85267]	Conservation Dependent	Species or species habitat likely to occur within area	In feature area
Listed Migratory Species [Resource Information]			
Scientific Name	Threatened Category	Presence Text	Buffer Status
Migratory Marine Birds			
Anous stolidus Common Noddy [825]		Species or species habitat known to occur within area	In feature area
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area	In feature area
Fregata ariel Lesser Frigatebird, Least Frigatebird [1012]		Species or species habitat known to occur within area	In feature area
Fregata minor Great Frigatebird, Greater Frigatebird [1013]		Species or species habitat known to occur within area	In feature area
Phaethon lepturus White-tailed Tropicbird [1014]		Species or species habitat may occur within area	In feature area
Migratory Marine Species			
Anoxypristis cuspidata Narrow Sawfish, Knifetooth Sawfish [68448]		Species or species habitat likely to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Caretta caretta Loggerhead Turtle [1763]	Endangered	Foraging, feeding or related behaviour likely to occur within area	In feature area
Chelonia mydas Green Turtle [1765]	Vulnerable	Foraging, feeding or related behaviour known to occur within area	In feature area
Crocodylus porosus Salt-water Crocodile, Estuarine Crocodile [1774]		Species or species habitat likely to occur within area	In feature area
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Foraging, feeding or related behaviour likely to occur within area	In feature area
Eretmochelys imbricata Hawksbill Turtle [1766]	Vulnerable	Species or species habitat known to occur within area	In feature area
Lamna nasus Porbeagle, Mackerel Shark [83288]		Species or species habitat may occur within area	In feature area
Lepidochelys olivacea Olive Ridley Turtle, Pacific Ridley Turtle [1767]	Endangered	Foraging, feeding or related behaviour likely to occur within area	In feature area
Mobula alfredi as Manta alfredi Reef Manta Ray, Coastal Manta Ray [90033]		Species or species habitat may occur within area	In feature area
Mobula birostris as Manta birostris Giant Manta Ray [90034]		Species or species habitat may occur within area	In feature area
Natator depressus Flatback Turtle [59257]	Vulnerable	Foraging, feeding or related behaviour known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Pristis pristis Freshwater Sawfish, Largetooth Sawfish, River Sawfish, Leichhardt's Sawfish, Northern Sawfish [60756]	Vulnerable	Species or species habitat may occur within area	In feature area
Pristis zijsron Green Sawfish, Dindagubba, Narrowsnout Sawfish [68442]	Vulnerable	Breeding likely to occur within area	In feature area
Migratory Terrestrial Species			
Cuculus optatus Oriental Cuckoo, Horsfield's Cuckoo [86651]		Species or species habitat known to occur within area	In feature area
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area	In feature area
Hirundo rustica Barn Swallow [662]		Species or species habitat known to occur within area	In feature area
Monarcha melanopsis Black-faced Monarch [609]		Species or species habitat known to occur within area	In feature area
Motacilla flava Yellow Wagtail [644]		Species or species habitat likely to occur within area	In feature area
Myiagra cyanoleuca Satin Flycatcher [612]		Species or species habitat known to occur within area	In feature area
Rhipidura rufifrons Rufous Fantail [592]		Species or species habitat known to occur within area	In feature area
Symposiachrus trivirgatus as Monarcha trivirgatus Spectacled Monarch [83946]		Species or species habitat known to occur within area	In feature area
Migratory Wetlands Species			
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Calidris acuminata Sharp-tailed Sandpiper [874]		Species or species habitat known to occur within area	In feature area
Calidris canutus Red Knot, Knot [855]	Endangered	Species or species habitat known to occur within area	In feature area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area	In feature area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat known to occur within area	In feature area
Charadrius leschenaultii Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]		Species or species habitat known to occur within area	In feature area
Limnodromus semipalmatus Asian Dowitcher [843]		Species or species habitat likely to occur within area	In feature area
Limosa lapponica Bar-tailed Godwit [844]		Species or species habitat known to occur within area	In feature area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area	In feature area
Pandion haliaetus Osprey [952]		Breeding known to occur within area	In feature area
Tringa nebularia Common Greenshank, Greenshank [832]		Species or species habitat likely to occur within area	In feature area

Other Matters Protected by the EPBC Act

Commonwealth Lands

[Resource Information]

The Commonwealth area listed below may indicate the presence of Commonwealth land in this vicinity. Due to the unreliability of the data source, all proposals should be checked as to whether it impacts on a Commonwealth area, before making a definitive decision. Contact the State or Territory government land department for further information.

Commonwealth Land Name	State	Buffer Status
Defence		
Defence - PORTON TRAINING DEPOT - CAIRNS [30177]	QLD	In buffer area only

Listed Marine Species

[Resource Information]

Scientific Name	Threatened Category	Presence Text	Buffer Status
Bird			

Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat known to occur within area	In feature area
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Anous stolidus Common Noddy [825]		Species or species habitat known to occur within area	In feature area
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Anseranas semipalmata Magpie Goose [978]		Species or species habitat may occur within area overfly marine area	In feature area
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Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area overfly marine area	In feature area
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Bubulcus ibis as Ardea ibis Cattle Egret [66521]		Species or species habitat may occur within area overfly marine area	In feature area
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Calidris acuminata Sharp-tailed Sandpiper [874]		Species or species habitat known to occur within area	In feature area
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Calidris canutus Red Knot, Knot [855]	Endangered	Species or species habitat known to occur within area overfly marine area	In feature area
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Scientific Name	Threatened Category	Presence Text	Buffer Status
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area overfly marine area	In feature area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat known to occur within area overfly marine area	In feature area
Chalcites osculans as Chrysococcyx osculans Black-eared Cuckoo [83425]		Species or species habitat likely to occur within area overfly marine area	In feature area
Charadrius leschenaultii Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Fregata ariel Lesser Frigatebird, Least Frigatebird [1012]		Species or species habitat known to occur within area	In feature area
Fregata minor Great Frigatebird, Greater Frigatebird [1013]		Species or species habitat known to occur within area	In feature area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]		Species or species habitat known to occur within area overfly marine area	In feature area
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Species or species habitat known to occur within area	In feature area
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area overfly marine area	In feature area
Hirundo rustica Barn Swallow [662]		Species or species habitat known to occur within area overfly marine area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Limnodromus semipalmatus Asian Dowitcher [843]		Species or species habitat likely to occur within area overfly marine area	In feature area
Limosa lapponica Bar-tailed Godwit [844]		Species or species habitat known to occur within area	In feature area
Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may occur within area overfly marine area	In feature area
Monarcha melanopsis Black-faced Monarch [609]		Species or species habitat known to occur within area overfly marine area	In feature area
Motacilla flava Yellow Wagtail [644]		Species or species habitat likely to occur within area overfly marine area	In feature area
Myiagra cyanoleuca Satin Flycatcher [612]		Species or species habitat known to occur within area overfly marine area	In feature area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area	In feature area
Pandion haliaetus Osprey [952]		Breeding known to occur within area	In feature area
Phaethon lepturus White-tailed Tropicbird [1014]		Species or species habitat may occur within area	In feature area
Rhipidura rufifrons Rufous Fantail [592]		Species or species habitat known to occur within area overfly marine area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Rostratula australis as Rostratula benghalensis (sensu lato)			
Australian Painted Snipe [77037]	Endangered	Species or species habitat known to occur within area overfly marine area	In feature area
Symposiachrus trivirgatus as Monarcha trivirgatus			
Spectacled Monarch [83946]		Species or species habitat known to occur within area overfly marine area	In feature area
Tringa nebularia			
Common Greenshank, Greenshank [832]		Species or species habitat likely to occur within area overfly marine area	In feature area
Reptile			
Caretta caretta			
Loggerhead Turtle [1763]	Endangered	Foraging, feeding or related behaviour likely to occur within area	In feature area
Chelonia mydas			
Green Turtle [1765]	Vulnerable	Foraging, feeding or related behaviour known to occur within area	In feature area
Crocodylus porosus			
Salt-water Crocodile, Estuarine Crocodile [1774]		Species or species habitat likely to occur within area	In feature area
Dermochelys coriacea			
Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Foraging, feeding or related behaviour likely to occur within area	In feature area
Eretmochelys imbricata			
Hawksbill Turtle [1766]	Vulnerable	Species or species habitat known to occur within area	In feature area
Lepidochelys olivacea			
Olive Ridley Turtle, Pacific Ridley Turtle [1767]	Endangered	Foraging, feeding or related behaviour likely to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Natator depressus			
Flatback Turtle [59257]	Vulnerable	Foraging, feeding or related behaviour known to occur within area	In feature area

Extra Information

State and Territory Reserves			[Resource Information]
Protected Area Name	Reserve Type	State	Buffer Status
Dinden	National Park	QLD	In buffer area only
Great Barrier Reef Coast	Marine Park	QLD	In feature area
Mount Whitfield	Conservation Park	QLD	In buffer area only
Trinity Inlet	Fish Habitat Area (B)	QLD	In feature area
Trinity Inlet	Fish Habitat Area (A)	QLD	In buffer area only

Nationally Important Wetlands			[Resource Information]
Wetland Name		State	Buffer Status
Port of Cairns and Trinity Inlet		QLD	In feature area

EPBC Act Referrals				[Resource Information]
Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Controlled action				
Subdivision at East Woree Industrial Area	2008/4338	Controlled Action	Post-Approval	In feature area
Not controlled action				
Cairns Water Supply Augmentation	2004/1892	Not Controlled Action	Completed	In feature area

Caveat

1 PURPOSE

This report is designed to assist in identifying the location of matters of national environmental significance (MNES) and other matters protected by the Environment Protection and Biodiversity Conservation Act 1999 (Cth) (EPBC Act) which may be relevant in determining obligations and requirements under the EPBC Act.

The report contains the mapped locations of:

- World and National Heritage properties;
- Wetlands of International and National Importance;
- Commonwealth and State/Territory reserves;
- distribution of listed threatened, migratory and marine species;
- listed threatened ecological communities; and
- other information that may be useful as an indicator of potential habitat value.

2 DISCLAIMER

This report is not intended to be exhaustive and should only be relied upon as a general guide as mapped data is not available for all species or ecological communities listed under the EPBC Act (see below). Persons seeking to use the information contained in this report to inform the referral of a proposed action under the EPBC Act should consider the limitations noted below and whether additional information is required to determine the existence and location of MNES and other protected matters.

Where data are available to inform the mapping of protected species, the presence type (e.g. known, likely or may occur) that can be determined from the data is indicated in general terms. It is the responsibility of any person using or relying on the information in this report to ensure that it is suitable for the circumstances of any proposed use. The Commonwealth cannot accept responsibility for the consequences of any use of the report or any part thereof. To the maximum extent allowed under governing law, the Commonwealth will not be liable for any loss or damage that may be occasioned directly or indirectly through the use of, or reliance

3 DATA SOURCES

Threatened ecological communities

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

Threatened, migratory and marine species

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

Where little information is available for a species or large number of maps are required in a short time-frame, maps are derived either from 0.04 or 0.02 decimal degree cells; by an automated process using polygon capture techniques (static two kilometre grid cells, alpha-hull and convex hull); or captured manually or by using topographic features (national park boundaries, islands, etc.).

In the early stages of the distribution mapping process (1999-early 2000s) distributions were defined by degree blocks, 100K or 250K map sheets to rapidly create distribution maps. More detailed distribution mapping methods are used to update these distributions

4 LIMITATIONS

The following species and ecological communities have not been mapped and do not appear in this report:

- threatened species listed as extinct or considered vagrants;
- some recently listed species and ecological communities;
- some listed migratory and listed marine species, which are not listed as threatened species; and
- migratory species that are very widespread, vagrant, or only occur in Australia in small numbers.

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

- listed migratory and/or listed marine seabirds, which are not listed as threatened, have only been mapped for recorded
- seals which have only been mapped for breeding sites near the Australian continent

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

Refer to the metadata for the feature group (using the Resource Information link) for the currency of the information.

Acknowledgements

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

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

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

Please feel free to provide feedback via the [Contact us](#) page.

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WILDNET CONSERVATION SIGNIFICANT SPECIES LIST



Queensland Government

WildNet species list

Search Criteria: Species List for a Specified Point
Species: All
Type: Native
Queensland status: Rare and threatened species
Records: All
Date: All
Latitude: -16.9131
Longitude: 145.7162
Distance: 5
Email: emily@trendecology.com.au
Date submitted: Tuesday 09 May 2023 10:01:43
Date extracted: Tuesday 09 May 2023 10:10:02

The number of records retrieved = 32

Disclaimer

Information presented on this product is distributed by the Queensland Government as an information source only. While every care is taken to ensure the accuracy of this data, the State of Queensland makes no statements, representations or warranties about the accuracy, reliability, completeness or suitability of any information contained in this product.

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Information about your Species lists request is logged for quality assurance, user support and product enhancement purposes only.

The information provided should be appropriately acknowledged as being derived from WildNet database when it is used. As the WildNet Program is still in a process of collating and vetting data, it is possible the information given is not complete. Go to the WildNet database webpage (<https://www.qld.gov.au/environment/plants-animals/species-information/wildnet>) to find out more about WildNet and where to access other WildNet information products approved for publication. Feedback about WildNet species lists should be emailed to wildlife.online@des.qld.gov.au.

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
animals	amphibians	Hylidae	<i>Litoria dayi</i>	Australian lacelid		V	V	7/3
animals	amphibians	Hylidae	<i>Litoria nannotis</i>	waterfall frog		E		1
animals	amphibians	Hylidae	<i>Litoria nyakalensis</i>	mountain mistfrog		CR	CE	1/1
animals	amphibians	Hylidae	<i>Litoria rheocola</i>	common mistfrog		E		6/2
animals	amphibians	Hylidae	<i>Litoria serrata</i>	tapping green eyed frog		V		5
animals	birds	Accipitridae	<i>Erythroriorchis radiatus</i>	red goshawk		E	E	1/1
animals	birds	Apodidae	<i>Hirundapus caudacutus</i>	white-throated needletail		V	V	2
animals	birds	Burhinidae	<i>Esacus magnirostris</i>	beach stone-curlew		V		58
animals	birds	Casuariidae	<i>Casuarus casuarius johnsonii</i> (southern population)	southern cassowary (southern population)		E	E	7/1
animals	birds	Charadriidae	<i>Charadrius leschenaultii</i>	greater sand plover		V	V	20
animals	birds	Charadriidae	<i>Charadrius mongolus</i>	lesser sand plover		E	E	42
animals	birds	Psittaculidae	<i>Cyclopsitta diophthalma macleayana</i>	Macleay's fig-parrot		V		142/2
animals	birds	Rostratulidae	<i>Rostratula australis</i>	Australian painted-snipe		E	E	1
animals	birds	Scolopacidae	<i>Calidris canutus</i>	red knot		E	E	2
animals	birds	Scolopacidae	<i>Calidris ferruginea</i>	curlew sandpiper		CR	CE	25
animals	birds	Scolopacidae	<i>Calidris tenuirostris</i>	great knot		CR	CE	8
animals	birds	Scolopacidae	<i>Limosa lapponica baueri</i>	Western Alaskan bar-tailed godwit		V	V	37
animals	birds	Scolopacidae	<i>Numenius madagascariensis</i>	eastern curlew		E	CE	63
animals	mammals	Emballonuridae	<i>Saccolaimus saccolaimus nudicluniatus</i>	bare-rumped sheath-tail bat		E	V	2
animals	mammals	Hipposideridae	<i>Hipposideros diadema reginae</i>	diadem leaf-nosed bat		NT		1
animals	mammals	Muridae	<i>Xeromys myoides</i>	water mouse		V	V	1
animals	mammals	Pteropodidae	<i>Pteropus conspicillatus</i>	spectacled flying-fox		E	E	20/1
animals	reptiles	Crocodylidae	<i>Crocodylus porosus</i>	estuarine crocodile		V		21
plants	land plants	Apocynaceae	<i>Leichhardtia araujacea</i>			CR	CE	1/1
plants	land plants	Burseraceae	<i>Canarium acutifolium</i> var. <i>acutifolium</i>			V	V	1/1
plants	land plants	Euphorbiaceae	<i>Acalypha lyonsii</i>			V		3/3
plants	land plants	Euphorbiaceae	<i>Wetria australiensis</i>			V		8/8
plants	land plants	Myrtaceae	<i>Rhodamnia sessiliflora</i>			E		1
plants	land plants	Orchidaceae	<i>Spathoglottis paulinae</i>			NT		1/1
plants	land plants	Picrodendraceae	<i>Whyanbeelia terrae-reginae</i>			NT		1/1
plants	land plants	Rhizophoraceae	<i>Bruguiera x hainesii</i>	Haines's orange mangrove		CR	CE	8/6
plants	land plants	Rubiaceae	<i>Myrmecodia beccarii</i>			V	V	2

CODES

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

Q - Indicates the Queensland conservation status of each taxon under the *Nature Conservation Act 1992*.

The codes are Extinct (EX), Extinct in the Wild (PE), Critically Endangered (CR), Endangered (E), Vulnerable (V), Near Threatened (NT), Special Least Concern (SL) and Least Concern (C).

A - Indicates the Australian conservation status of each taxon under the *Environment Protection and Biodiversity Conservation Act 1999*.

The values of EPBC are Extinct (EX), Extinct in the Wild (XW), Critically Endangered (CE), Endangered (E), Vulnerable (V) and Conservation Dependent (CD).

Records - The first number indicates the total number of records of the taxon (wildlife records and species listings for selected areas).

This number is output as 99999 if it equals or exceeds this value. A second number located after a / indicates the number of specimen records for the taxon.

This number is output as 999 if it equals or exceeds this value.



WILDNET INTRODUCED SPECIES LIST



Queensland Government

WildNet species list

Search Criteria: Species List for a Specified Point
Species: All
Type: Native
Queensland status: Rare and threatened species
Records: All
Date: All
Latitude: -16.9131
Longitude: 145.7162
Distance: 5
Email: emily@trendecology.com.au
Date submitted: Tuesday 09 May 2023 10:01:43
Date extracted: Tuesday 09 May 2023 10:10:02

The number of records retrieved = 32

Disclaimer

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Information about your Species lists request is logged for quality assurance, user support and product enhancement purposes only.

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Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
animals	amphibians	Hylidae	<i>Litoria dayi</i>	Australian lacelid		V	V	7/3
animals	amphibians	Hylidae	<i>Litoria nannotis</i>	waterfall frog		E		1
animals	amphibians	Hylidae	<i>Litoria nyakalensis</i>	mountain mistfrog		CR	CE	1/1
animals	amphibians	Hylidae	<i>Litoria rheocola</i>	common mistfrog		E		6/2
animals	amphibians	Hylidae	<i>Litoria serrata</i>	tapping green eyed frog		V		5
animals	birds	Accipitridae	<i>Erythroriorchis radiatus</i>	red goshawk		E	E	1/1
animals	birds	Apodidae	<i>Hirundapus caudacutus</i>	white-throated needletail		V	V	2
animals	birds	Burhinidae	<i>Esacus magnirostris</i>	beach stone-curlew		V		58
animals	birds	Casuariidae	<i>Casuarus casuarius johnsonii</i> (southern population)	southern cassowary (southern population)		E	E	7/1
animals	birds	Charadriidae	<i>Charadrius leschenaultii</i>	greater sand plover		V	V	20
animals	birds	Charadriidae	<i>Charadrius mongolus</i>	lesser sand plover		E	E	42
animals	birds	Psittaculidae	<i>Cyclopsitta diophthalma macleayana</i>	Macleay's fig-parrot		V		142/2
animals	birds	Rostratulidae	<i>Rostratula australis</i>	Australian painted-snipe		E	E	1
animals	birds	Scolopacidae	<i>Calidris canutus</i>	red knot		E	E	2
animals	birds	Scolopacidae	<i>Calidris ferruginea</i>	curlew sandpiper		CR	CE	25
animals	birds	Scolopacidae	<i>Calidris tenuirostris</i>	great knot		CR	CE	8
animals	birds	Scolopacidae	<i>Limosa lapponica baueri</i>	Western Alaskan bar-tailed godwit		V	V	37
animals	birds	Scolopacidae	<i>Numenius madagascariensis</i>	eastern curlew		E	CE	63
animals	mammals	Emballonuridae	<i>Saccolaimus saccolaimus nudicluniatus</i>	bare-rumped sheath-tail bat		E	V	2
animals	mammals	Hipposideridae	<i>Hipposideros diadema reginae</i>	diadem leaf-nosed bat		NT		1
animals	mammals	Muridae	<i>Xeromys myoides</i>	water mouse		V	V	1
animals	mammals	Pteropodidae	<i>Pteropus conspicillatus</i>	spectacled flying-fox		E	E	20/1
animals	reptiles	Crocodylidae	<i>Crocodylus porosus</i>	estuarine crocodile		V		21
plants	land plants	Apocynaceae	<i>Leichhardtia araujacea</i>			CR	CE	1/1
plants	land plants	Burseraceae	<i>Canarium acutifolium</i> var. <i>acutifolium</i>			V	V	1/1
plants	land plants	Euphorbiaceae	<i>Acalypha lyonsii</i>			V		3/3
plants	land plants	Euphorbiaceae	<i>Wetria australiensis</i>			V		8/8
plants	land plants	Myrtaceae	<i>Rhodamnia sessiliflora</i>			E		1
plants	land plants	Orchidaceae	<i>Spathoglottis paulinae</i>			NT		1/1
plants	land plants	Picrodendraceae	<i>Whyanbeelia terrae-reginae</i>			NT		1/1
plants	land plants	Rhizophoraceae	<i>Bruguiera x hainesii</i>	Haines's orange mangrove		CR	CE	8/6
plants	land plants	Rubiaceae	<i>Myrmecodia beccarii</i>			V	V	2

CODES

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The codes are Extinct (EX), Extinct in the Wild (PE), Critically Endangered (CR), Endangered (E), Vulnerable (V), Near Threatened (NT), Special Least Concern (SL) and Least Concern (C).

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The values of EPBC are Extinct (EX), Extinct in the Wild (XW), Critically Endangered (CE), Endangered (E), Vulnerable (V) and Conservation Dependent (CD).

Records - The first number indicates the total number of records of the taxon (wildlife records and species listings for selected areas).

This number is output as 99999 if it equals or exceeds this value. A second number located after a / indicates the number of specimen records for the taxon.

This number is output as 999 if it equals or exceeds this value.



Queensland Government

WildNet species list

Search Criteria: Species List for a Specified Point
Species: All
Type: Introduced
Queensland status: All
Records: All
Date: All
Latitude: -16.9248
Longitude: 145.7293
Distance: 5
Email: emily@trendecology.com.au
Date submitted: Friday 01 Sep 2023 13:04:37
Date extracted: Friday 01 Sep 2023 13:10:03

The number of records retrieved = 168

Disclaimer

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Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
animals	amphibians	Bufonidae	<i>Rhinella marina</i>	cane toad	Y			37/3
animals	birds	Anatidae	<i>Anas platyrhynchos</i>	northern mallard	Y			5
animals	birds	Cacatuidae	<i>Cacatua tenuirostris</i>	long-billed corella	Y	C		3
animals	birds	Columbidae	<i>Columba livia</i>	rock dove	Y			199
animals	birds	Columbidae	<i>Spilopelia chinensis</i>	spotted dove	Y			213
animals	birds	Estrildidae	<i>Lonchura punctulata</i>	nutmeg mannikin	Y			148
animals	birds	Passeridae	<i>Passer domesticus</i>	house sparrow	Y			208
animals	birds	Sturnidae	<i>Acridotheres tristis</i>	common myna	Y			391
animals	birds	Sturnidae	<i>Sturnus vulgaris</i>	common starling	Y			2
animals	mammals	Felidae	<i>Felis catus</i>	cat	Y			2
animals	mammals	Muridae	<i>Rattus rattus</i>	black rat	Y			1/1
animals	mammals	Suidae	<i>Sus scrofa</i>	pig	Y			2
animals	ray-finned fishes	Cichlidae	<i>Oreochromis mossambica</i>	Mozambique mouthbrooder	Y			12
animals	ray-finned fishes	Cichlidae	<i>Tilapia mariae</i>	spotted tilapia	Y			3
animals	ray-finned fishes	Poeciliidae	<i>Gambusia holbrooki</i>	mosquitofish	Y			26
animals	ray-finned fishes	Poeciliidae	<i>Poecilia reticulata</i>	guppy	Y			6
animals	ray-finned fishes	Poeciliidae	<i>Xiphophorus maculatus</i>	platy	Y			1
animals	reptiles	Gekkonidae	<i>Hemidactylus frenatus</i>	house gecko	Y			2
animals	reptiles	Typhlopidae	<i>Indotyphlops braminus</i>	flowerpot blind snake	Y			3/2
plants	land plants	Acanthaceae	<i>Andrographis paniculata</i>		Y			1/1
plants	land plants	Acanthaceae	<i>Asystasia gangetica subsp. gangetica</i>		Y			4/4
plants	land plants	Acanthaceae	<i>Barleria strigosa</i>		Y			1/1
plants	land plants	Acanthaceae	<i>Brillantaisia lamium</i>		Y			1/1
plants	land plants	Acanthaceae	<i>Crossandra infundibuliformis</i>		Y			2/2
plants	land plants	Acanthaceae	<i>Dipteracanthus prostratus</i>		Y			3/3
plants	land plants	Acanthaceae	<i>Hygrophila costata</i>		Y			2/2
plants	land plants	Acanthaceae	<i>Odontonema cuspidatum</i>		Y			2/2
plants	land plants	Acanthaceae	<i>Ruellia simplex</i>		Y			3/3
plants	land plants	Acanthaceae	<i>Thunbergia fragrans</i>		Y			6/6
plants	land plants	Acanthaceae	<i>Thunbergia grandiflora</i>	sky flower	Y			3/3
plants	land plants	Amaranthaceae	<i>Alternanthera philoxeroides</i>	alligator weed	Y			1/1
plants	land plants	Amaranthaceae	<i>Celosia argentea</i>		Y			1/1
plants	land plants	Amaranthaceae	<i>Gomphrena celosioides</i>	gomphrena weed	Y			2/2
plants	land plants	Amaranthaceae	<i>Guilleminea densa</i>	small matweed	Y			1/1
plants	land plants	Anacardiaceae	<i>Mangifera indica</i>	mango	Y			1
plants	land plants	Anacardiaceae	<i>Schinus terebinthifolius</i>		Y			1/1
plants	land plants	Annonaceae	<i>Annona glabra</i>	pond apple	Y			1/1
plants	land plants	Aristolochiaceae	<i>Aristolochia elegans</i>	calico-flower	Y			2/1
plants	land plants	Asteraceae	<i>Acanthospermum hispidum</i>	star burr	Y			1/1
plants	land plants	Asteraceae	<i>Acmella uliginosa</i>		Y			1/1
plants	land plants	Asteraceae	<i>Ageratum conyzoides</i>	billygoat weed	Y			1
plants	land plants	Asteraceae	<i>Centratherum punctatum</i>		Y			1/1
plants	land plants	Asteraceae	<i>Cosmos sulphureus</i>		Y			1/1
plants	land plants	Asteraceae	<i>Crassocephalum crepidioides</i>	thickhead	Y			3/2
plants	land plants	Asteraceae	<i>Eclipta prostrata</i>	white eclipta	Y			1
plants	land plants	Asteraceae	<i>Emilia sonchifolia</i>		Y			3

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
plants	land plants	Asteraceae	<i>Erigeron belliioides</i>		Y			1/1
plants	land plants	Asteraceae	<i>Erigeron bonariensis</i>		Y			1/1
plants	land plants	Asteraceae	<i>Gamochaeta pensylvanica</i>		Y			1/1
plants	land plants	Asteraceae	<i>Praxelis clematidea</i>		Y			1
plants	land plants	Asteraceae	<i>Pseudelephantopus spicatus</i>		Y			1/1
plants	land plants	Asteraceae	<i>Symphyotrichum subulatum</i>		Y			1/1
plants	land plants	Asteraceae	<i>Synedrella nodiflora</i>		Y			1
plants	land plants	Asteraceae	<i>Tithonia diversifolia</i>	Japanese sunflower	Y			3/2
plants	land plants	Asteraceae	<i>Tridax procumbens</i>	tridax daisy	Y			1
plants	land plants	Bignoniaceae	<i>Parmentiera aculeata</i>		Y			3/3
plants	land plants	Bignoniaceae	<i>Spathodea campanulata</i>	West African tulip tree	Y			1
plants	land plants	Bignoniaceae	<i>Tecomaria capensis subsp. capensis</i>		Y			1/1
plants	land plants	Brassicaceae	<i>Rorippa palustris</i>	marsh cress	Y			1/1
plants	land plants	Byttneriaceae	<i>Melochia pyramidata</i>		Y			1/1
plants	land plants	Caricaceae	<i>Carica papaya</i>	pawpaw	Y			1
plants	land plants	Caryophyllaceae	<i>Drymaria cordata subsp. cordata</i>		Y			1/1
plants	land plants	Cleomaceae	<i>Tarenaya aculeata</i>		Y			3/3
plants	land plants	Commelinaceae	<i>Callisia repens</i>		Y			1/1
plants	land plants	Commelinaceae	<i>Commelina benghalensis</i>		Y			1/1
plants	land plants	Commelinaceae	<i>Murdannia nudiflora</i>		Y			2/2
plants	land plants	Convolvulaceae	<i>Distimake quinquefolius</i>		Y			3/2
plants	land plants	Convolvulaceae	<i>Distimake tuberosus</i>		Y			2/2
plants	land plants	Convolvulaceae	<i>Ipomoea hederifolia</i>		Y			4/3
plants	land plants	Convolvulaceae	<i>Ipomoea obscura</i>		Y			5/5
plants	land plants	Convolvulaceae	<i>Ipomoea triloba</i>		Y			1/1
plants	land plants	Cucurbitaceae	<i>Momordica charantia</i>	balsam pear	Y			2/1
plants	land plants	Cyperaceae	<i>Cyperus aromaticus</i>		Y			5/3
plants	land plants	Cyperaceae	<i>Cyperus compressus</i>		Y			2/2
plants	land plants	Cyperaceae	<i>Cyperus involucratus</i>		Y			1/1
plants	land plants	Cyperaceae	<i>Cyperus rotundus</i>	nutgrass	Y			2/2
plants	land plants	Cyperaceae	<i>Cyperus sphacelatus</i>		Y			2/2
plants	land plants	Euphorbiaceae	<i>Euphorbia heterophylla</i>		Y			1/1
plants	land plants	Euphorbiaceae	<i>Euphorbia hirta</i>		Y			1
plants	land plants	Euphorbiaceae	<i>Euphorbia hyssopifolia</i>		Y			1/1
plants	land plants	Lamiaceae	<i>Clerodendrum splendens</i>		Y			1/1
plants	land plants	Lamiaceae	<i>Hyptis capitata</i>		Y			1
plants	land plants	Lamiaceae	<i>Leucas lavandulifolia</i>		Y			2/2
plants	land plants	Lamiaceae	<i>Mesosphaerum suaveolens</i>		Y			1
plants	land plants	Lamiaceae	<i>Salvia misella</i>		Y			2/2
plants	land plants	Leguminosae	<i>Aeschynomene americana var. americana</i>		Y			1/1
plants	land plants	Leguminosae	<i>Calopogonium mucunoides</i>		Y			3/1
plants	land plants	Leguminosae	<i>Cassia fistula</i>	Indian laburnum	Y			1
plants	land plants	Leguminosae	<i>Chamaecrista rotundifolia var. rotundifolia</i>		Y			1/1
plants	land plants	Leguminosae	<i>Crotalaria pallida</i>		Y			3
plants	land plants	Leguminosae	<i>Crotalaria pallida var. obovata</i>		Y			1/1
plants	land plants	Leguminosae	<i>Delonix regia</i>	poinciana	Y			1

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
plants	land plants	Leguminosae	<i>Desmodium triflorum</i>		Y			1
plants	land plants	Leguminosae	<i>Haematoxylum campechianum</i>	logwood tree	Y			1/1
plants	land plants	Leguminosae	<i>Indigofera spicata</i>	creeping indigo	Y			1/1
plants	land plants	Leguminosae	<i>Indigofera suffruticosa</i>		Y			1
plants	land plants	Leguminosae	<i>Leucaena leucocephala</i>		Y			2
plants	land plants	Leguminosae	<i>Macroptilium atropurpureum</i>	siratro	Y			1/1
plants	land plants	Leguminosae	<i>Macroptilium lathyroides</i> var. <i>semierectum</i>		Y			1/1
plants	land plants	Leguminosae	<i>Mimosa pudica</i>		Y			1
plants	land plants	Leguminosae	<i>Mimosa pudica</i> var. <i>unijuga</i>		Y			4/2
plants	land plants	Leguminosae	<i>Neonotonia wightii</i> var. <i>wightii</i>		Y			1/1
plants	land plants	Leguminosae	<i>Pueraria montana</i> var. <i>lobata</i>	kudzu	Y			2/2
plants	land plants	Leguminosae	<i>Samanea saman</i>		Y			1
plants	land plants	Leguminosae	<i>Senna alata</i>		Y			1/1
plants	land plants	Limnocharitaceae	<i>Limnocharis flava</i>	yellow burrhead	Y			2/2
plants	land plants	Malvaceae	<i>Sida acuta</i>	spinyhead sida	Y			1/1
plants	land plants	Malvaceae	<i>Sida rhombifolia</i>		Y			1
plants	land plants	Malvaceae	<i>Urena lobata</i>	urena weed	Y			4/1
plants	land plants	Malvaceae	<i>Wissadula contracta</i>		Y			1/1
plants	land plants	Melastomataceae	<i>Tristemma mauritianum</i> var. <i>mauritianum</i>		Y			1/1
plants	land plants	Myrsinaceae	<i>Ardisia elliptica</i>		Y			5/3
plants	land plants	Myrtaceae	<i>Psidium guajava</i>	guava	Y			2/1
plants	land plants	Nyctaginaceae	<i>Boerhavia diffusa</i>		Y			1/1
plants	land plants	Onagraceae	<i>Ludwigia hyssopifolia</i>		Y			1/1
plants	land plants	Oxalidaceae	<i>Oxalis corniculata</i>		Y			1
plants	land plants	Passifloraceae	<i>Passiflora suberosa</i>	corky passion flower	Y			1
plants	land plants	Petiveriaceae	<i>Rivina humilis</i>		Y			5/4
plants	land plants	Phyllanthaceae	<i>Breynia androgyna</i>		Y			1/1
plants	land plants	Phyllanthaceae	<i>Phyllanthus amarus</i>		Y			1/1
plants	land plants	Poaceae	<i>Axonopus compressus</i>		Y			1
plants	land plants	Poaceae	<i>Cenchrus pedicellatus</i> subsp. <i>unispiculus</i>		Y			1/1
plants	land plants	Poaceae	<i>Cenchrus purpureus</i>		Y			1/1
plants	land plants	Poaceae	<i>Chloris gayana</i>	rhodes grass	Y			1
plants	land plants	Poaceae	<i>Chrysopogon aciculatus</i>	Mackie's pest	Y			1
plants	land plants	Poaceae	<i>Cynodon dactylon</i> var. <i>dactylon</i>		Y			1/1
plants	land plants	Poaceae	<i>Dactyloctenium aegyptium</i>	coast button grass	Y			1/1
plants	land plants	Poaceae	<i>Digitaria ciliaris</i>	summer grass	Y			1
plants	land plants	Poaceae	<i>Digitaria didactyla</i>	Queensland blue couch	Y			1
plants	land plants	Poaceae	<i>Diplachne fusca</i> var. <i>uninervia</i>		Y			3/3
plants	land plants	Poaceae	<i>Echinochloa colona</i>	awnless barnyard grass	Y			1/1
plants	land plants	Poaceae	<i>Eleusine indica</i>	crowsfoot grass	Y			1
plants	land plants	Poaceae	<i>Megathyrsus maximus</i>		Y			1
plants	land plants	Poaceae	<i>Megathyrsus maximus</i> var. <i>maximus</i>		Y			2
plants	land plants	Poaceae	<i>Melinis minutiflora</i>	molasses grass	Y			4/1
plants	land plants	Poaceae	<i>Melinis repens</i>	red natal grass	Y			1
plants	land plants	Poaceae	<i>Paspalum conjugatum</i>	sourgrass	Y			1
plants	land plants	Poaceae	<i>Paspalum notatum</i>	bahia grass	Y			1/1

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
plants	land plants	Poaceae	<i>Paspalum paniculatum</i>	Russell River grass	Y			2/1
plants	land plants	Poaceae	<i>Paspalum vaginatum</i>	saltwater couch	Y			1/1
plants	land plants	Poaceae	<i>Rottboellia cochinchinensis</i>		Y			1/1
plants	land plants	Poaceae	<i>Setaria palmifolia</i>	palm grass	Y			1/1
plants	land plants	Poaceae	<i>Setaria pumila</i>		Y			1
plants	land plants	Poaceae	<i>Setaria pumila subsp. subtesselata</i>		Y			1/1
plants	land plants	Poaceae	<i>Setaria sphacelata</i>		Y			1/1
plants	land plants	Poaceae	<i>Sorghum x alnum</i>		Y			1/1
plants	land plants	Poaceae	<i>Sporobolus africanus</i>	Parramatta grass	Y			1
plants	land plants	Poaceae	<i>Sporobolus jacquemontii</i>		Y			1/1
plants	land plants	Poaceae	<i>Themeda quadrivalvis</i>	grader grass	Y			1
plants	land plants	Polygalaceae	<i>Polygala paniculata</i>		Y			1
plants	land plants	Polygonaceae	<i>Antigonon leptopus</i>		Y			1/1
plants	land plants	Portulacaceae	<i>Portulaca pilosa</i>		Y			1/1
plants	land plants	Pteridaceae	<i>Pityrogramma calomelanos var. calomelanos</i>		Y			1
plants	land plants	Rubiaceae	<i>Mitracarpus hirtus</i>		Y			3/2
plants	land plants	Rubiaceae	<i>Oldenlandia corymbosa var. corymbosa</i>		Y			1
plants	land plants	Rubiaceae	<i>Richardia scabra</i>		Y			2/2
plants	land plants	Rubiaceae	<i>Spermacoce verticillata</i>		Y			3/3
plants	land plants	Rutaceae	<i>Bergera koenigii</i>		Y			1/1
plants	land plants	Rutaceae	<i>Murraya paniculata 'Exotica'</i>		Y			1
plants	land plants	Sapindaceae	<i>Cardiospermum halicacabum var. halicacabum</i>		Y			1/1
plants	land plants	Selaginellaceae	<i>Selaginella willdenovii</i>		Y			2/2
plants	land plants	Solanaceae	<i>Capsicum annuum var. glabriusculum</i>		Y			1
plants	land plants	Solanaceae	<i>Solanum lasiocarpum</i>		Y			1/1
plants	land plants	Solanaceae	<i>Solanum seaforthianum</i>	Brazilian nightshade	Y			3/2
plants	land plants	Solanaceae	<i>Solanum torvum</i>	devil's fig	Y			2/1
plants	land plants	Sparrmanniaceae	<i>Triumfetta rhomboidea</i>	chinese burr	Y			3/2
plants	land plants	Verbenaceae	<i>Lantana camara</i>	lantana	Y			2/1
plants	land plants	Verbenaceae	<i>Stachytarpheta jamaicensis</i>	Jamaica snakeweed	Y			1

CODES

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

Q - Indicates the Queensland conservation status of each taxon under the *Nature Conservation Act 1992*.

The codes are Extinct (EX), Extinct in the Wild (PE), Critically Endangered (CR), Endangered (E), Vulnerable (V), Near Threatened (NT), Special Least Concern (SL) and Least Concern (C).

A - Indicates the Australian conservation status of each taxon under the *Environment Protection and Biodiversity Conservation Act 1999*.

The values of EPBC are Extinct (EX), Extinct in the Wild (XW), Critically Endangered (CE), Endangered (E), Vulnerable (V) and Conservation Dependent (CD).

Records - The first number indicates the total number of records of the taxon (wildlife records and species listings for selected areas).

This number is output as 99999 if it equals or exceeds this value. A second number located after a / indicates the number of specimen records for the taxon.

This number is output as 999 if it equals or exceeds this value.



REGULATED VEGETATION MAPPING REPORT



● Coordinates
 Category A or B area containing endangered regional ecosystems
 Category A or B area containing of concern regional ecosystems
 Category A or B area that is a least concern regional ecosystem
 Category C or R area containing endangered regional ecosystems
 Category C or R area containing of concern regional ecosystems
 Category C or R area that is a least concern regional ecosystem
 Category X area
 Water
 Wetland on the vegetation management wetlands map
 Essential habitat on the essential habitat map
 ● Essential habitat species record
 Watercourses and drainage features on the vegetation management watercourse and drainage features map
 (Stream order shown as black number against stream where available)
 Highway
 Connector
 Street/Local Road
 National Parks, State Forest and other reserves
 Other land parcel boundaries



0 480 960 1,440 1,920 2,400 m

This product is projected into
GDA 1994 MGA Zone 55

Regional ecosystem linework has been compiled at a scale of 1:100 000, except in designated areas where a compilation scale of 1:50 000 is available. Linework should be used as a guide only. The positional accuracy of RE data mapped at a scale of 1:100 000 is +/- 100 metres.

Disclaimer: While every care is taken to ensure the accuracy of this product, the Department of Resources makes no representations or warranties about its accuracy, reliability, completeness or suitability for any particular purpose and disclaims all responsibility and all liability (including without limitation, liability in negligence) for all expenses, losses, damages (including indirect or consequential damage) and costs which you might incur as a result of the product being inaccurate or incomplete in any way and for any reason.

Additional information may be required for the purposes of land clearing or assessment of a regional ecosystem map or PMAV applications. For further information go to the web site: www.resources.qld.gov.au or contact the Department of Resources.

Digital data for the vegetation management watercourse and drainage feature map, vegetation management wetlands map, essential habitat map and the vegetation management remnant and regional ecosystem map are available from the Queensland Spatial Portal at <http://www.information.qld.gov.au/>

Land parcel boundaries are provided as locational aid only.

Vegetation Management Act 1999 - Extract from the essential habitat database

Essential habitat is required for assessment under the:

- State Development Assessment Provisions - State Code 16: Native vegetation clearing which sets out the matters of interest to the state for development assessment under the *Planning Act 2016*; and
- Accepted development vegetation clearing codes made under the *Vegetation Management Act 1999*

Essential habitat for one or more of the following species is found on and within 1.1 km of the identified subject lot/s on the accompanying essential habitat map.

This report identifies essential habitat in Category A, B and Category C areas.

The numeric labels on the essential habitat map can be cross referenced with the database below to determine which essential habitat factors might exist for a particular species.

Essential habitat is compiled from a combination of species habitat models and buffered species records.

The Department of Resources website (<http://www.resources.qld.gov.au>) has more information on how the layer is applied under the State Development Assessment Provisions - State Code 16: Native vegetation clearing and the *Vegetation Management Act 1999*.

Regional ecosystem is a mandatory essential habitat factor, unless otherwise stated.

Essential habitat, for protected wildlife, means a category A area, a category B area or category C area shown on the regulated vegetation management map-

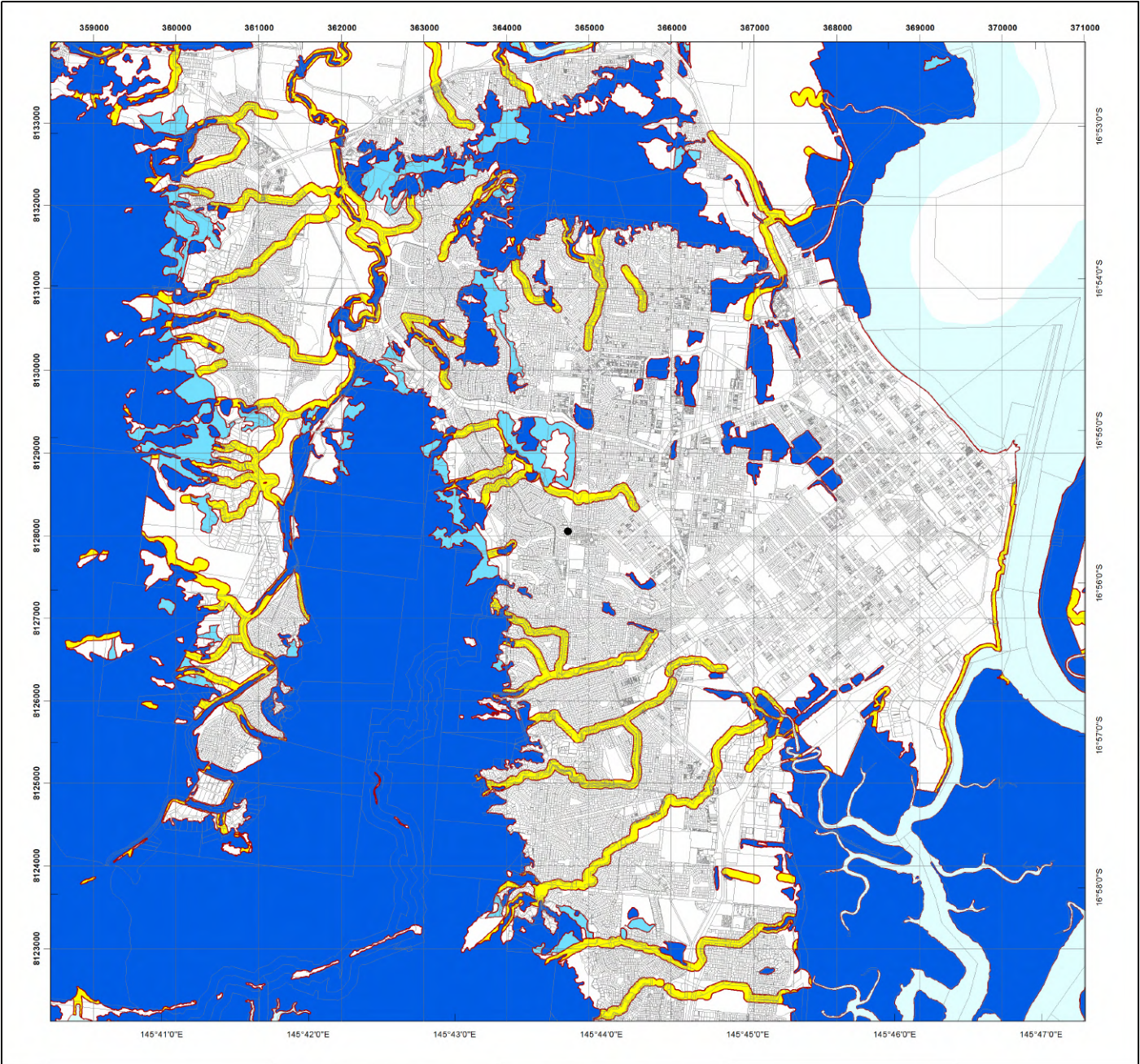
- 1) that has at least 3 essential habitat factors for the protected wildlife that must include any essential habitat factors that are stated as mandatory for the protected wildlife in the essential habitat database; or
- 2) in which the protected wildlife, at any stage of its life cycle, is located.

Protected wildlife includes critically endangered, endangered, vulnerable or near-threatened native wildlife prescribed under the *Nature Conservation Act 1992*.

Essential habitat in Category A and/or Category B and/or Category C

Label	Scientific Name	Common Name	NCA Status	Vegetation Community	Altitude	Soils	Position in Landscape
1087	Casuarius casuaris johnsonii (southern population)	southern cassowary (southern population)	E	Dense lowland and highland tropical rainforest, closed gallery forest, eucalypt forest with vine forest elements, swamp forest and adjacent melaleuca swamps, littoral scrub, eucalypt woodland and mangroves; often using a habitat mosaic; will cross open eucalypt, canefields and dry ridges between rainforest patches.	Sea level to 1500m.	None	None
584	Crocodylus porosus	estuarine crocodile	V	Estuaries and major rivers, billabongs and swamps in dry season; freshwater swamps in wet season, occasionally found in open sea; also in dune swale swamps and dams; mostly within 40-50km of coastline (some breeding populations up to 100km from sea). Nest sites vegetated areas (preference for Melaleuca swamp forest with Thoracostachyum or Scleria sedgeswamp &/or Stenoclaena fern) near permanent freshwater (<100-200m), often on north-west banks, prime areas associated with productive deepwater estuaries; will also use marginal sites, e.g. grassy areas (Imperata, Ischaemum, Themeda, Sorghum) near forest edge or with sparse eucalypt, riverbank/fringe forest (Melaleuca, Corypha, Acacia), mangrove fringe, salt meadow behind mangrove, and sparse short (<40cm) sedgeland/swamp.	Sea level to 100m.	None	Near and in waterbodies.
1165	Cyclopsitta diophthalma macleayana	Macleay's fig-parrot	V	Upper canopy of lowland and upland rainforest (including gallery forest, semi-deciduous vine forest & secondary regrowth) and adjacent open eucalypt or melaleuca forest with figs usually present; mostly in large forest tracts and rare in fragments. Nest in short tunnel excavated 1-15m above ground into trunk of standing dead, decaying tree (e.g. Lophostemon, Ficus, Alphitonia, Castanospermum) within or at edge of rainforest or in eucalypt/melaleuca up to 2km from rainforest.	Sea level to 700m.	None	None

Label	Regional Ecosystem (mandatory unless otherwise specified)
1087	3.8.2, 7.1.1, 7.1.2, 7.1.3, 7.1.4, 7.1.5, 7.2.1, 7.2.2, 7.2.3, 7.2.4, 7.2.5, 7.2.6, 7.2.7, 7.2.8, 7.2.9, 7.2.10, 7.2.11, 7.3.1, 7.3.2, 7.3.3, 7.3.4, 7.3.5, 7.3.6, 7.3.7, 7.3.8, 7.3.9, 7.3.10, 7.3.12, 7.3.13, 7.3.17, 7.3.19, 7.3.20, 7.3.21, 7.3.23, 7.3.25, 7.3.28, 7.3.29, 7.3.30, 7.3.31, 7.3.34, 7.3.35, 7.3.36, 7.3.37, 7.3.38, 7.3.39, 7.3.40, 7.3.42, 7.3.45, 7.3.46, 7.3.47, 7.3.49, 7.8.1, 7.8.2, 7.8.3, 7.8.4, 7.8.11, 7.8.12, 7.8.13, 7.8.14, 7.8.15, 7.8.16, 7.8.18, 7.11.1, 7.11.2, 7.11.3, 7.11.5, 7.11.6, 7.11.7, 7.11.8, 7.11.10, 7.11.12, 7.11.13, 7.11.14, 7.11.16, 7.11.18, 7.11.19, 7.11.23, 7.11.24, 7.11.25, 7.11.26, 7.11.27, 7.11.28, 7.11.29, 7.11.30, 7.11.31, 7.11.32, 7.11.34, 7.11.36, 7.11.38, 7.11.39, 7.11.40, 7.11.42, 7.11.44, 7.11.46, 7.11.47, 7.11.49, 7.12.1, 7.12.2, 7.12.4, 7.12.5, 7.12.6, 7.12.7, 7.12.9, 7.12.10, 7.12.11, 7.12.12, 7.12.13, 7.12.16, 7.12.17, 7.12.19, 7.12.20, 7.12.21, 7.12.22, 7.12.23, 7.12.24, 7.12.25, 7.12.26, 7.12.29, 7.12.37, 7.12.38, 7.12.39, 7.12.40, 7.12.41, 7.12.43, 7.12.44, 7.12.45, 7.12.47, 7.12.48, 7.12.49, 7.12.50, 7.12.53, 7.12.59, 7.12.61, 7.12.66, 7.12.67, 7.12.68
584	All regional ecosystems within the stream/wetland buffer as determined by VMA code.
1165	3.8.2, 7.2.1, 7.2.2, 7.2.3, 7.2.4, 7.2.5, 7.2.6, 7.2.7, 7.2.8, 7.2.9, 7.2.10, 7.2.11, 7.3.3, 7.3.4, 7.3.5, 7.3.6, 7.3.7, 7.3.8, 7.3.9, 7.3.10, 7.3.12, 7.3.13, 7.3.16, 7.3.17, 7.3.19, 7.3.20, 7.3.21, 7.3.23, 7.3.25, 7.3.34, 7.3.35, 7.3.36, 7.3.37, 7.3.38, 7.3.40, 7.3.42, 7.3.43, 7.3.44, 7.3.45, 7.3.46, 7.3.47, 7.3.49, 7.3.50, 7.5.1, 7.5.2, 7.5.4, 7.8.1, 7.8.2, 7.8.3, 7.8.4, 7.8.7, 7.8.8, 7.8.11, 7.8.12, 7.8.13, 7.8.14, 7.8.15, 7.8.16, 7.8.17, 7.8.18, 7.8.19, 7.11.1, 7.11.2, 7.11.3, 7.11.5, 7.11.6, 7.11.7, 7.11.8, 7.11.10, 7.11.12, 7.11.13, 7.11.14, 7.11.16, 7.11.18, 7.11.19, 7.11.23, 7.11.24, 7.11.25, 7.11.26, 7.11.27, 7.11.28, 7.11.29, 7.11.30, 7.11.31, 7.11.32, 7.11.33, 7.11.38, 7.11.40, 7.11.43, 7.11.44, 7.11.45, 7.11.46, 7.11.47, 7.11.49, 7.11.51, 7.12.1, 7.12.2, 7.12.4, 7.12.5, 7.12.6, 7.12.7, 7.12.9, 7.12.10, 7.12.11, 7.12.12, 7.12.13, 7.12.16, 7.12.17, 7.12.19, 7.12.20, 7.12.21, 7.12.22, 7.12.23, 7.12.24, 7.12.25, 7.12.26, 7.12.27, 7.12.29, 7.12.33, 7.12.38, 7.12.39, 7.12.40, 7.12.42, 7.12.43, 7.12.44, 7.12.45, 7.12.46, 7.12.47, 7.12.48, 7.12.49, 7.12.50, 7.12.53, 7.12.59, 7.12.61, 7.12.66, 7.12.68



Regulated Vegetation Management Map

Legend

- Coordinates
- Category A area (Vegetation offsets/compliance notices/VDecs)
- Category B area (Remnant vegetation)
- Category C area (High-value regrowth vegetation)
- Category R area (Reef regrowth watercourse vegetation)
- Category X area (Exempt clearing work on Freehold, Indigenous and Leasehold land)
- Water
- Other land parcel boundaries



This product is projected into:
GDA 1994 MGA Zone 55

Disclaimer:
While every care is taken to ensure the accuracy of this product, the Department of Resources makes no representations or warranties about its accuracy, reliability, completeness or suitability for any particular purpose and disclaims all responsibility and all liability (including without limitation, liability in negligence) for all expenses, losses, damages (including indirect or consequential damage) and costs which you might incur as a result of the product being inaccurate or incomplete in any way and for any reason.

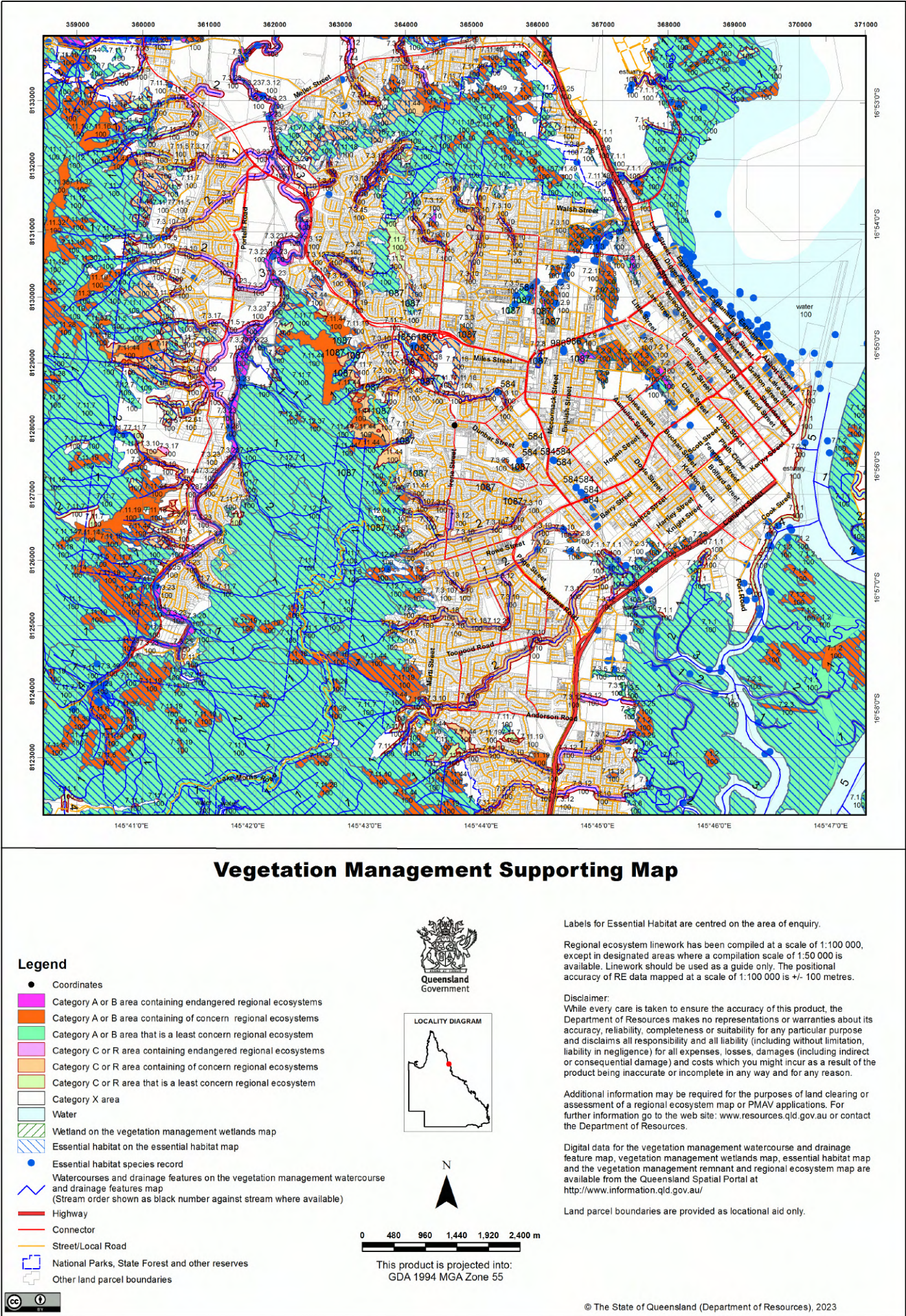
Additional information required for the assessment of vegetation values is provided in the accompanying "Vegetation Management Supporting map". For further information go to the web site: www.resources.qld.gov.au or contact the Department of Resources.

Digital data for the regulated vegetation management map is available from the Queensland Spatial Portal at <http://www.information.qld.gov.au/>

Land parcel boundaries are provided as locational aid only.

This map is updated on a monthly basis to ensure new PMAVs are included as they are approved.





Vegetation Management Act 1999 - Extract from the essential habitat database

Essential habitat is required for assessment under the:

- State Development Assessment Provisions - State Code 16: Native vegetation clearing which sets out the matters of interest to the state for development assessment under the *Planning Act 2016*; and
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This report identifies essential habitat in Category A, B and Category C areas.

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Essential habitat is compiled from a combination of species habitat models and buffered species records.

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Essential habitat, for protected wildlife, means a category A area, a category B area or category C area shown on the regulated vegetation management map-

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Essential habitat in Category A and/or Category B and/or Category C

Label	Scientific Name	Common Name	NCA Status	Vegetation Community	Altitude	Soils	Position in Landscape
1087	Casuarus casuaris johnsonii (southern population)	southern cassowary (southern population)	E	Dense lowland and highland tropical rainforest, closed gallery forest, eucalypt forest with vine forest elements, swamp forest and adjacent melaleuca swamps, littoral scrub, eucalypt woodland and mangroves; often using a habitat mosaic; will cross open eucalypt, canefields and dry ridges between rainforest patches.	Sea level to 1500m.	None	None
584	Crocodylus porosus	estuarine crocodile	V	Estuaries and major rivers, billabongs and swamps in dry season; freshwater swamps in wet season, occasionally found in open sea; also in dune swale swamps and dams; mostly within 40-50km of coastline (some breeding populations up to 100km from sea). Nest sites vegetated areas (preference for Melaleuca swamp forest with Thoracostachyum or Scleria sedgeswamp &/or Stenoclaena fern) near permanent freshwater (<100-200m), often on north-west banks, prime areas associated with productive deepwater estuaries; will also use marginal sites, e.g. grassy areas (Imperata, Ischaemum, Themeda, Sorghum) near forest edge or with sparse eucalypt, riverbank/fringe forest (Melaleuca, Corypha, Acacia), mangrove fringe, salt meadow behind mangrove, and sparse short (<40cm) sedgeland/swamp.	Sea level to 100m.	None	Near and in waterbodies.
986	Pteropus conspicillatus	spectacled flying-fox	E	Rainforest and gallery forest (e.g. complex notophyll vine forest/dry rainforest), wet and dry sclerophyll (eucalypt forest/woodland), and Melaleuca quinquenervia woodland and mangrove; camps in or <7km from rainforest; mean annual rainfall at camp location >1400mm p.a.	Sea level - 1000m.	None	None
1843	Numenius madagascariensis	eastern curlew	E	Foraging on soft, intertidal mudflat, with a preference for broad flats, often in sheltered areas near mangroves and estuaries/creeks, also on sandflats and occasionally ocean beaches, rock platforms and coral reefs. Roost on saltflat, saltmarsh, mangroves, reef flat, sandy spits and grassland near water.	Sea level to 100m.	Sand, sandy mud and mud substrates.	Associated with coastlines and wetlands.
1856	Calidris tenuirostris	great knot	CE	Foraging on intertidal mudflat/sandflat in sheltered coastal areas, exposed reef, rock platform, mangrove, near coastal swamp/lagoon and salt lake. Roost on sandy beach, mudflat and coastal claypan .	Sea level to 100m.	Mud and sand substrates.	Associated with coastlines and wetlands.
1867	Limosa lapponica baueri	Western Alaskan bar-tailed godwit	V	Foraging on large intertidal mudflat/sandflat, banks in estuaries, inlets, bays and coastal lagoons; also saline wetlands, saltmarsh, sandy beach, rock platform and coral reef-flat. Roost on sandy beach/spit and near saltmarsh.	Sea level to 100m.	Sand and mud substrates.	Associated with coastlines and wetlands.

Label	Regional Ecosystem (mandatory unless otherwise specified)
1087	3.8.2, 7.1.1, 7.1.2, 7.1.3, 7.1.4, 7.1.5, 7.2.1, 7.2.2, 7.2.3, 7.2.4, 7.2.5, 7.2.6, 7.2.7, 7.2.8, 7.2.9, 7.2.10, 7.2.11, 7.3.1, 7.3.2, 7.3.3, 7.3.4, 7.3.5, 7.3.6, 7.3.7, 7.3.8, 7.3.9, 7.3.10, 7.3.12, 7.3.13, 7.3.17, 7.3.19, 7.3.20, 7.3.21, 7.3.23, 7.3.25, 7.3.26, 7.3.29, 7.3.30, 7.3.31, 7.3.34, 7.3.35, 7.3.36, 7.3.37, 7.3.38, 7.3.39, 7.3.40, 7.3.42, 7.3.45, 7.3.46, 7.3.47, 7.3.49, 7.8.1, 7.8.2, 7.8.3, 7.8.4, 7.8.11, 7.8.12, 7.8.13, 7.8.14, 7.8.15, 7.8.16, 7.8.18, 7.11.1, 7.11.2, 7.11.3, 7.11.5, 7.11.6, 7.11.7, 7.11.8, 7.11.10, 7.11.12, 7.11.13, 7.11.14, 7.11.16, 7.11.18, 7.11.19, 7.11.23, 7.11.24, 7.11.25, 7.11.26, 7.11.27, 7.11.28, 7.11.29, 7.11.30, 7.11.31, 7.11.32, 7.11.34, 7.11.36, 7.11.38, 7.11.39, 7.11.40, 7.11.42, 7.11.44, 7.11.46, 7.11.47, 7.11.49, 7.12.1, 7.12.2, 7.12.4, 7.12.5, 7.12.6, 7.12.7, 7.12.9, 7.12.10, 7.12.11, 7.12.12, 7.12.13, 7.12.16, 7.12.17, 7.12.19, 7.12.20, 7.12.21, 7.12.22, 7.12.23, 7.12.24, 7.12.25, 7.12.26, 7.12.29, 7.12.37, 7.12.38, 7.12.39, 7.12.40, 7.12.41, 7.12.43, 7.12.44, 7.12.45, 7.12.47, 7.12.48, 7.12.49, 7.12.50, 7.12.53, 7.12.59, 7.12.61, 7.12.66, 7.12.67, 7.12.68
584	All regional ecosystems within the stream/wetland buffer as determined by VMA code.

Label	Regional Ecosystem (mandatory unless otherwise specified)
986	3.1.1, 3.1.3, 3.2.1, 3.2.2, 3.2.3, 3.2.4, 3.2.5, 3.2.6, 3.2.7, 3.2.8, 3.2.9, 3.2.10, 3.2.11, 3.2.12, 3.2.13, 3.2.15, 3.2.17, 3.2.28, 3.3.1, 3.3.2, 3.3.3, 3.3.4, 3.3.5, 3.3.6, 3.3.7, 3.3.8, 3.3.9, 3.3.10, 3.3.11, 3.3.12, 3.3.13, 3.3.14, 3.3.15, 3.3.16, 3.3.17, 3.3.18, 3.3.19, 3.3.20, 3.3.21, 3.3.22, 3.3.23, 3.3.24, 3.3.25, 3.3.26, 3.3.27, 3.3.28, 3.3.29, 3.3.30, 3.3.31, 3.3.32, 3.3.33, 3.3.34, 3.3.35, 3.3.36, 3.3.37, 3.3.39, 3.3.68, 3.3.69, 3.3.70, 3.5.1, 3.5.2, 3.5.3, 3.5.4, 3.5.5, 3.5.6, 3.5.7, 3.5.8, 3.5.9, 3.5.10, 3.5.11, 3.5.12, 3.5.13, 3.5.20, 3.5.21, 3.5.22, 3.5.23, 3.5.24, 3.5.25, 3.5.26, 3.5.31, 3.5.32, 3.5.33, 3.5.34, 3.5.35, 3.5.36, 3.5.37, 3.5.38, 3.5.39, 3.5.41, 3.5.42, 3.8.2, 3.10.6, 3.10.9, 3.11.1, 3.11.2, 3.11.3, 3.11.4, 3.11.5, 3.11.6, 3.11.7, 3.11.8, 3.11.9, 3.11.10, 3.11.11, 3.11.12, 3.11.13, 3.11.14, 3.11.15, 3.11.16, 3.11.20, 3.11.21, 3.12.3, 3.12.4, 3.12.5, 3.12.6, 3.12.7, 3.12.8, 3.12.9, 3.12.10, 3.12.11, 3.12.12, 3.12.13, 3.12.14, 3.12.15, 3.12.16, 3.12.17, 3.12.18, 3.12.19, 3.12.20, 3.12.21, 3.12.22, 3.12.26, 3.12.35, 3.12.36, 3.12.37, 3.12.40, 3.12.41, 3.12.42, 3.12.44, 3.12.45, 3.12.46, 3.12.47, 7.1.1, 7.1.5, 7.2.1, 7.2.2, 7.2.3, 7.2.4, 7.2.5, 7.2.6, 7.2.7, 7.2.8, 7.2.9, 7.2.11, 7.3.3, 7.3.4, 7.3.5, 7.3.6, 7.3.7, 7.3.8, 7.3.9, 7.3.10, 7.3.12, 7.3.13, 7.3.14, 7.3.16, 7.3.17, 7.3.19, 7.3.20, 7.3.21, 7.3.23, 7.3.25, 7.3.26, 7.3.34, 7.3.35, 7.3.36, 7.3.37, 7.3.38, 7.3.39, 7.3.40, 7.3.42, 7.3.43, 7.3.44, 7.3.45, 7.3.46, 7.3.47, 7.3.48, 7.3.49, 7.3.50, 7.8.1, 7.8.2, 7.8.3, 7.8.4, 7.8.7, 7.8.8, 7.8.10, 7.8.12, 7.8.13, 7.8.14, 7.8.15, 7.8.16, 7.8.17, 7.8.18, 7.8.19, 7.11.1, 7.11.2, 7.11.3, 7.11.5, 7.11.6, 7.11.7, 7.11.8, 7.11.10, 7.11.12, 7.11.13, 7.11.14, 7.11.16, 7.11.18, 7.11.19, 7.11.20, 7.11.21, 7.11.23, 7.11.25, 7.11.26, 7.11.27, 7.11.29, 7.11.30, 7.11.31, 7.11.32, 7.11.33, 7.11.34, 7.11.35, 7.11.37, 7.11.40, 7.11.41, 7.11.42, 7.11.43, 7.11.44, 7.11.45, 7.11.46, 7.11.47, 7.11.48, 7.11.49, 7.11.50, 7.11.51, 7.12.1, 7.12.2, 7.12.4, 7.12.5, 7.12.6, 7.12.7, 7.12.9, 7.12.10, 7.12.11, 7.12.12, 7.12.13, 7.12.16, 7.12.17, 7.12.19, 7.12.20, 7.12.21, 7.12.22, 7.12.23, 7.12.24, 7.12.25, 7.12.26, 7.12.27, 7.12.28, 7.12.29, 7.12.30, 7.12.33, 7.12.34, 7.12.35, 7.12.39, 7.12.42, 7.12.43, 7.12.44, 7.12.45, 7.12.46, 7.12.47, 7.12.49, 7.12.50, 7.12.51, 7.12.52, 7.12.53, 7.12.55, 7.12.56, 7.12.57, 7.12.58, 7.12.59, 7.12.60, 7.12.61, 7.12.62, 7.12.63, 7.12.65, 7.12.68, 7.12.69, 8.3.1, 8.3.2, 8.3.3, 8.3.5, 8.3.6, 8.3.8, 8.3.9, 8.3.10, 8.3.11, 8.3.13, 8.8.1, 8.11.1, 8.11.2, 8.11.3, 8.11.4, 8.11.5, 8.11.6, 8.11.8, 8.12.1, 8.12.2, 8.12.3, 8.12.4, 8.12.5, 8.12.6, 8.12.7, 8.12.8, 8.12.9, 8.12.11, 8.12.12, 8.12.14, 8.12.16, 8.12.17, 8.12.18, 8.12.19, 8.12.20, 8.12.22, 8.12.23, 8.12.25, 8.12.26, 8.12.27, 8.12.28, 8.12.30, 8.12.31, 8.12.32, 9.3.1, 9.3.2, 9.3.3, 9.3.5, 9.3.6, 9.3.7, 9.3.8, 9.3.9, 9.3.11, 9.3.13, 9.3.14, 9.3.15, 9.3.16, 9.3.17, 9.3.19, 9.3.20, 9.3.21, 9.3.22, 9.3.23, 9.4.1, 9.4.2, 9.4.3, 9.5.1, 9.5.2, 9.5.3, 9.5.4, 9.5.5, 9.5.6, 9.5.7, 9.5.8, 9.5.9, 9.5.11, 9.5.12, 9.5.16, 9.8.1, 9.8.2, 9.8.3, 9.8.4, 9.8.7, 9.8.9, 9.8.10, 9.8.11, 9.11.2, 9.11.3, 9.11.4, 9.11.5, 9.11.7, 9.11.10, 9.11.12, 9.11.13, 9.11.14, 9.11.15, 9.11.16, 9.11.17, 9.11.18, 9.11.19, 9.11.26, 9.11.28, 9.11.29, 9.11.31, 9.11.32, 9.12.2, 9.12.3, 9.12.5, 9.12.7, 9.12.10, 9.12.11, 9.12.12, 9.12.16, 9.12.17, 9.12.18, 9.12.19, 9.12.20, 9.12.21, 9.12.22, 9.12.24, 9.12.26, 9.12.30, 9.12.31, 9.12.32, 9.12.35, 9.12.37, 9.12.38, 9.12.44
1843	2.1.1, 2.1.2, 2.1.3, 2.1.4, 2.1.5, 3.1.1, 3.1.2, 3.1.3, 3.1.4, 3.1.5, 3.1.6, 7.1.1, 7.1.2, 7.1.3, 8.1.1, 8.1.2, 8.1.3, 8.1.4, 11.1.1, 11.1.2, 11.1.3, 11.1.4, 12.1.2, 12.1.3
1856	2.1.1, 2.1.2, 2.1.3, 2.1.5, 3.1.1, 3.1.2, 3.1.3, 3.1.4, 7.1.1, 7.1.3, 8.1.2, 11.1.2, 11.1.4, 12.1.3.
1867	2.1.1, 2.1.4, 2.1.5, 3.1.6, 7.1.2, 7.1.3, 8.1.2, 8.1.3, 8.1.4, 11.1.1, 11.1.2, 11.1.3, 12.1.2, 12.1.3.



MSES REPORT



Queensland Government

Department of Environment and Science

Environmental Reports

Matters of State Environmental Significance

For the selected area of interest

Longitude: 145.7296 Latitude: -16.9269 with 2 kilometre radius

Environmental Reports - General Information

The Environmental Reports portal provides for the assessment of selected matters of interest relevant to a user specified location, or area of interest (AOI). All area and derivative figures are relevant to the extent of matters of interest contained within the AOI unless otherwise stated. Please note, if a user selects an AOI via the "central coordinates" option, the resulting assessment area encompasses an area extending for a 2km radius from the point of interest.

All area and area derived figures included in this report have been calculated via reprojecting relevant spatial features to Albers equal-area conic projection (central meridian = 146, datum Geocentric Datum of Australia 1994). As a result, area figures may differ slightly if calculated for the same features using a different co-ordinate system.

Figures in tables may be affected by rounding.

The matters of interest reported on in this document are based upon available state mapped datasets. Where the report indicates that a matter of interest is not present within the AOI (e.g. where area related calculations are equal to zero, or no values are listed), this may be due either to the fact that state mapping has not been undertaken for the AOI, that state mapping is incomplete for the AOI, or that no values have been identified within the site.

The information presented in this report should be considered as a guide only and field survey may be required to validate values on the ground.

Please direct queries about these reports to: Planning.Support@des.qld.gov.au

Disclaimer

Whilst every care is taken to ensure the accuracy of the information provided in this report, the Queensland Government makes no representations or warranties about its accuracy, reliability, completeness, or suitability, for any particular purpose and disclaims all responsibility and all liability (including without limitation, liability in negligence) for all expenses, losses, damages (including indirect or consequential damage) and costs which the user may incur as a consequence of the information being inaccurate or incomplete in any way and for any reason.

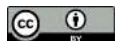


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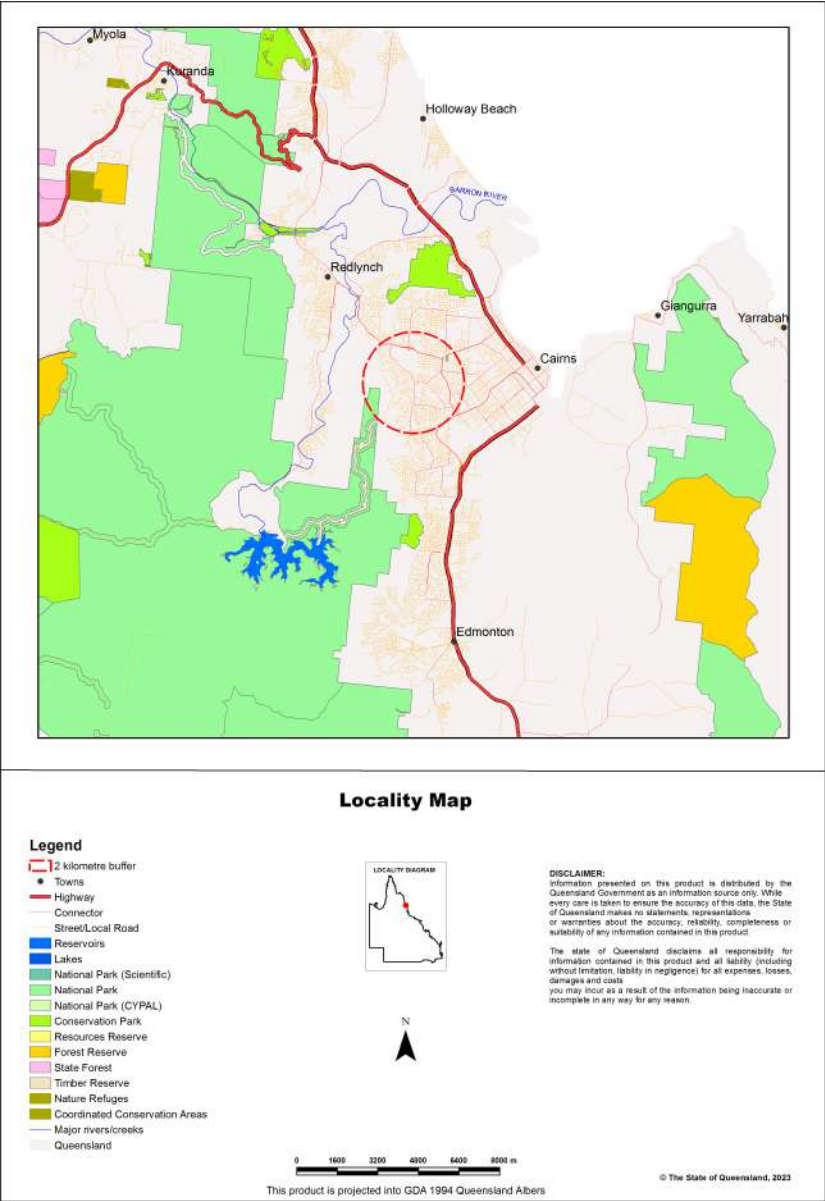
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Assessment Area Details

The following table provides an overview of the area of interest (AOI) with respect to selected topographic and environmental values.

Table 1: Summary table, details for AOI Longitude: 145.7296 Latitude: -16.9269

Size (ha)	1,256.55
Local Government(s)	Cairns Regional
Bioregion(s)	Wet Tropics
Subregion(s)	Innisfail, Macalister
Catchment(s)	Mulgrave-Russell, Barron



Matters of State Environmental Significance (MSES)

MSES Categories

Queensland's State Planning Policy (SPP) includes a biodiversity State interest that states:

'The sustainable, long-term conservation of biodiversity is supported. Significant impacts on matters of national or state environmental significance are avoided, or where this cannot be reasonably achieved; impacts are minimised and residual impacts offset.'

The MSES mapping product is a guide to assist planning and development assessment decision-making. Its primary purpose is to support implementation of the SPP biodiversity policy. While it supports the SPP, the mapping does not replace the regulatory mapping or environmental values specifically called up under other laws or regulations. Similarly, the SPP biodiversity policy does not override or replace specific requirements of other Acts or regulations.

The SPP defines matters of state environmental significance as:

- Protected areas (including all classes of protected area except coordinated conservation areas) under the *Nature Conservation Act 1992* ;
- Marine parks and land within a 'marine national park', 'conservation park', 'scientific research', 'preservation' or 'buffer' zone under the *Marine Parks Act 2004* ;
- Areas within declared fish habitat areas that are management A areas or management B areas under the Fisheries Regulation 2008;
- Threatened wildlife under the *Nature Conservation Act 1992* and special least concern animals under the Nature Conservation (Wildlife) Regulation 2006;
- Regulated vegetation under the *Vegetation Management Act 1999* that is:
 - Category B areas on the regulated vegetation management map, that are 'endangered' or 'of concern' regional ecosystems;
 - Category C areas on the regulated vegetation management map that are 'endangered' or 'of concern' regional ecosystems;
 - Category R areas on the regulated vegetation management map;
 - Regional ecosystems that intersect with watercourses identified on the vegetation management watercourse and drainage feature map;
 - Regional ecosystems that intersect with wetlands identified on the vegetation management wetlands map;
- Strategic Environmental Areas under the *Regional Planning Interests Act 2014* ;
- Wetlands in a wetland protection area of wetlands of high ecological significance shown on the Map of Queensland Wetland Environmental Values under the Environment Protection Regulation 2019;
- Wetlands and watercourses in high ecological value waters defined in the Environmental Protection (Water) Policy 2009, schedule 2;
- Legally secured offset areas.

MSES Values Present

The MSES values that are present in the area of interest are summarised in the table below:

Table 2: Summary of MSES present within the AOI

1a Protected Areas- estates	43.41 ha	3.5%
1b Protected Areas- nature refuges	0.0 ha	0.0 %
1c Protected Areas- special wildlife reserves	0.0 ha	0.0 %
2 State Marine Parks- highly protected zones	0.0 ha	0.0 %
3 Fish habitat areas (A and B areas)	0.0 ha	0.0 %
4 Strategic Environmental Areas (SEA)	0.0 ha	0.0 %
5 High Ecological Significance wetlands on the map of Referable Wetlands	0.0 ha	0.0 %
6a High Ecological Value (HEV) wetlands	0.0 ha	0.0 %
6b High Ecological Value (HEV) waterways	1.4 km	Not applicable
7a Threatened (endangered or vulnerable) wildlife	238.87 ha	19.0%
7b Special least concern animals	61.03 ha	4.9%
7c i Koala habitat area - core (SEQ)	0.0 ha	0.0 %
7c ii Koala habitat area - locally refined (SEQ)	0.0 ha	0.0 %
7d Sea turtle nesting areas	0.0 km	Not applicable
8a Regulated Vegetation - Endangered/Of concern in Category B (remnant)	51.82 ha	4.1%
8b Regulated Vegetation - Endangered/Of concern in Category C (regrowth)	53.14 ha	4.2%
8c Regulated Vegetation - Category R (GBR riverine regrowth)	80.99 ha	6.4%
8d Regulated Vegetation - Essential habitat	234.22 ha	18.6%
8e Regulated Vegetation - intersecting a watercourse	13.4 km	Not applicable
8f Regulated Vegetation - within 100m of a Vegetation Management Wetland	9.4 ha	0.7%
9a Legally secured offset areas- offset register areas	0.0 ha	0.0 %
9b Legally secured offset areas- vegetation offsets through a Property Map of Assessable Vegetation	0.0 ha	0.0 %

Additional Information with Respect to MSES Values Present

MSES - State Conservation Areas

1a. Protected Areas - estates

Estate name
Dinden National Park
Anderson Street Conservation Park

1b. Protected Areas - nature refuges

(no results)

1c. Protected Areas - special wildlife reserves

(no results)

2. State Marine Parks - highly protected zones

(no results)

3. Fish habitat areas (A and B areas)

(no results)

Refer to **Map 1 - MSES - State Conservation Areas** for an overview of the relevant MSES.

MSES - Wetlands and Waterways

4. Strategic Environmental Areas (SEA)

(no results)

5. High Ecological Significance wetlands on the Map of Queensland Wetland Environmental Values

(no results)

6a. Wetlands in High Ecological Value (HEV) waters

(no results)

6b. Waterways in High Ecological Value (HEV) waters

Natural waterways that occur in HEV (maintain) freshwater and estuarine areas under the Environmental Protection (water) Policy are present.

Refer to **Map 2 - MSES - Wetlands and Waterways** for an overview of the relevant MSES.

MSES - Species

7a. Threatened (endangered or vulnerable) wildlife

Values are present

7b. Special least concern animals

Values are present

7c i. Koala habitat area - core (SEQ)

Not applicable

7c ii. Koala habitat area - locally refined (SEQ)

Not applicable

7d. Wildlife habitat (sea turtle nesting areas)

Not applicable

Threatened (endangered or vulnerable) wildlife habitat suitability models

Species	Common name	NCA status	Presence
<i>Boronia keysii</i>		V	None
<i>Calyptorhynchus lathamii</i>	Glossy black cockatoo	V	None
<i>Casuarius casuarius johnsonii</i>	Sthn population cassowary	E	Core
<i>Crinia tinnula</i>	Wallum froglet	V	None
<i>Denisonia maculata</i>	Ornamental snake	V	None
<i>Litoria freycineti</i>	Wallum rocketfrog	V	None
<i>Litoria olongburensis</i>	Wallum sedgefrog	V	None
<i>Macadamia integrifolia</i>		V	None
<i>Macadamia ternifolia</i>		V	None
<i>Macadamia tetraphylla</i>		V	None
<i>Melaleuca irbyana</i>		E	None
<i>Petaurus gracilis</i>	Mahogany Glider	E	None
<i>Petrogale persephone</i>	Proserpine rock-wallaby	E	None
<i>Pezoporus wallicus wallicus</i>	Eastern ground parrot	V	None
<i>Phascolarctos cinereus</i>	Koala - outside SEQ*	E	None
<i>Taudactylus pleione</i>	Kroombit tinkerfrog	E	None
<i>Xeromys myoides</i>	Water Mouse	V	None

*For koala model, this includes areas outside SEQ. Check 7c SEQ koala habitat for presence/absence.

Threatened (endangered or vulnerable) wildlife species records

Scientific name	Common name	NCA status	EPBC status	Migratory status
<i>Crocodylus porosus</i>	estuarine crocodile	V		Y
<i>Calidris tenuirostris</i>	great knot	CE	CE	Y

Scientific name	Common name	NCA status	EPBC status	Migratory status
<i>Limosa lapponica baueri</i>	Western Alaskan bar-tailed godwit	V	V	Y
<i>Numenius madagascariensis</i>	eastern curlew	E	CE	Y
<i>Litoria serrata</i>	tapping green eyed frog	V		
<i>Litoria rheocola</i>	common mistfrog	E		
<i>Litoria nannotis</i>	waterfall frog	E		
<i>Pteropus conspicillatus</i>	spectacled flying-fox	E	E	
<i>Calidris canutus</i>	red knot	E	E	Y
<i>Charadrius mongolus</i>	lesser sand plover	E	E	Y
<i>Calidris ferruginea</i>	curlew sandpiper	CE	CE	Y

Special least concern animal species records

Scientific name	Common name	Migratory status
<i>Actitis hypoleucos</i>	common sandpiper	Y
<i>Numenius phaeopus</i>	whimbrel	Y
<i>Calidris ruficollis</i>	red-necked stint	Y
<i>Tachyglossus aculeatus</i>	short-beaked echidna	
<i>Limosa limosa</i>	black-tailed godwit	Y
<i>Xenus cinereus</i>	terek sandpiper	Y
<i>Tringa brevipes</i>	grey-tailed tattler	Y
<i>Tringa stagnatilis</i>	marsh sandpiper	Y
<i>Calidris acuminata</i>	sharp-tailed sandpiper	Y
<i>Tringa nebularia</i>	common greenshank	Y
<i>Pluvialis fulva</i>	Pacific golden plover	Y

Shorebird habitat (critically endangered/endangered/vulnerable)

Not applicable

Shorebird habitat (special least concern)

Not applicable

*Nature Conservation Act 1992 (NCA) Status- Endangered (E), Vulnerable (V) or Special Least Concern Animal (SL).
Environment Protection and Biodiversity Conservation Act 1999 (EPBC) status: Critically Endangered (CE) Endangered (E), Vulnerable (V)

Migratory status (M) - China and Australia Migratory Bird Agreement (C), Japan and Australia Migratory Bird Agreement (J), Republic of Korea and Australia Migratory Bird Agreement (R), Bonn Migratory Convention (B), Eastern Flyway (E)

To request a species list for an area, or search for a species profile, access Wildlife Online at:

<https://www.qld.gov.au/environment/plants-animals/species-list/>

Refer to **Map 3a - MSES - Species - Threatened (endangered or vulnerable) wildlife and special least concern animals**, **Map 3b - MSES - Species - Koala habitat area (SEQ)** and **Map 3c - MSES - Wildlife habitat (sea turtle nesting areas)** for an overview of the relevant MSES.

MSES - Regulated Vegetation

For further information relating to regional ecosystems in general, go to:

<https://www.qld.gov.au/environment/plants-animals/plants/ecosystems/>

For a more detailed description of a particular regional ecosystem, access the regional ecosystem search page at:

<https://environment.ehp.qld.gov.au/regional-ecosystems/>

8a. Regulated Vegetation - Endangered/Of concern in Category B (remnant)

Regional ecosystem	Vegetation management polygon	Vegetation management status
7.2.8	O-dom	rem_oc
7.3.3a	O-dom	rem_oc
7.3.10a	O-dom	rem_oc
7.11.18a	O-dom	rem_oc
7.11.44	O-dom	rem_oc
7.11.19a	O-dom	rem_oc
7.11.26f	O-dom	rem_oc
7.3.25a	O-dom	rem_oc

8b. Regulated Vegetation - Endangered/Of concern in Category C (regrowth)

Regional ecosystem	Vegetation management polygon	Vegetation management status
7.11.44	O-dom	hvr_oc
7.11.18a	O-dom	hvr_oc

8c. Regulated Vegetation - Category R (GBR riverine regrowth)

Regulated vegetation map category	Map number
R	8064

8d. Regulated Vegetation - Essential habitat

Values are present

8e. Regulated Vegetation - intersecting a watercourse**

A vegetation management watercourse is mapped as present

8f. Regulated Vegetation - within 100m of a Vegetation Management wetland

Regulated vegetation map category	Map number
B	8064
C	8064

Refer to **Map 4 - MSES - Regulated Vegetation** for an overview of the relevant MSES.

MSES - Offsets

9a. Legally secured offset areas - offset register areas

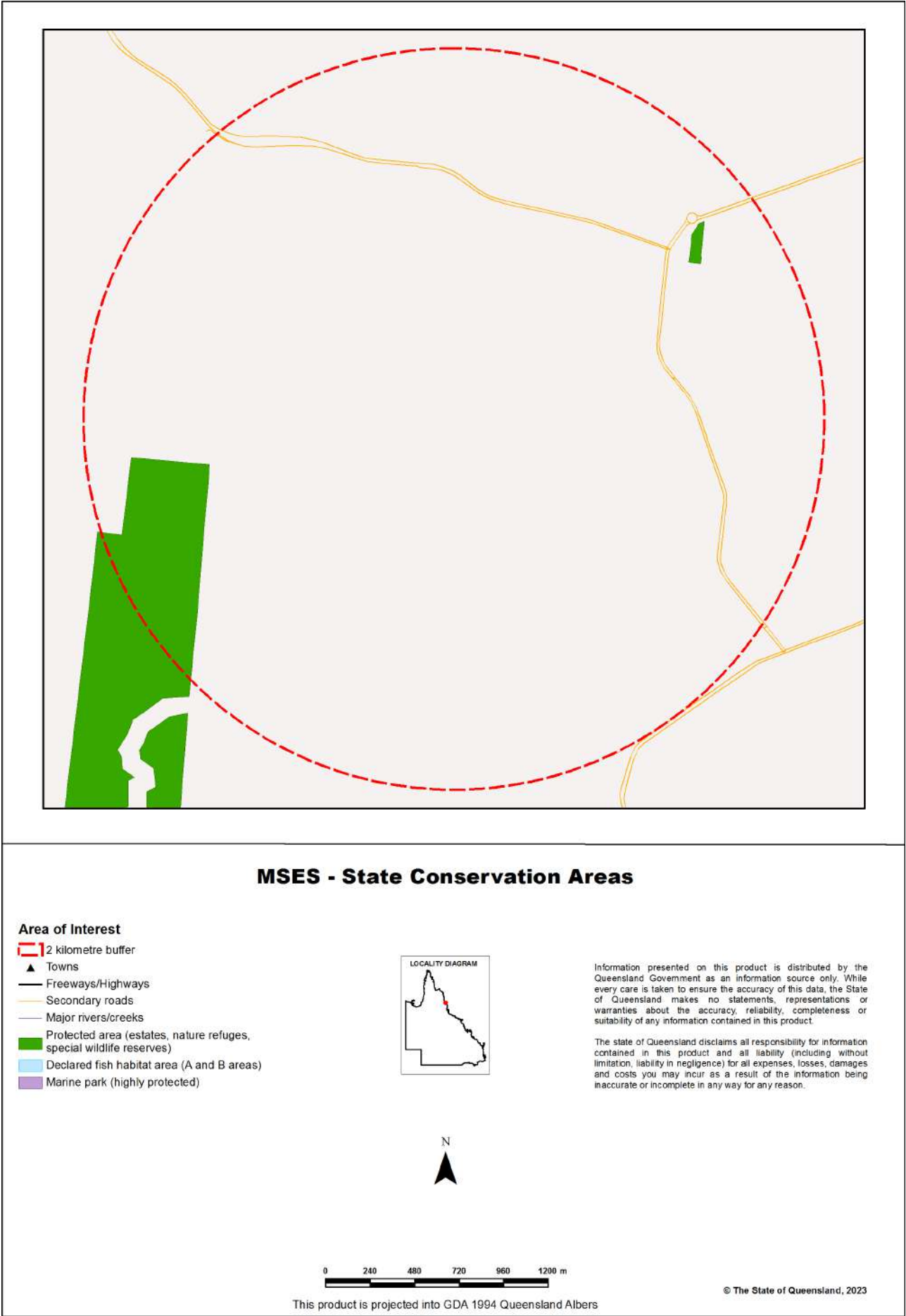
(no results)

9b. Legally secured offset areas - vegetation offsets through a Property Map of Assessable Vegetation

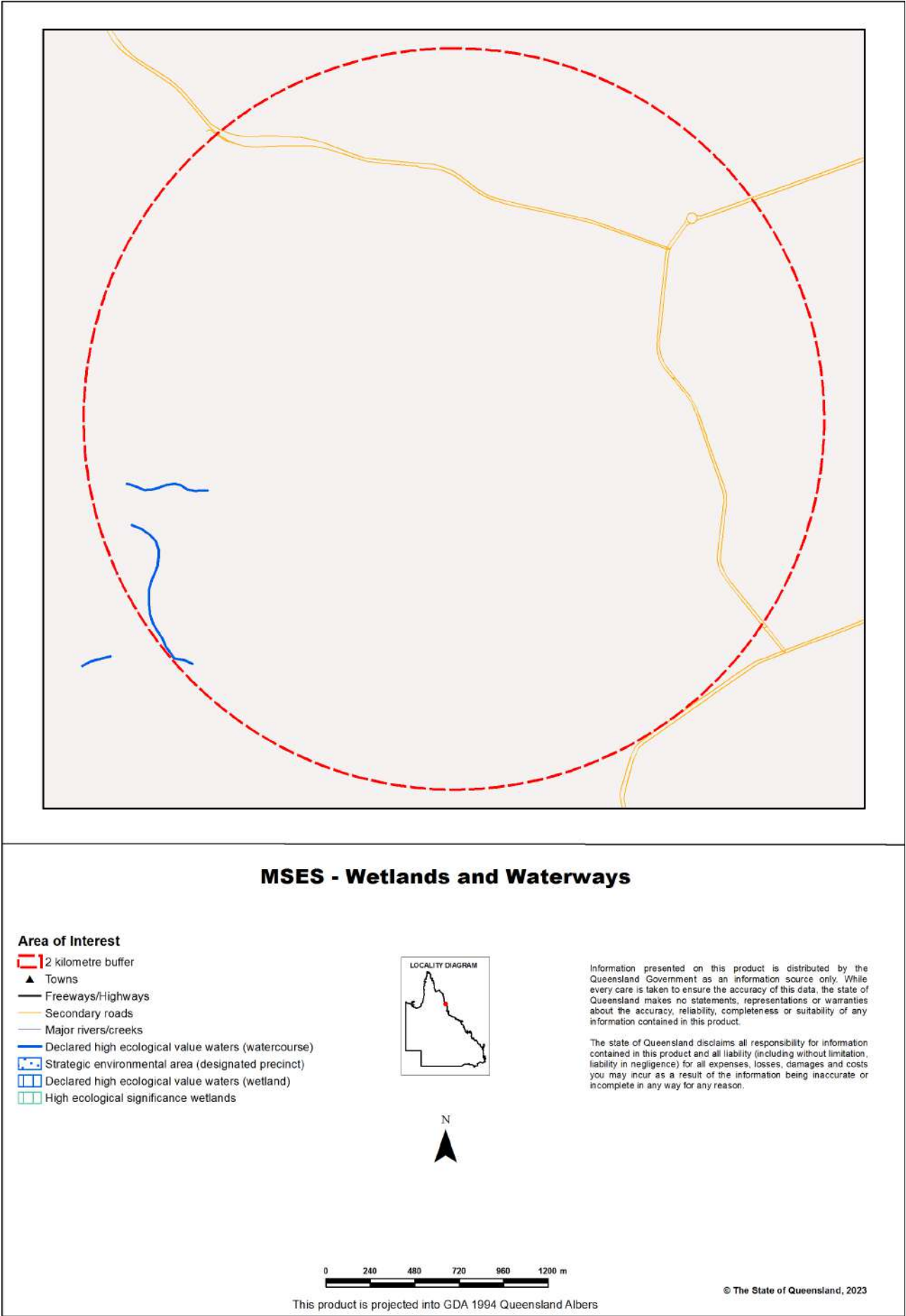
(no results)

Refer to **Map 5 - MSES - Offset Areas** for an overview of the relevant MSES.

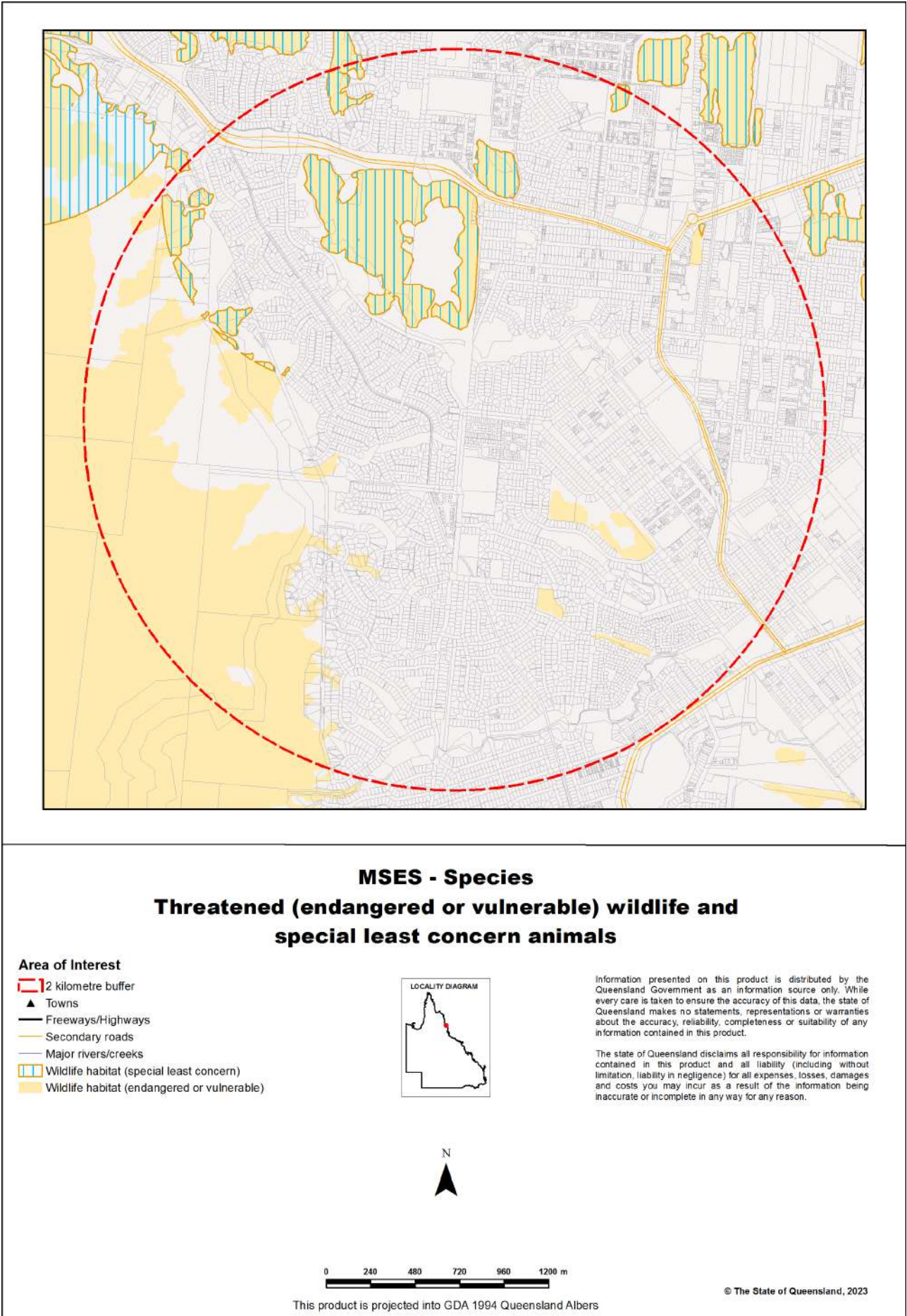
Map 1 - MSES - State Conservation Areas



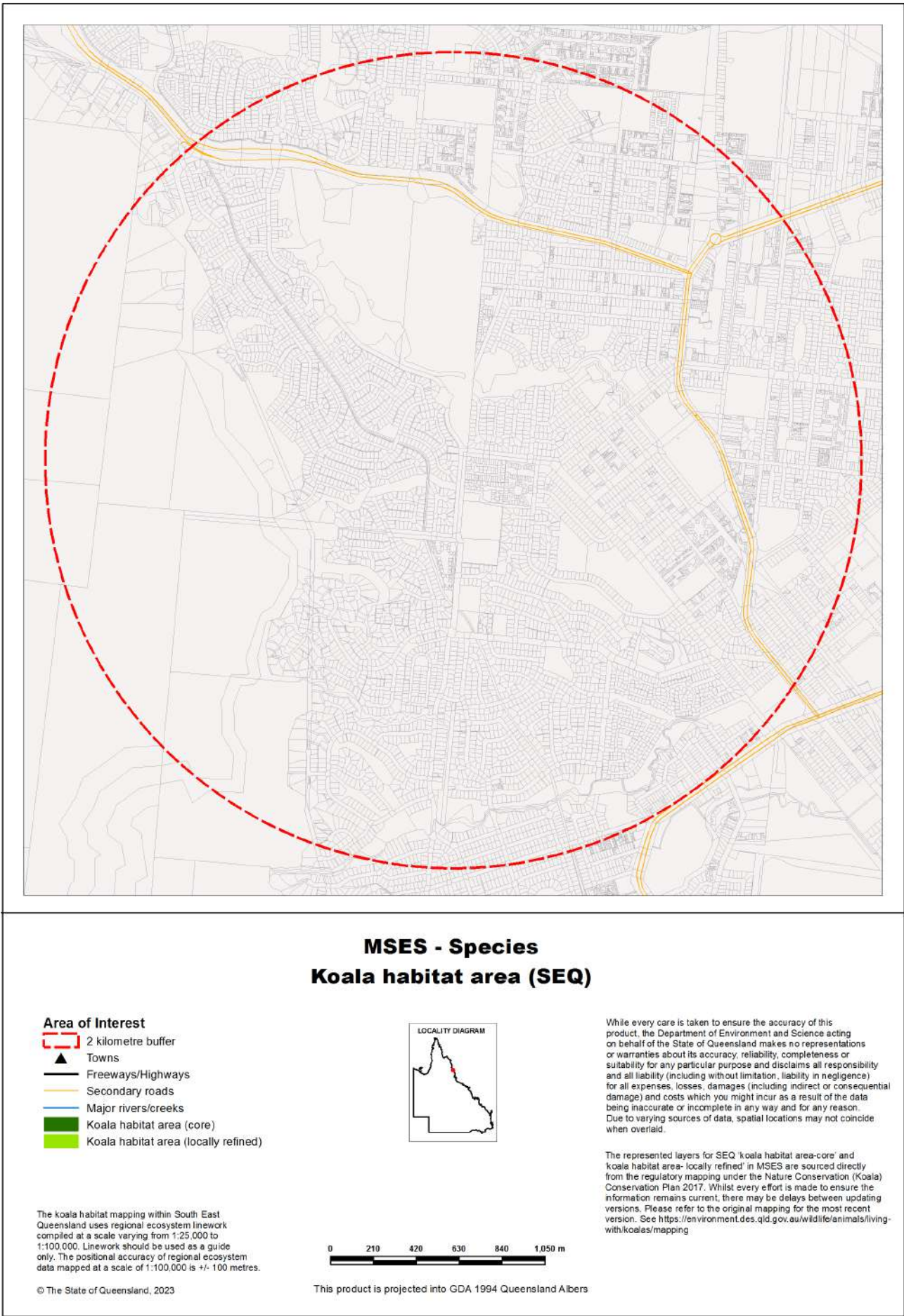
Map 2 - MSES - Wetlands and Waterways



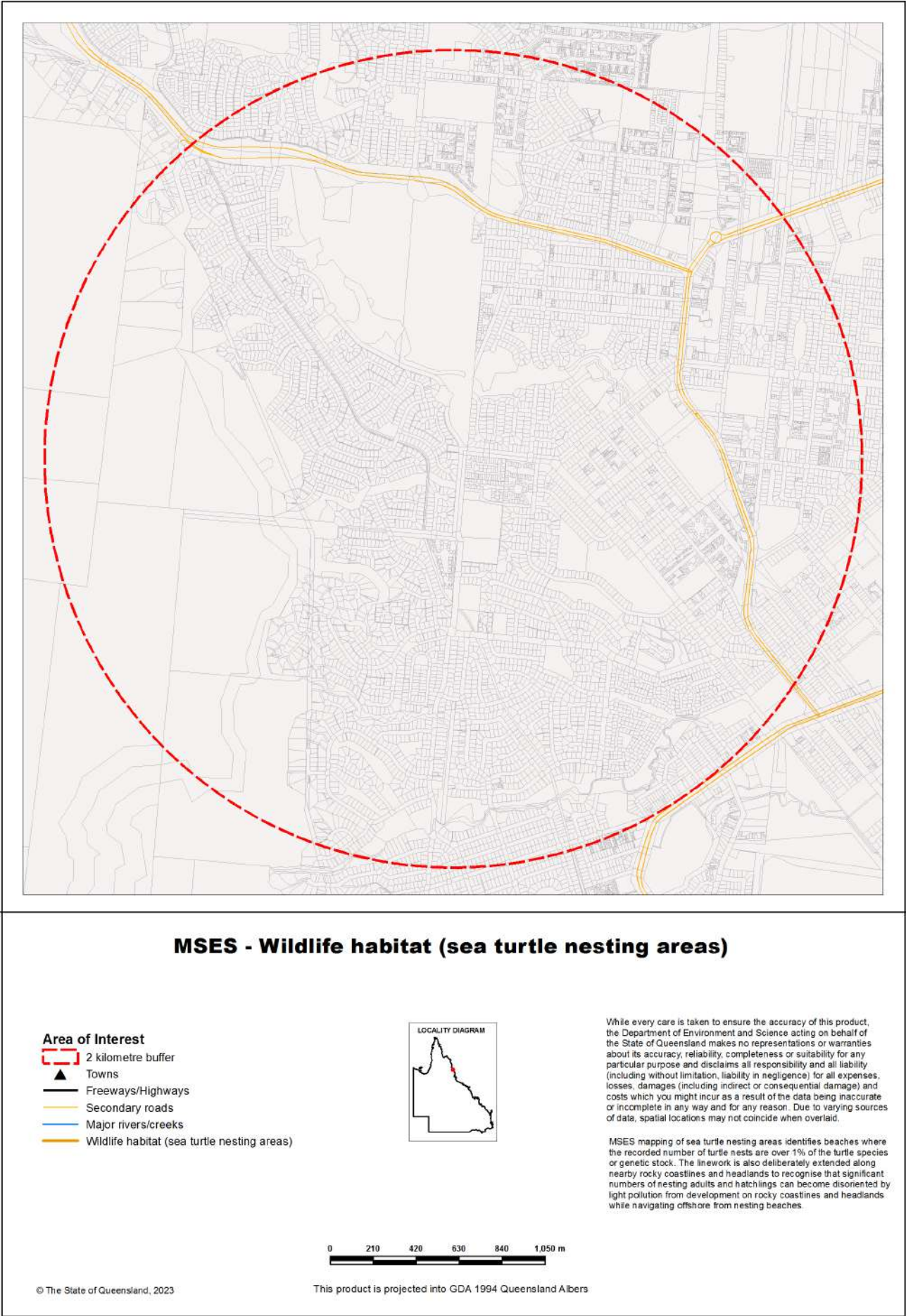
Map 3a - MSES - Species - Threatened (endangered or vulnerable) wildlife and special least concern animals



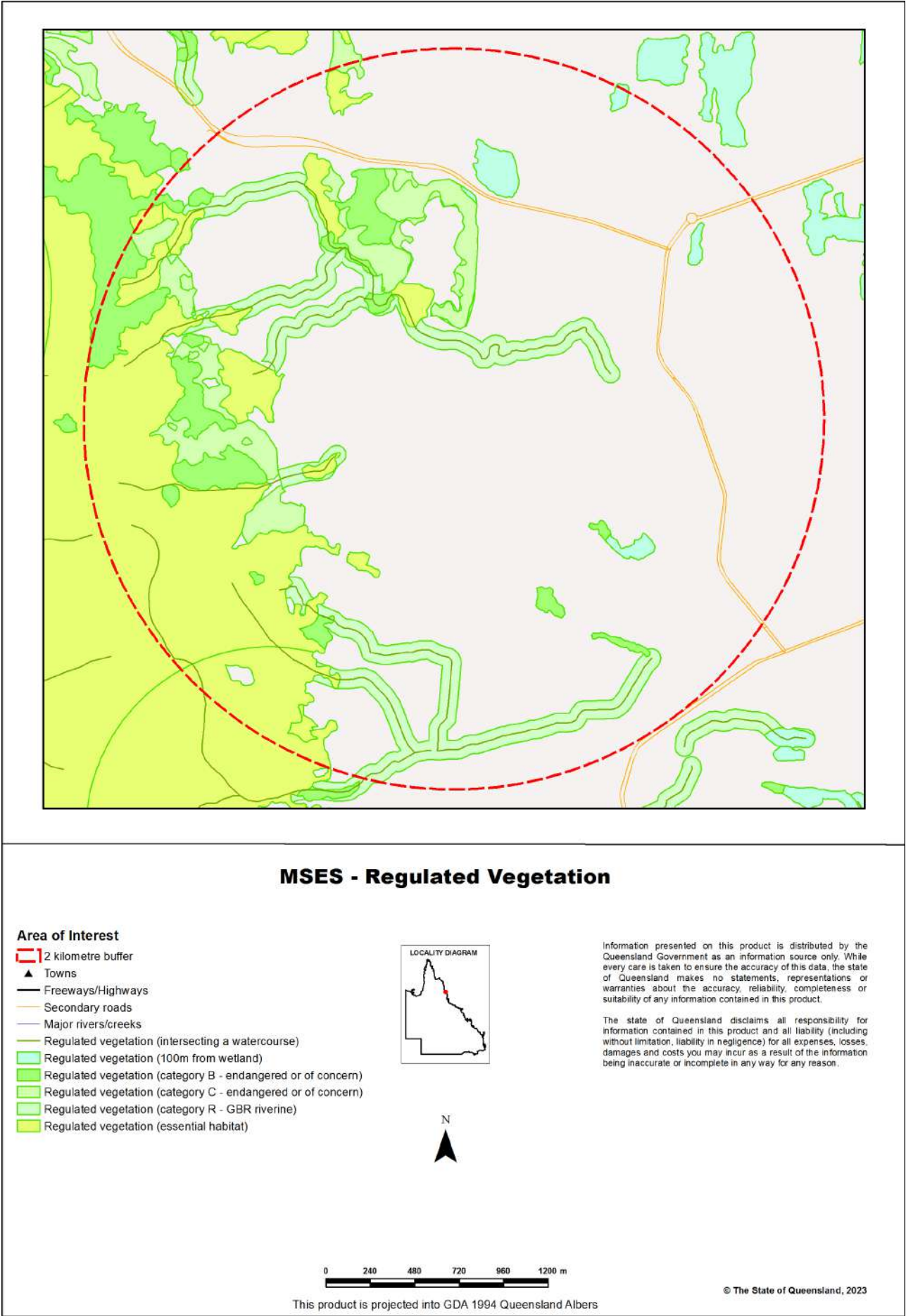
Map 3b - MSES - Species - Koala habitat area (SEQ)



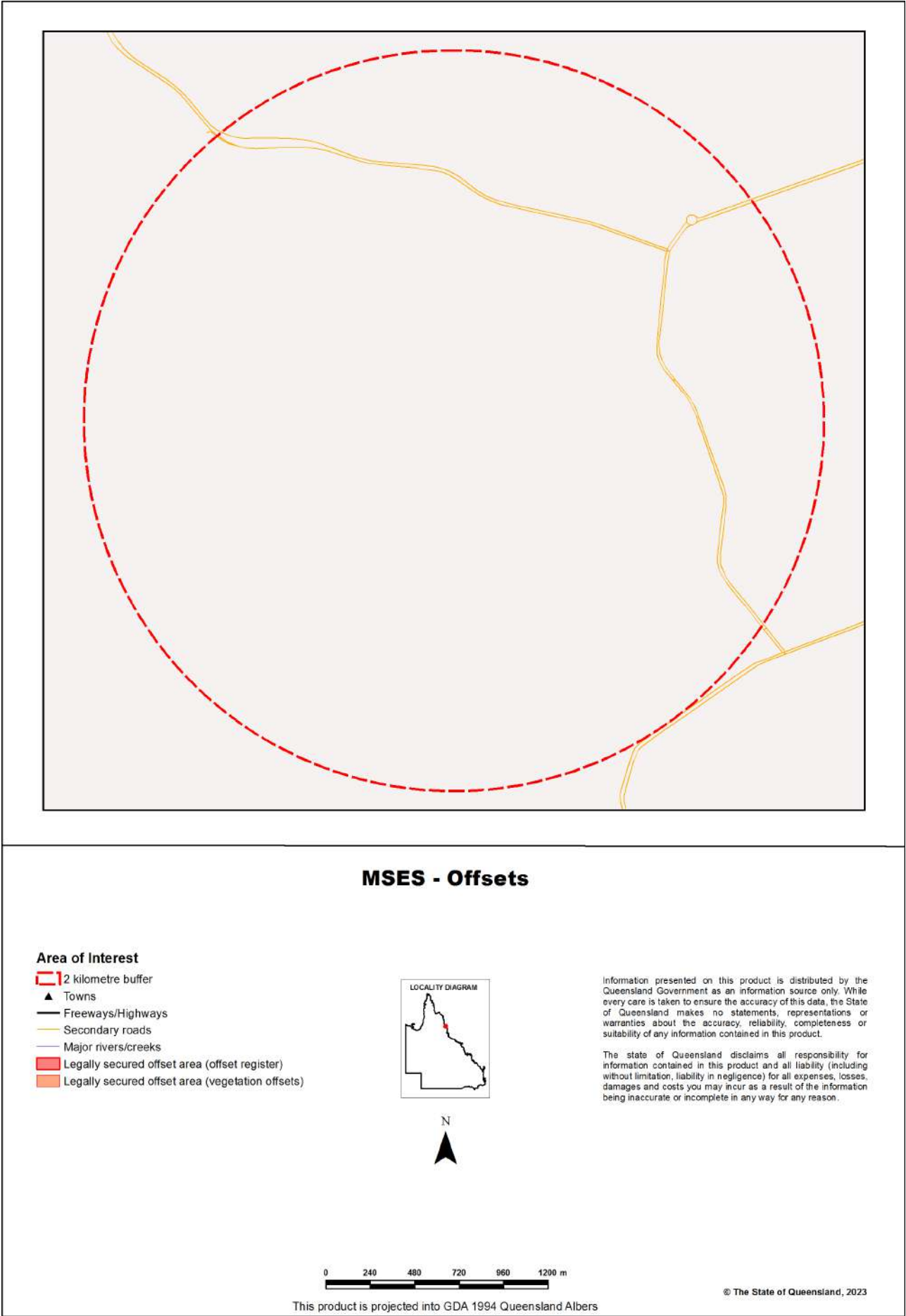
Map 3c - MSES - Wildlife habitat (sea turtle nesting areas)



Map 4 - MSES - Regulated Vegetation



Map 5 - MSES - Offset Areas



Appendices

Appendix 1 - Matters of State Environmental Significance (MSES) methodology

MSES mapping is a regional-scale representation of the definition for MSES under the State Planning Policy (SPP). The compiled MSES mapping product is a guide to assist planning and development assessment decision-making. Its primary purpose is to support implementation of the SPP biodiversity policy. While it supports the SPP, the mapping does not replace the regulatory mapping or environmental values specifically called up under other laws or regulations. Similarly, the SPP biodiversity policy does not override or replace specific requirements of other Acts or regulations.

The Queensland Government's "Method for mapping - matters of state environmental significance for use in land use planning and development assessment" can be downloaded from:

<http://www.ehp.qld.gov.au/land/natural-resource/method-mapping-mses.html> .

Appendix 2 - Source Data

The datasets listed below are available on request from:

<http://qldspatial.information.qld.gov.au/catalogue/custom/index.page>

- Matters of State environmental significance

Note: MSES mapping is not based on new or unique data. The primary mapping product draws data from a number of underlying environment databases and geo-referenced information sources. MSES mapping is a versioned product that is updated generally on a twice-yearly basis to incorporate the changes to underlying data sources. Several components of MSES mapping made for the current version may differ from the current underlying data sources. To ensure accuracy, or proper representation of MSES values, it is strongly recommended that users refer to the underlying data sources and review the current definition of MSES in the State Planning Policy, before applying the MSES mapping.

Individual MSES layers can be attributed to the following source data available at QSpatial:

MSES layers	current QSpatial data (http://qspatial.information.qld.gov.au)
Protected Areas-Estates, Nature Refuges, Special Wildlife Reserves	<ul style="list-style-type: none"> - Protected areas of Queensland - Nature Refuges - Queensland - Special Wildlife Reserves- Queensland
Marine Park-Highly Protected Zones	Moreton Bay marine park zoning 2008
Fish Habitat Areas	Queensland fish habitat areas
Strategic Environmental Areas-designated	Regional Planning Interests Act - Strategic Environmental Areas
HES wetlands	Map of Queensland Wetland Environmental Values
Wetlands in HEV waters	HEV waters: <ul style="list-style-type: none"> - EPP Water intent for waters Source Wetlands: <ul style="list-style-type: none"> - Queensland Wetland Mapping (Current version 5) Source Watercourses: <ul style="list-style-type: none"> - Vegetation management watercourse and drainage feature map (1:100000 and 1:250000)
Wildlife habitat (threatened and special least concern)	<ul style="list-style-type: none"> - WildNet database species records - habitat suitability models (various) - SEQ koala habitat areas under the Koala Conservation Plan 2019 - Sea Turtle Nesting Areas records
VMA regulated regional ecosystems	Vegetation management regional ecosystem and remnant map
VMA Essential Habitat	Vegetation management - essential habitat map
VMA Wetlands	Vegetation management wetlands map
Legally secured offsets	Vegetation Management Act property maps of assessable vegetation. For offset register data-contact DES
Regulated Vegetation Map	Vegetation management - regulated vegetation management map

Appendix 3 - Acronyms and Abbreviations

AOI	- Area of Interest
DES	- Department of Environment and Science
EP Act	- <i>Environmental Protection Act 1994</i>
EPP	- Environmental Protection Policy
GDA94	- Geocentric Datum of Australia 1994
GEM	- General Environmental Matters
GIS	- Geographic Information System
MSES	- Matters of State Environmental Significance
NCA	- <i>Nature Conservation Act 1992</i>
RE	- Regional Ecosystem
SPP	- State Planning Policy
VMA	- <i>Vegetation Management Act 1999</i>

DOCUMENT INFORMATION

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Document Name	Kamerunga to Woree Transmission Line Upgrade Project
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1	11/07/23	Emily Krunes	Draft Preparation
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2	01/11/23	Amy Hestehauge	JBS&G Review
	03/11/23	Emily Krunes	Document Finalised
3	31/03/24	Emily Krunes	Document revised to include Kamerunga to Redlynch components
4	02/04/24	Amy Hestehauge	JBS&G Review
	02/04/24	Max Gunther	Document Finalised
5	30/09/24	Emily Krunes and Alice Bakker	Revised and finalised following Powerlink's review
6	06/11/24	Emily Krunes and Alice Bakker	Revised to update Geotech location near Freshwater Creek and reflect additional Powerlink comments.
7	04/12/24	Emily Krunes	Revised to update clearing impacts within Kamerunga Conservation Park regarding s34 application to DESI
8	04/02/25	Emily Krunes	Revised following final comments from Powerlink
9	11/07/25	Emily Krunes and Max Gunther	Revised following changes to P2 location
10	1/08/2025	Emily Krunes	Revised following comments from Powerlink

CITATION

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PHOTOGRAPHS

Cover Image Photo by Leon on Unsplash.

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APPENDIX

B

FLORA SPECIES LIST



Family	Scientific Name	Common Name	Status	
			QLD	CTH
Acanthaceae	<i>Thunbergia fragrans</i>	Fragrant Thunbergia	I	-
Anacardiaceae	<i>Mangifera indica</i>	Mango	LC	-
Anacardiaceae	<i>Semecarpus australiensis</i>	Native Cashew Tree	LC	-
Annonaceae	<i>Cananga odorata</i>	Ylang Ylang	LC	-
Apocynaceae	<i>Alstonia muelleriana</i>	Hard Milkwood	LC	-
Apocynaceae	<i>Alstonia scholaris</i>	White Cheesewood	LC	-
Apocynaceae	<i>Cascabela thevetia</i>	Yellow Oleander	I, R	-
Apocynaceae	<i>Cerbera floribunda</i>	Cassowary Plum	LC	-
Apocynaceae	<i>Gymnanthera oblonga</i>	Harpoon Bud	LC	-
Araceae	<i>Alocasia brisbanensis</i>	Cunjevoi	LC	-
Araceae	<i>Colocasia esculenta</i>	Taro	LC	-
Araceae	<i>Epipremnum pinnatum</i>	Native Monstera	LC	-
Araceae	<i>Syngonium podophyllum</i>	Goosefoot Plant	I	-
Araliaceae	<i>Polyscias murrayi</i>	Pencil Cedar	LC	-
Araliaceae	<i>Schefflera actinophylla</i>	Umbrella Tree	LC	-
Araucariaceae	<i>Agathis robusta</i>	Kauri Pine	LC	-
Araucariaceae	<i>Araucaria heterophylla</i>	Norfolk Island Pine	LC	-
Arecaceae	<i>Archontophoenix alexandrae</i>	Alexander Palm	LC	-
Arecaceae	<i>Archontophoenix sp.</i>	-	LC	-
Arecaceae	<i>Caryota mitis</i>	Clustering Fishtail-palm	I	-
Arecaceae	<i>Cocos nucifera</i>	Coconut Palm	LC	-
Arecaceae	<i>Ptychosperma elegans</i>	Elegant Palm	LC	-
Asparagaceae	<i>Dracaena sp.</i>	Mother in Laws Tongue	I	-
Aspleniaceae	<i>Asplenium australasicum</i>	Birds Nest Fern	LC	-
Asteraceae	<i>Ageratum conyzoides</i>	Billy Goat Weed	I	-
Asteraceae	<i>Sphagneticola trilobata</i>	Singapore Daisy	I, R	-
Bignoniaceae	<i>Deplanchea tetraphylla</i>	Golden Bouquet Tree	LC	-
Bignoniaceae	<i>Parmenteria aculeata</i>	Cucumber Tree	I	-
Bignoniaceae	<i>Spathodea campanulata</i>	African Tulip	I, R	-
Burseraceae	<i>Canarium vitiense</i>	Canarium	LC	-
Byttneriaceae	<i>Commersonia bartramia</i>	Brown Kurrajong	LC	-
Caesalpiniaceae	<i>Delonix regia</i>	Poinciana	I	-
Clusiaceae	<i>Calophyllum australianum</i>	Alligatorbark	LC	-
Combretaceae	<i>Terminalia catappa</i>	Country Almond	LC	-
Combretaceae	<i>Terminalia microcarpa</i>	Damson Plum	LC	-
Convolvulaceae	<i>Decalobanthus peltatus</i>	Cook's Glory	LC	-
Cyperaceae	<i>Cyperus sp.</i>	Norfolk Pine	LC	-
Elaeocarpaceae	<i>Elaeocarpus grandis</i>	White Quandong	LC	-
Euphorbiaceae	<i>Aleurites sp.</i>	Aleurites	LC	-
Euphorbiaceae	<i>Homalanthus novoguineensis</i>	Bleeding Heart	LC	-
Euphorbiaceae	<i>Macaranga mallotooides</i>	Brown Macaranga	LC	-
Euphorbiaceae	<i>Mallotus philippensis</i>	Red Kamala	LC	-
Euphorbiaceae	<i>Macaranga tanarius</i>	Macaranga	LC	-
Fabaceae	<i>Acacia crassicaarpa</i>	Black Wattle	LC	-
Fabaceae	<i>Acacia flavescens</i>	Yellow Wattle	LC	-
Fabaceae	<i>Albizia lebbeck</i>	Indian Siris	LC	-
Fabaceae	<i>Acacia mangium</i>	Brown Salwood	LC	-
Fabaceae	<i>Cassia fistula</i>	Golden Shower Tree	LC	-
Fabaceae	<i>Castanospermum australe</i>	Black Bean	LC	-
Fabaceae	<i>Chamaecrista rotundifolia</i>	Wynn Cassia	I	-



Family	Scientific Name	Common Name	Status	
			QLD	CTH
Fabaceae	<i>Mimosa pudica</i>	Sensitive Weed	I	-
Fabaceae	<i>Mucuna gigantea</i>	Sea Bean	LC	-
Icacinaceae	<i>Gomphandra australiana</i>	Buff Beech	LC	-
Lamiaceae	<i>Vitex queenslandica</i>	Vitex	LC	-
Lauraceae	<i>Cryptocarya hypsopodia</i>	Northern Laurel	LC	-
Leguminosae	<i>Adenanthera pavonina</i>	Bead Tree	LC	-
Leguminosae	<i>Leucaena leucocephala</i>	Leuceana	I	-
Loranthaceae	<i>Amyema congener subsp congener</i>	Variable Mistletoe	LC	-
Meliaceae	<i>Dysoxylum gaudichaudianus</i>	Ivory Mahogany	LC	-
Meliaceae	<i>Dysoxylum parasiticum</i>	Yellow Mahogany	LC	-
Meliaceae	<i>Melia azadarach</i>	Chinaberry	LC	-
Moraceae	<i>Castilla elastica</i>	Panama Rubber Tree	I	-
Moraceae	<i>Ficus benjamina</i>	Weeping Fig	LC	-
Moraceae	<i>Ficus henneana</i>	Deciduous Fig	LC	-
Moraceae	<i>Ficus opposita</i>	Sandpaper Fig	LC	-
Moraceae	<i>Ficus pleurocarpa</i>	Gabi Fig	LC	-
Moraceae	<i>Ficus racemosa</i>	Cluster Fig	LC	-
Moraceae	<i>Ficus variegata</i>	Variegated Fig	LC	-
Moraceae	<i>Ficus watkinsiana</i>	Strangling Fig	LC	-
Musaceae	<i>Musa sp.</i>	Lady Finger Banana	I	-
Myristicaceae	<i>Myristica insipida</i>	Native Nutmeg	LC	-
Myrtaceae	<i>Eucalyptus grandis</i>	Rose Gum	LC	-
Myrtaceae	<i>Eucalyptus torelliana</i>	Cadaghi	LC	-
Myrtaceae	<i>Melaleuca leucadendra</i>	Weeping Paperbark	LC	-
Myrtaceae	<i>Syzygium forte</i>	White Apple	LC	-
Myrtaceae	<i>Syzygium tierneyanum</i>	River Cherry	LC	-
Myrtaceae	<i>Syzygium unipunctatum</i>	Roly Poly Satinash	LC	-
Myrtaceae	<i>Xanthostemon chrysanthus</i>	Golden Pend	LC	-
Nephrolepidaceae	<i>Nephrolepsis cordifolia</i>	Fishbone Fern	I	-
Oleaceae	<i>Chionanthus ramiflorus</i>	Northern Olive	LC	-
Passifloraceae	<i>Adenia heterophylla</i>	Lacewing Vine	LC	-
Petiveriaceae	<i>Rivina humilis</i>	Coral Berry	I	-
Phyllanthaceae	<i>Cleistanthus sp.</i>	Cleistanthus	LC	-
Phyllanthaceae	<i>Glochidion sp.</i>	Buttonwood	LC	-
Piperaceae	<i>Piper hederaceum</i>	Native Pepper Vine	LC	-
Poaceae	<i>Bambusa sp.</i>	Bamboo	LC	-
Poaceae	<i>Megathyrsus maximus</i>	Guinea Grass	I	-
Polypodiaceae	<i>Drynaria rigidula</i>	Basket Fern	SLC	-
Polypodiaceae	<i>Platyserium hillii</i>	Northern Elkhorn	SLC	-
Primulaceae	<i>Ardisia elliptica</i>	Shoebutton Ardisia	I	-
Pteridaceae	<i>Pteris ensiformis</i>	Slender Bracken	SLC	-
Rhizophoraceae	<i>Carallia brachiata</i>	Corkwood	LC	-
Rubiaceae	<i>Atractocarpus fitzalanii</i>	Native Gardenia	LC	-
Rubiaceae	<i>Coffea arabica</i>	Coffee	I	-
Rubiaceae	<i>Nauclea orientalis</i>	Leichardt Tree	LC	-
Rubiaceae	<i>Psychotria submontana</i>	Wild Coffee	LC	-
Rutaceae	<i>Melicope elleryana</i>	Pink Euodia	LC	-
Rutaceae	<i>Murraya paniculata</i>	Orange Jasmine	I	-
Sapindaceae	<i>Cupaniopsis flagelliformis</i>	Brown Tuckeroo	LC	-
Sapindaceae	<i>Ganophyllum falcatum</i>	Daintree Hickory	LC	-
Sapindaceae	<i>Guioa acutifolia</i>	Glossy Tamarind	LC	-



Family	Scientific Name	Common Name	Status	
			QLD	CTH
Sapindaceae	<i>Jagera pseudorhus</i>	Foambark	LC	-
Sapindaceae	<i>Synima cordierorum</i>	Synima	LC	-
Sapindaceae	<i>Toechima daemelianum</i>	Cape Tamarind	LC	-
Sapotaceae	<i>Planchonella chartacea</i>	Thin-leaved Coondoo	LC	-
Solanaceae	<i>Solanum torvum</i>	Devils Fig	I	-
Sterculiaceae	<i>Brachychiton acerfolius</i>	Flame Tree	SLC	-
Urticaceae	<i>Pipturus argenteus</i>	Native Mulberry	LC	-
Verbanaceae	<i>Stachytarpheta cayennensis</i>	Dark Blue Snakeweed	I	-
Zingiberaceae	<i>Zingiber</i> sp.	Ginger (planted)	I	-

¹ Queensland Status, Nature Conservation Act 1992 (NCA; Qld): EX = Extinct, EW = Extinct in the Wild, CR = Critically Endangered, EN = Endangered, VU = Vulnerable, NT = Near Threatened, LC = Least Concern, SLC = Special Least Concern, I = Invasive, R = Restricted Matter under the Biosecurity Act 2014 (Qld). Australian Status (EPBC Act; CTH and Australian Weed Strategy): EX = Extinct, EW = Extinct in the Wild, CR = Critically Endangered, EN = Endangered, VU = Vulnerable, - = not protected under the EPBC Act, WoNS = Weed of National Significance.



APPENDIX C

FAUNA SPECIES LIST



Family	Scientific name	Common name	Status ¹	
			QLD	CTH
AMPHIBIANS				
Bufonidae	<i>Rhinella marina</i>	Cane Toad	I	-
Bufonidae	<i>Litoria infrafrenata</i>	White-lipped Tree Frog	LC	-
Hylidae	<i>Litoria wilcoxii</i>	Eastern Stony Creek Frog	LC	-
BIRDS				
Alcedinidae	<i>Dacelo leachii</i>	Blue-winged Kookaburra	LC	-
Anatidae	<i>Rajah rajah</i>	Radjah Shelduck	LC	-
Apodidae	<i>Apus pacificus</i>	Fork-tailed Swift	SLC	M, Mi
Artamidae	<i>Cracticus quoyi</i>	Black Butcherbird	LC	-
Burhinidae	<i>Burhinus grallarius</i>	Bush Stone-Curlew	LC	-
Cacatuidae	<i>Cacatua galerita</i>	Sulphur-crested Cockatoo	LC	-
Charadriiformes	<i>Vanellus miles</i>	Masked Lapwing	LC	-
Columbridae	<i>Geopelia humeralis</i>	Bar-shouldered Dove	LC	-
Columbridae	<i>Macropygia phasianella</i>	Brown Cuckoo-dove	LC	-
Columbridae	<i>Ptilinopus magnificus</i>	Wompoo Fruit-dove	LC	-
Cuculidae	<i>Chrysococcyx</i>	Little Bronze Cuckoo	LC	-
Dicaeidae	<i>Dicaeum hirundinaceum</i>	Mistletoebird	LC	-
Dicruridae	<i>Dicrurus bracteatus</i>	Spangled Drongo	LC	-
Hirundinidae	<i>Petrochelidon ariel</i>	Fairy Martin	LC	-
Monarchidae	<i>Grallina cyanoleuca</i>	Magpie-lark	LC	-
Oriolidae	<i>Oriolus flavocinctus</i>	Green Oriole	LC	-
Psittaculidae	<i>Cyclopsitta diophthalma macleayana</i>	Macleay's Fig-parrot	VU	-
Psittaculidae	<i>Trichoglossus moluccanus</i>	Rainbow Lorikeet	LC	-
Rhipidura	<i>Rhipidura leucophrys</i>	Willie Wagtail	LC	-
Sturnidae	<i>Acridotheres tristis</i>	Common Myna	I	-
Theskiornithidae	<i>Threskiornis molucca</i>	Australian White Ibis	LC	-
MAMMALS				
Emballonuridae	<i>Saccolaimus flaviventris</i>	Yellow-bellied Sheathtail Bat	LC	-
Hipposideridae	<i>Hipposideros diadema</i>	Diadem Leaf-nosed Bat	NT	-
Molossidae	<i>Chaerephon jobensis</i>	Northern Freetail Bat	LC	-
Molossidae	<i>Ozimops lumsdenae</i>	Northern Free-tailed Bat	LC	-
Molossidae	<i>Ozimops ridei</i>	Eastern Free-tailed Bat	LC	-
Murinae	<i>Rattus rattus</i>	Black rat	LC	-
Peramelidae	<i>Isodon macrourus</i>	Northern Brown Bandicoot	LC	-
Pteropodidae	<i>Pteropus sp.</i>	-	LC	-
Rhinolophus	<i>Rhinolophus megaphyllus</i>	Smaller Horseshoe Bat	LC	-
Tachyglossidae	<i>Tachyglossus aculeatus</i>	Short-beaked Echidna	SLC	-
Vespertilionidae	<i>Chalinolobus nigrogriseus</i>	Hoary Wattled Bat	LC	-
Vespertilionidae	<i>Miniopterus australis</i>	Long-fingered Bat	LC	-
Vespertilionidae	<i>Myotis macropus</i>	Southern Myotis	LC	-
Vespertilionidae	<i>Nyctophilus sp.</i>	-	LC	-
Vespertilionidae	<i>Scotorepens sanborni</i>	Northern Broad-nosed Bat	LC	-
MAMMALS				
Colubridae	<i>Boiga irregularis</i>	Brown Tree Snake	LC	-
Colubridae	<i>Stegonotus cucullatus</i>	Slaty Grey Snake	LC	-

¹ Queensland Status, Nature Conservation Act 1992 (NCA; Qld): EX = Extinct, EW = Extinct in the Wild, CR = Critically Endangered, EN = Endangered, VU = Vulnerable, NT = Near Threatened, I = Invasive.

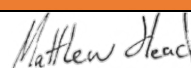
Australian Status (EPBC Act; CTH): EX = Extinct, EW = Extinct in the Wild, CR = Critically Endangered, EN = Endangered, VU = Vulnerable, M = Marine, Mi = Migratory, - = not protected under the EPBC Act.



APPENDIX D

ANABAT RESULTS REPORT

Project Details			
Client	Trend Environmental Consultants		
Client contact	Emily Krunes		
Position	Director and Principal		
Project Location	Cairns Qld		
Project number	TEC20232		
Version History			
Version No.	Date	Changed by	Nature of Amendment
0.1	13 th of August 2023	M. Head	Final

Preparation of the Report			
Name	Mr Matthew Head	Signature	
Position	Senior Ecologist	Date	13 th of August 2023

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This Environmental assessment report is only valid for 12 months as a general quality guideline. A review and potential update is required after period to address any changes in legislation, policy, or societal needs.

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Figure 1 Anabat Location Map..... **Error! Bookmark not defined.**

Introduction

Land and Habitat Environmental Services was engaged by Trend Environmental Consultants to analyse anabat data gathered during an ecological survey near Cairns in North Queensland for the presence and possible identification of microbat species.

Call Capture and data

Trend Environmental collected data using a Titley scientific anabat swift unit for 2 nights, the 17th and 18th of July 2023. 1 unit was deployed, and the data was supplied to Land and Habitat via cloud storage on the 20th of July. A total of 1290 files were recorded and provided for this analysis.

Call Identification, Methodology and Accuracy

This analysis used the following resources for call identification with the addition of geographical reference information for species for probability of occurrence.

- Anabat insight - acoustic analysis software (Titley Scientific)
- Key to the bat calls of south-east Queensland and north-east New South Wales (Reinhold et al 2001)
- Key To The Bat Calls Of The Top End Of The Northern Territory (Milne, D.J 2002)
- Bat calls Of New South Wales (Pennay et al 2004)
- Australasian Bat Society - BatMap. (<http://ausbats.org.au/batmap> Accessed July 2023)
- Australian Bats second edition (Churchill 2008)
- Strahan's Mammals of Australia (4th Edition) (Baker, Andrew M. and Ian C. Gynther, editors.)

The reliability of identification is as follows:

Definite - one or more calls where there is no doubt about the identification of the species.

Probable - most likely to be the species named, low probability of confusion with species that use similar calls.

Possible - call is comparable with the named species, with a moderate to high probability of confusion with species of similar calls.

Results

Table 1 Species list and detector location

Species	Status NCA	Status EPBC	Reliability	Anabat
<i>Miniopterus australis</i>	LC	-	Definite	A1
<i>Myotis macropus</i>	LC	-	Definite	A1
<i>Scotorepens sanborni</i>	LC	-	Definite	A1

Location Map

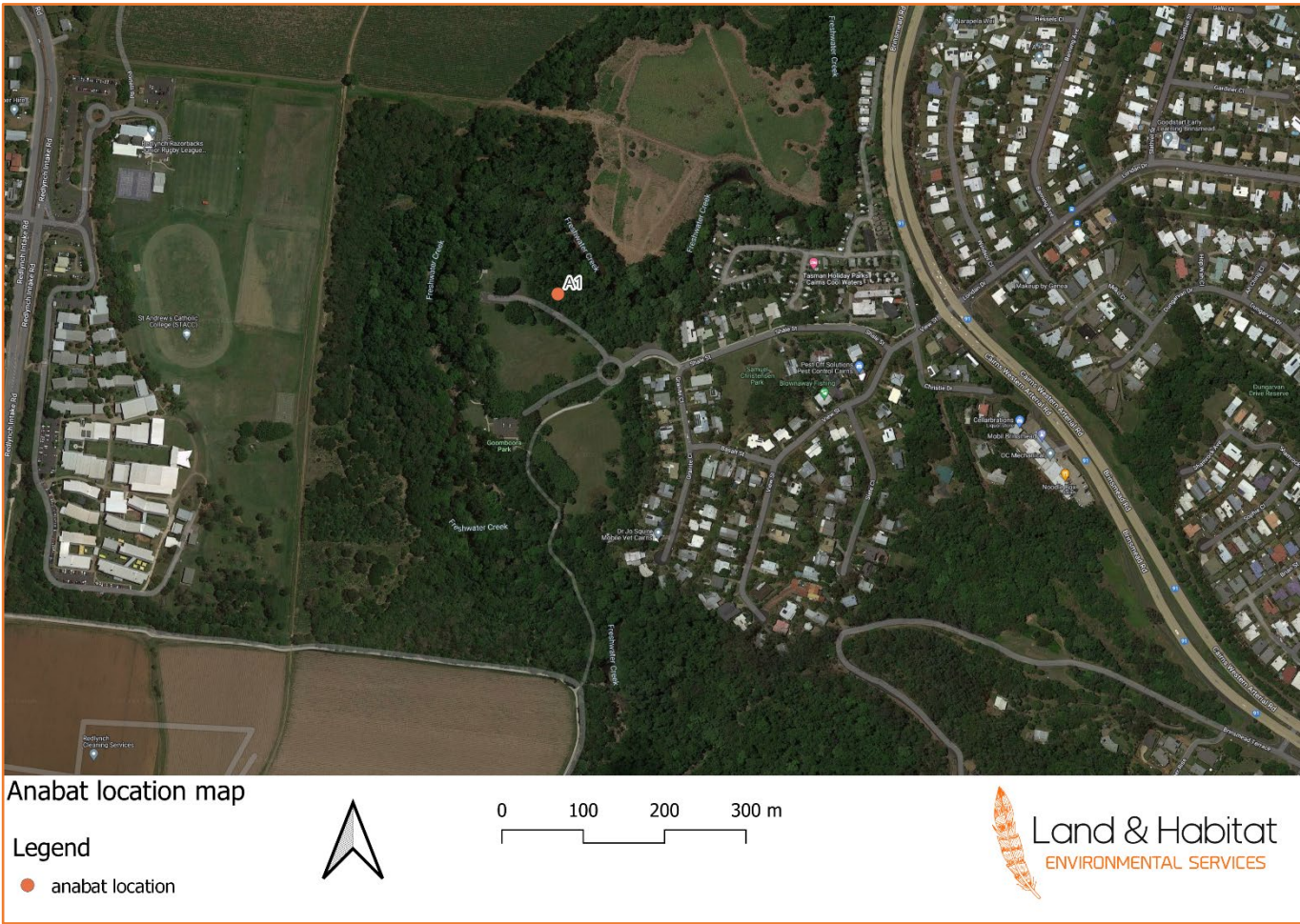
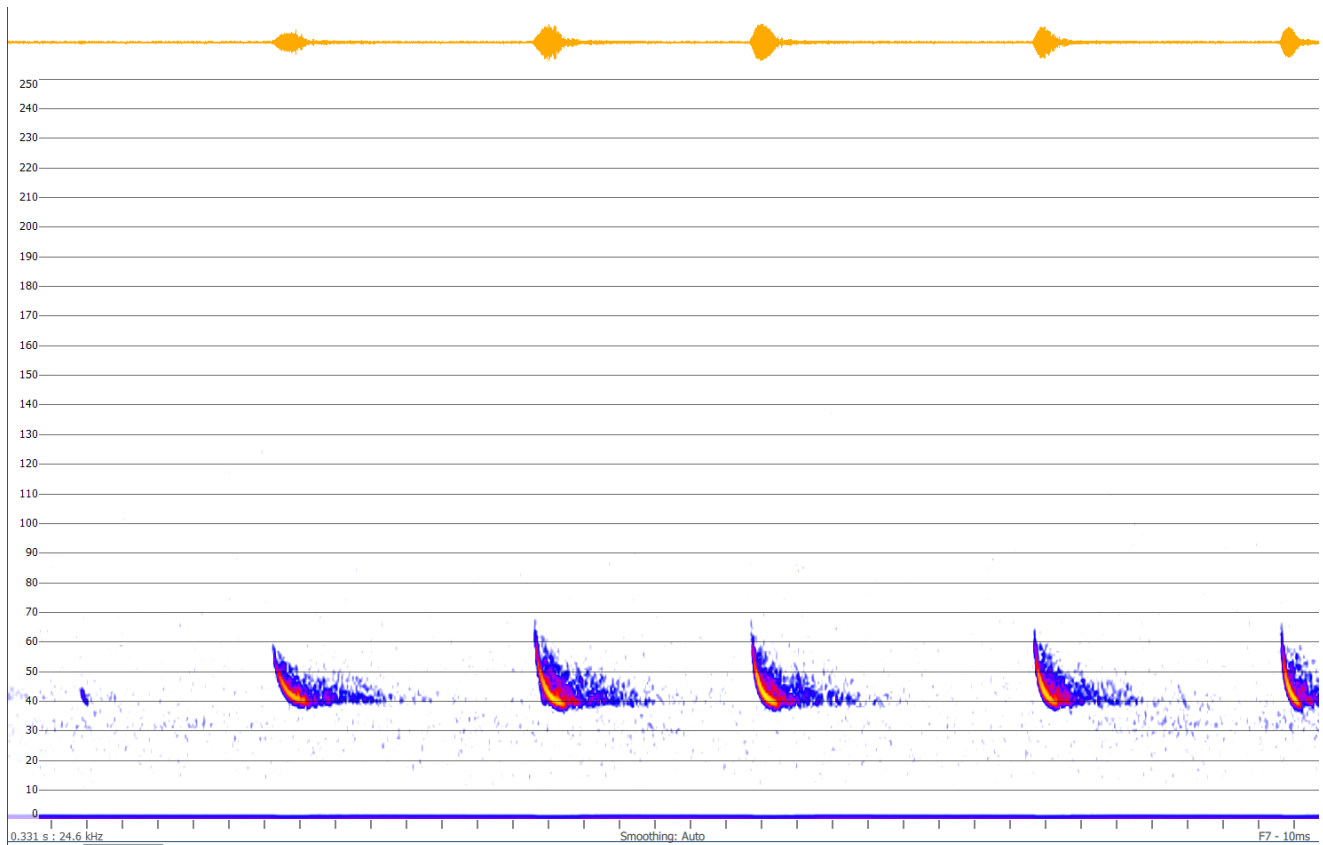


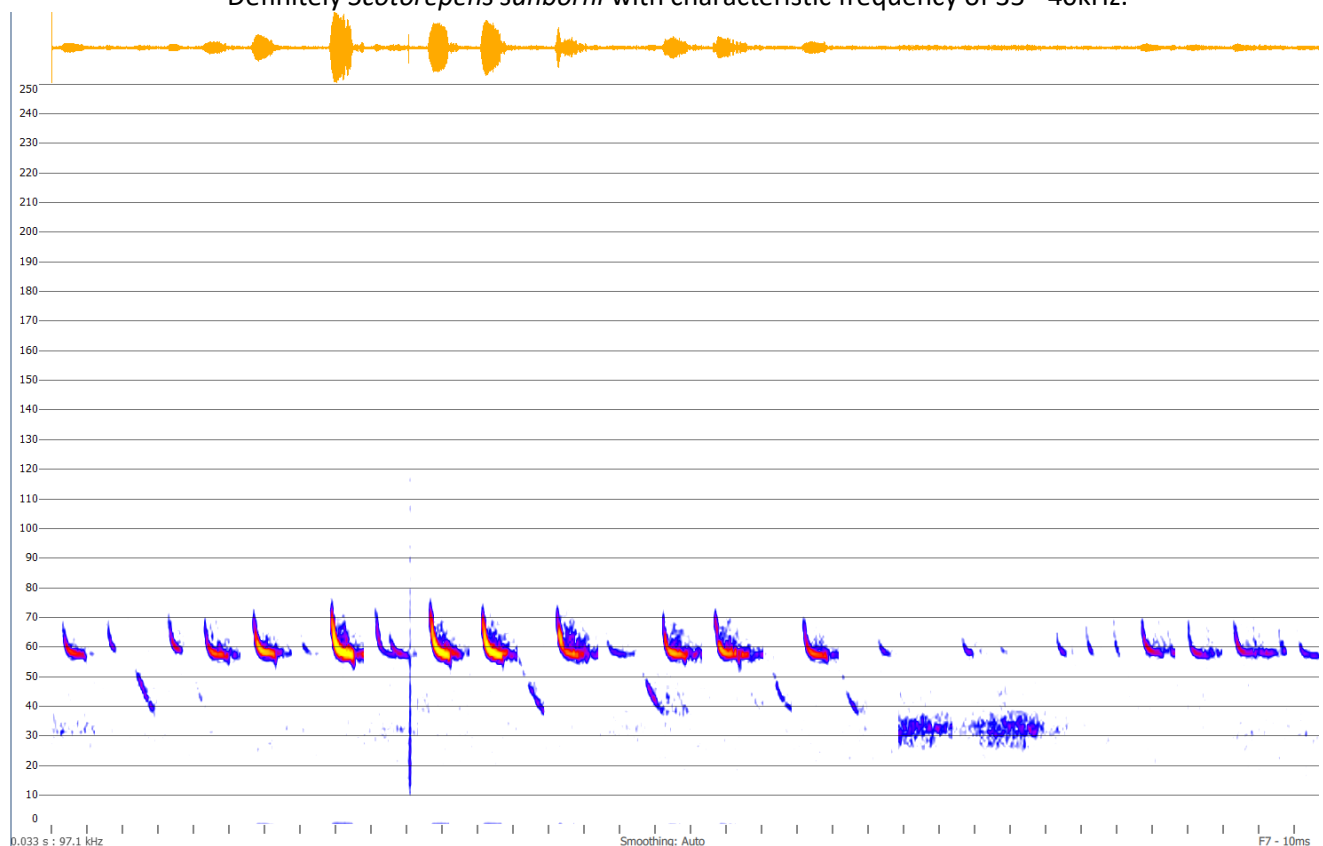
Figure 1 Anabat Location Map

Appendix 1 Species call examples

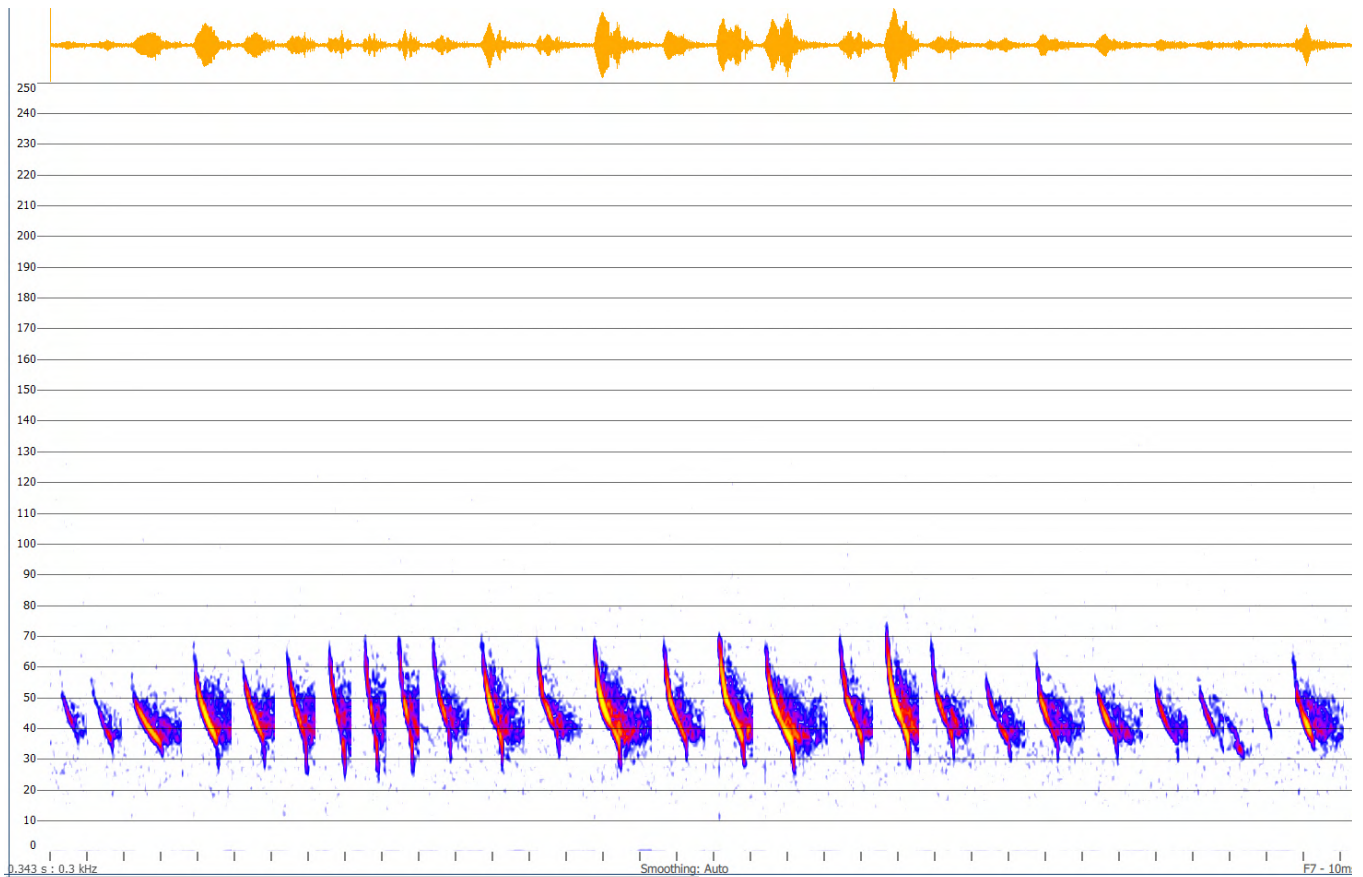
(Calls have been edited and filtered for reporting purposes)



Definitely *Scotoxenus sanborni* with characteristic frequency of 35 - 40kHz.



Definitely *Miniopterus australis*. Characteristic frequency 57 to 63 kHz.



Definitely *Myotis macropus*. Steep calls, starting at 70 – 80 kHz and dropping to 45 – 40 kHz. Good quality calls have a central kink at around 47 – 50 kHz and sometimes a second kink prior to the tail dropping off.

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Project Details			
Client	Trend Environmental Consultants		
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Position	Senior Ecologist		
Project Location	Cairns Qld		
Project number	TEC20243		
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Preparation of the Report			
Name	Mr Matthew Head	Signature	
Position	Senior Ecologist	Date	5 th of March 2024

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This Environmental assessment report is only valid for 12 months as a general quality guideline. A review and potential update is required after period to address any changes in legislation, policy, or societal needs.

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Figure 1 Anabat Location Map..... **Error! Bookmark not defined.**

Introduction

Land and Habitat Environmental Services was engaged by Trend Environmental Consultants to analyse anabat data gathered during an ecological survey in the Kamerunga conservation park, Cairns in North Queensland for the presence and possible identification of microbat species.

Call Capture and data

Trend Environmental collected data using a Titley scientific anabat ranger unit for 2 nights, the 8th and 9th of February 2024. The data was supplied to Land and Habitat via cloud storage. A total of 3057 files were recorded and provided for this analysis.

Call Identification, Methodology and Accuracy

This analysis used the following resources for call identification with the addition of geographical reference information for species for probability of occurrence.

- Anabat insight - acoustic analysis software (Titley Scientific)
- Key to the bat calls of south-east Queensland and north-east New South Wales (Reinhold et al 2001)
- Key To The Bat Calls Of The Top End Of The Northern Territory (Milne, D.J 2002)
- Bat calls Of New South Wales (Pennay et al 2004)
- Australasian Bat Society - BatMap. (<http://ausbats.org.au/batmap> Accessed Feb 2024)
- Australian Bats second edition (Churchill 2008)
- Strahan's Mammals of Australia (4th Edition) (Baker, Andrew M. and Ian C. Gynther, editors.)

The reliability of identification is as follows:

Definite - one or more calls where there is no doubt about the identification of the species.

Probable - most likely to be the species named, low probability of confusion with species that use similar calls.

Possible - call is comparable with the named species, with a moderate to high probability of confusion with species of similar calls.

Results

Table 1 Species list and detector location

Species	Status NCA	Status EPBC	Reliability	Anabat
<i>Chaerephon jobensis</i>	LC	-	Possible	A1
<i>Saccolaimus flaviventris</i>	LC	-	Possible	A1
<i>Chalinolobus nigrogriseus</i>	LC	-	Possible	A1
<i>Hipposideros diadema</i>	NT	-	Probable	A1
<i>Miniopterus australis</i>	LC	-	Definite	A1
<i>Myotis macropus</i>	LC	-	Probable	A1
<i>Nyctophilus sp</i>	LC	-	Probable	A1
<i>Ozimops lumsdenae</i>	LC	-	Definite	A1
<i>Ozimops ridei</i>	LC	-	Definite	A1
<i>Rhinolophus megaphyllus</i>	LC	-	Definite	A1
<i>Scotorepens sanborni</i>	LC	-	Definite	A1

Location Map

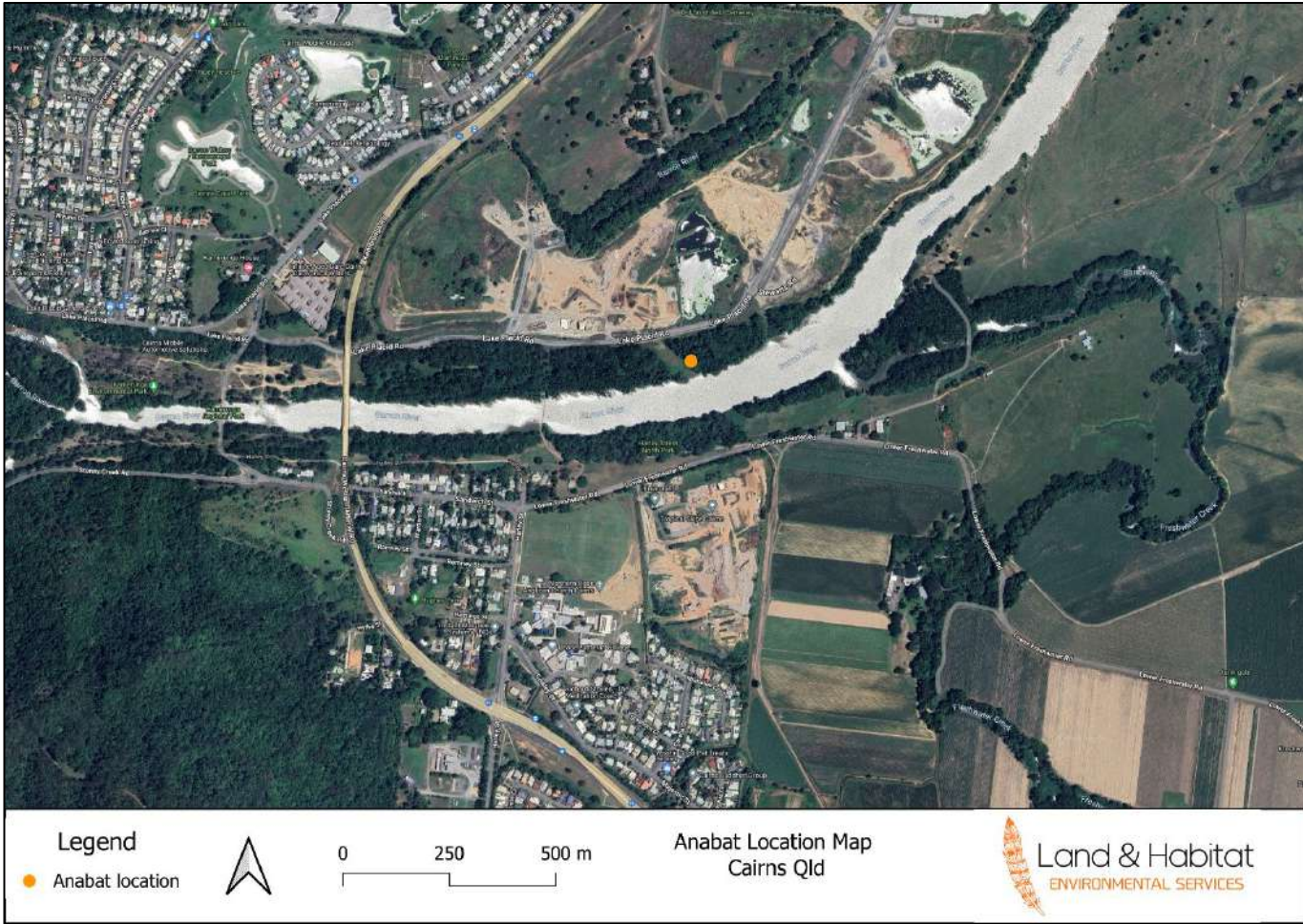


Figure 1 Anabat Location Map

Appendix 1 Species call examples

(Calls have been edited and filtered for reporting purposes)

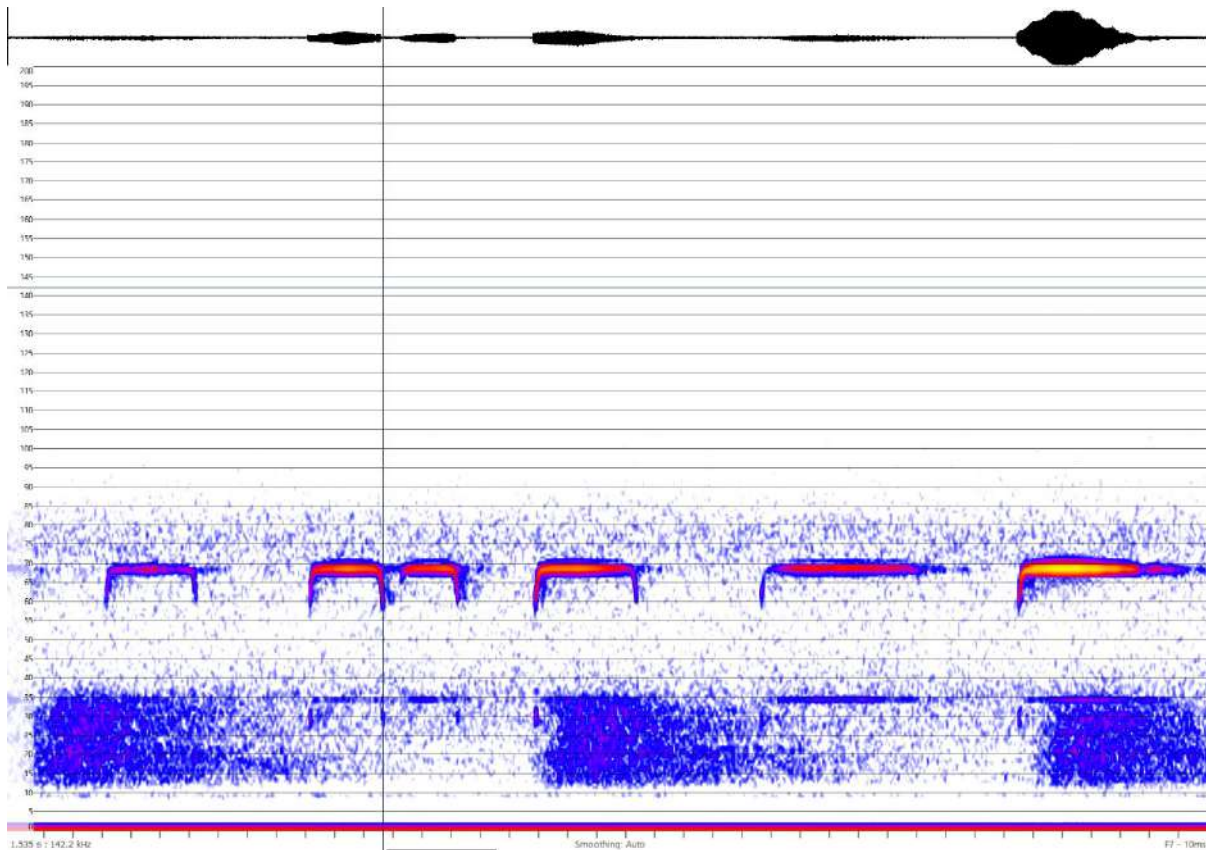


Figure 2 *Rhinolophus megaphyllus* - Can't be confused with other species. Unique shape with the initial up sweeping, flat body and down sweeping tail - Characteristic frequency 66 to 72 kHz

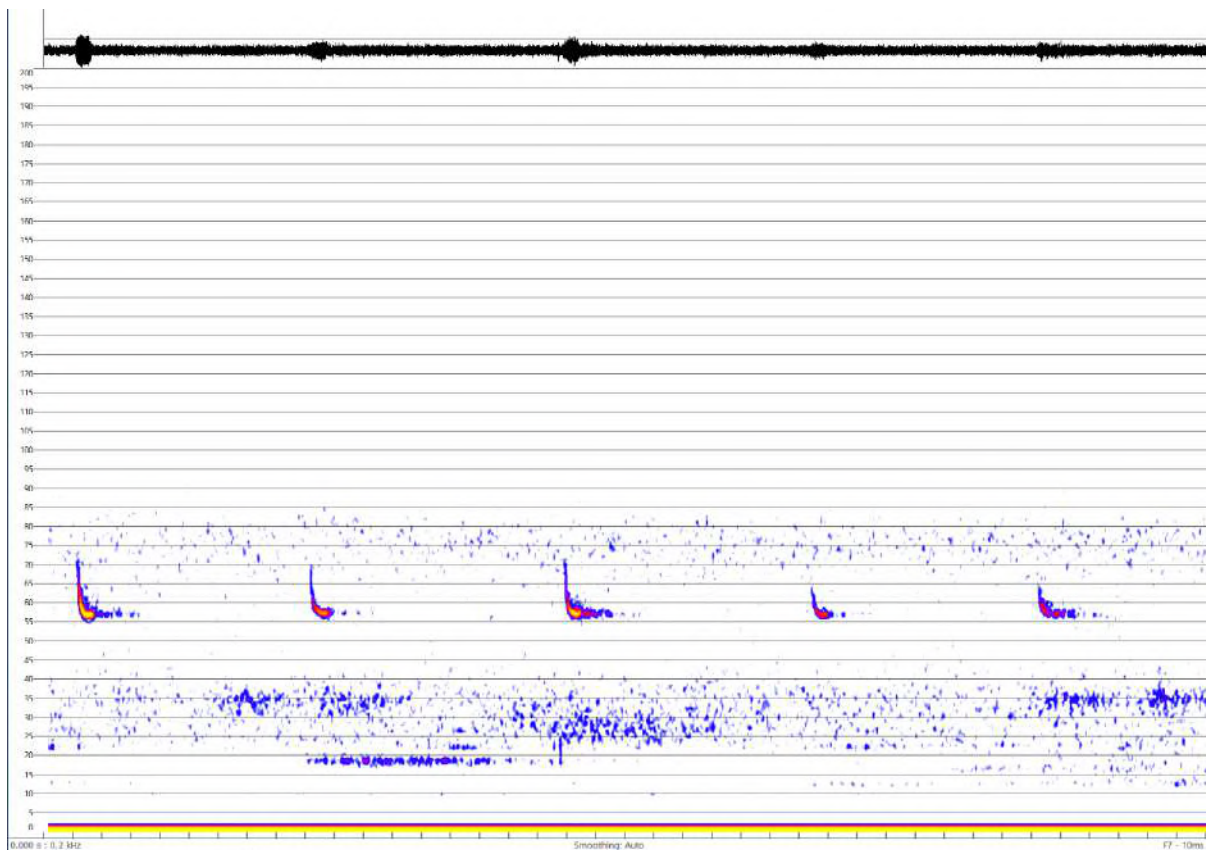


Figure 3 Definitely *Miniopterus australis*. Characteristic frequency 57 to 63 kHz

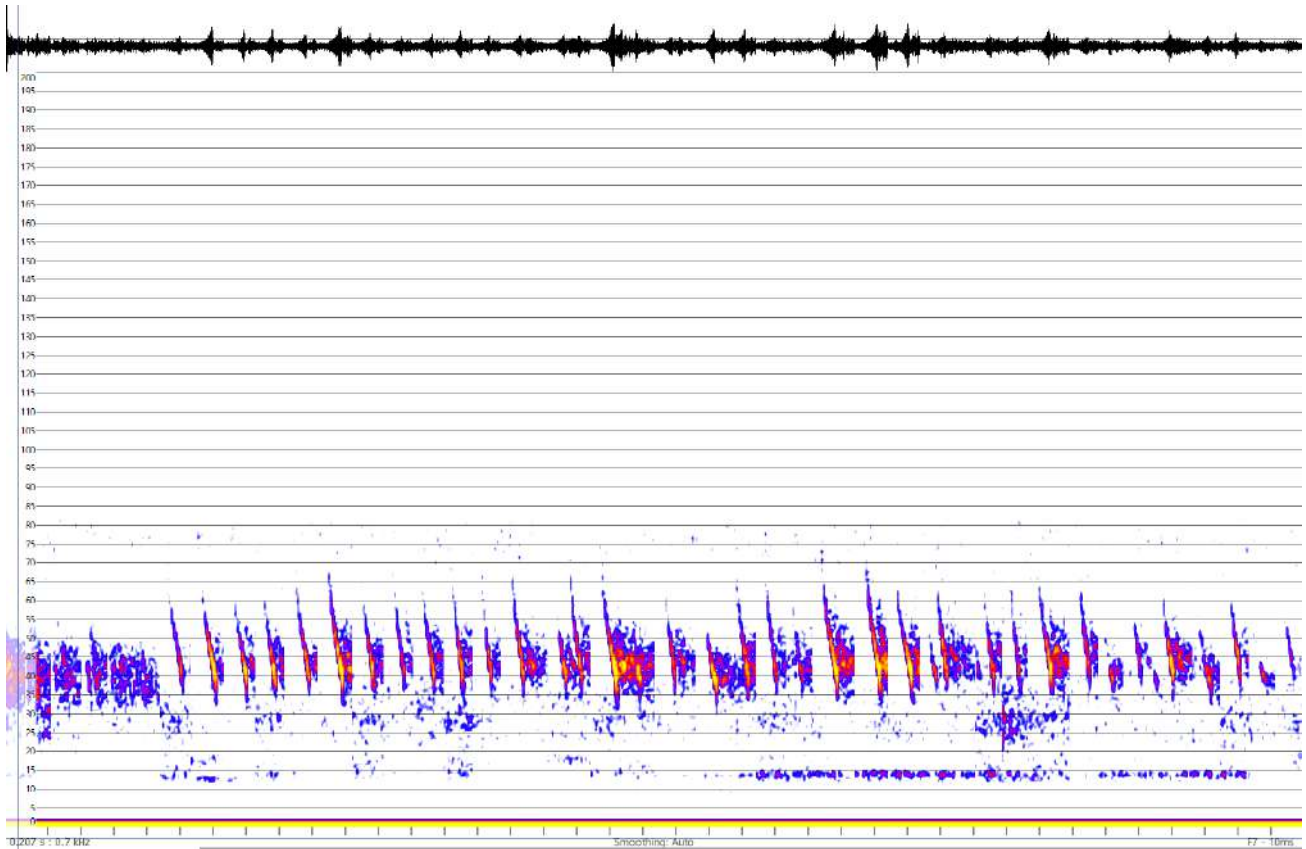


Figure 4 *Myotis Macropus Steep* calls, starting at 70 – 80 kHz and dropping to 45 – 40 kHz. Good quality calls have a central kink at around 47 – 50 kHz and sometimes a second kink prior to the tail dropping off.

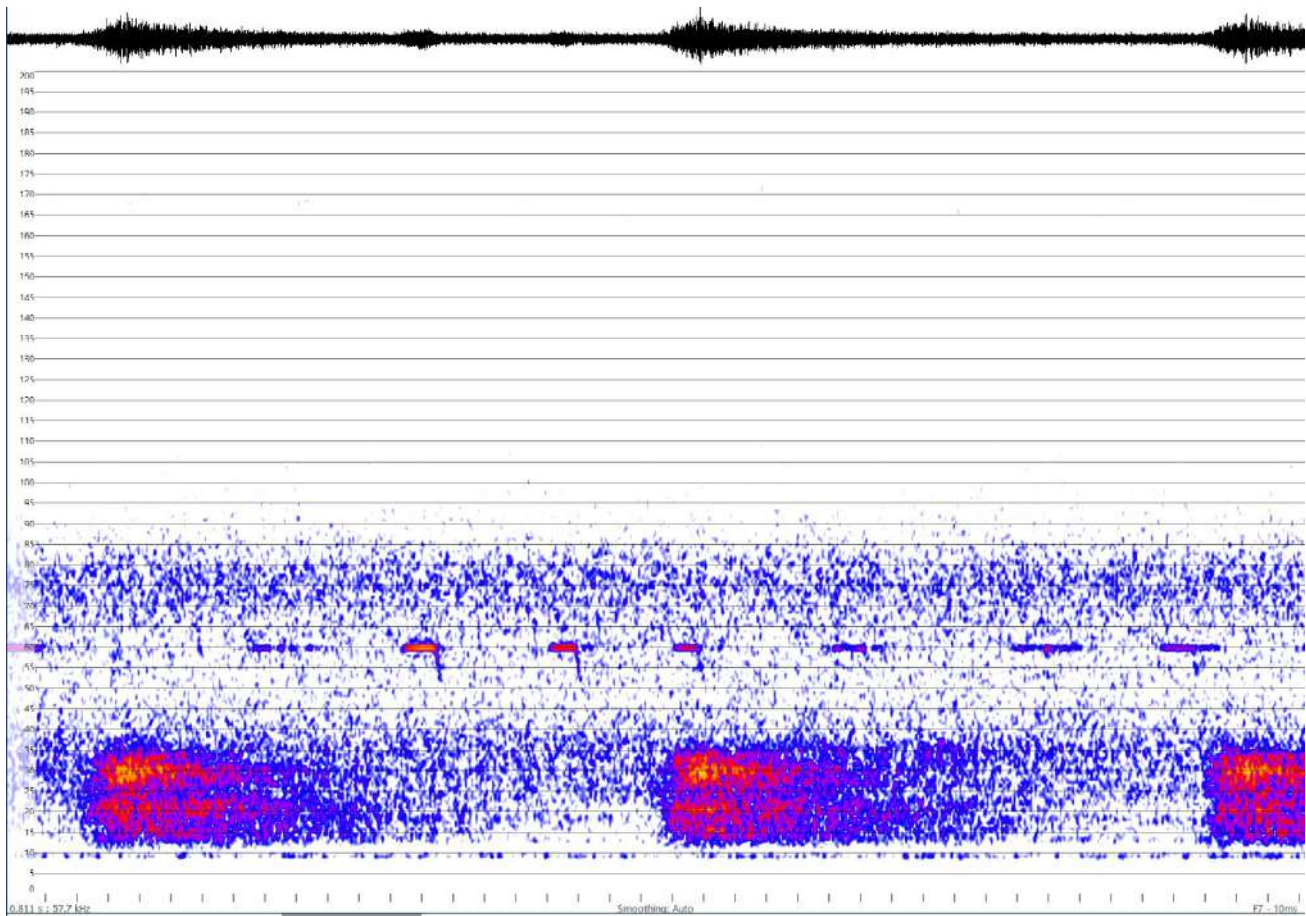


Figure 5 Probably *Hipposideros diadema*. Only one call recorded and low quality but shows decent characteristics. Calls are of constant frequency between 55-58 kHz, terminating in a downward FM sweep.

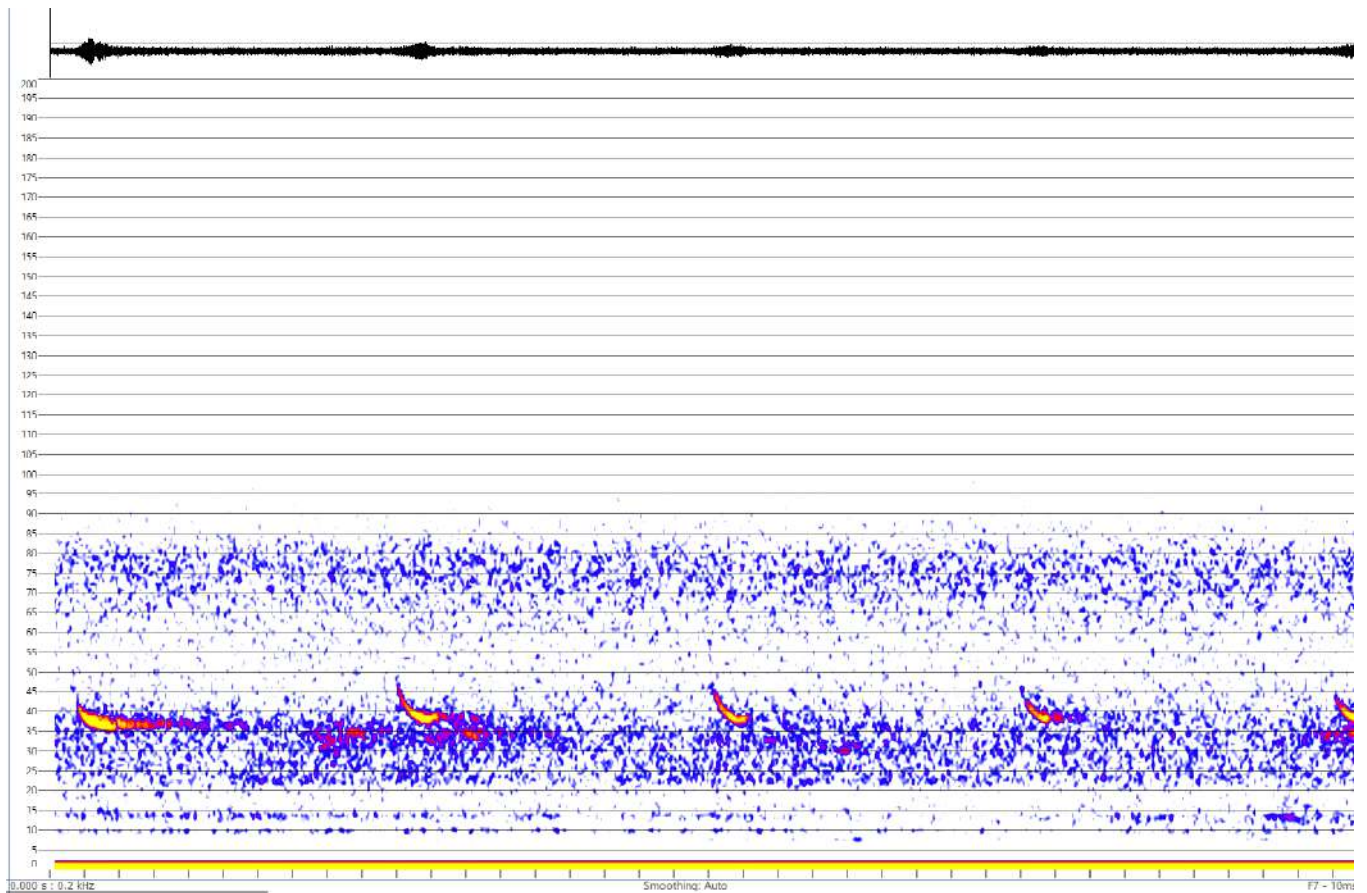


Figure 6 Possible *Chalinelobus nigrogriseus* / *Scotorepens sanborni* with characteristic frequency of 35 - 40kHz. Visually identical calls for the most part and fails within the same range.

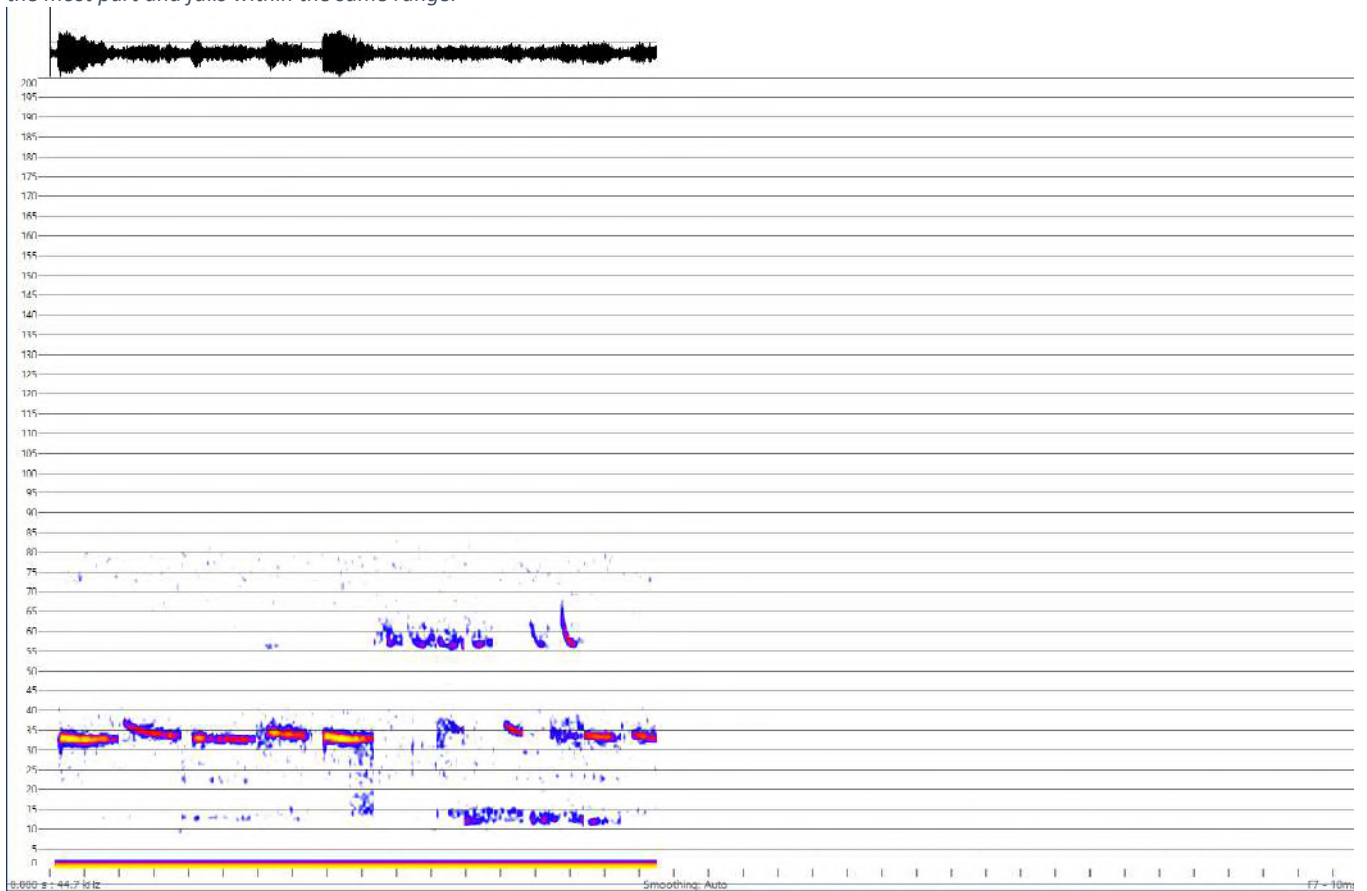


Figure 7 Definitely *Ozimops ridei*. Low profile calls in 'search phase' and characteristic steeping in some calls. The characteristic frequency of this call is between 30 to 36 kHz.

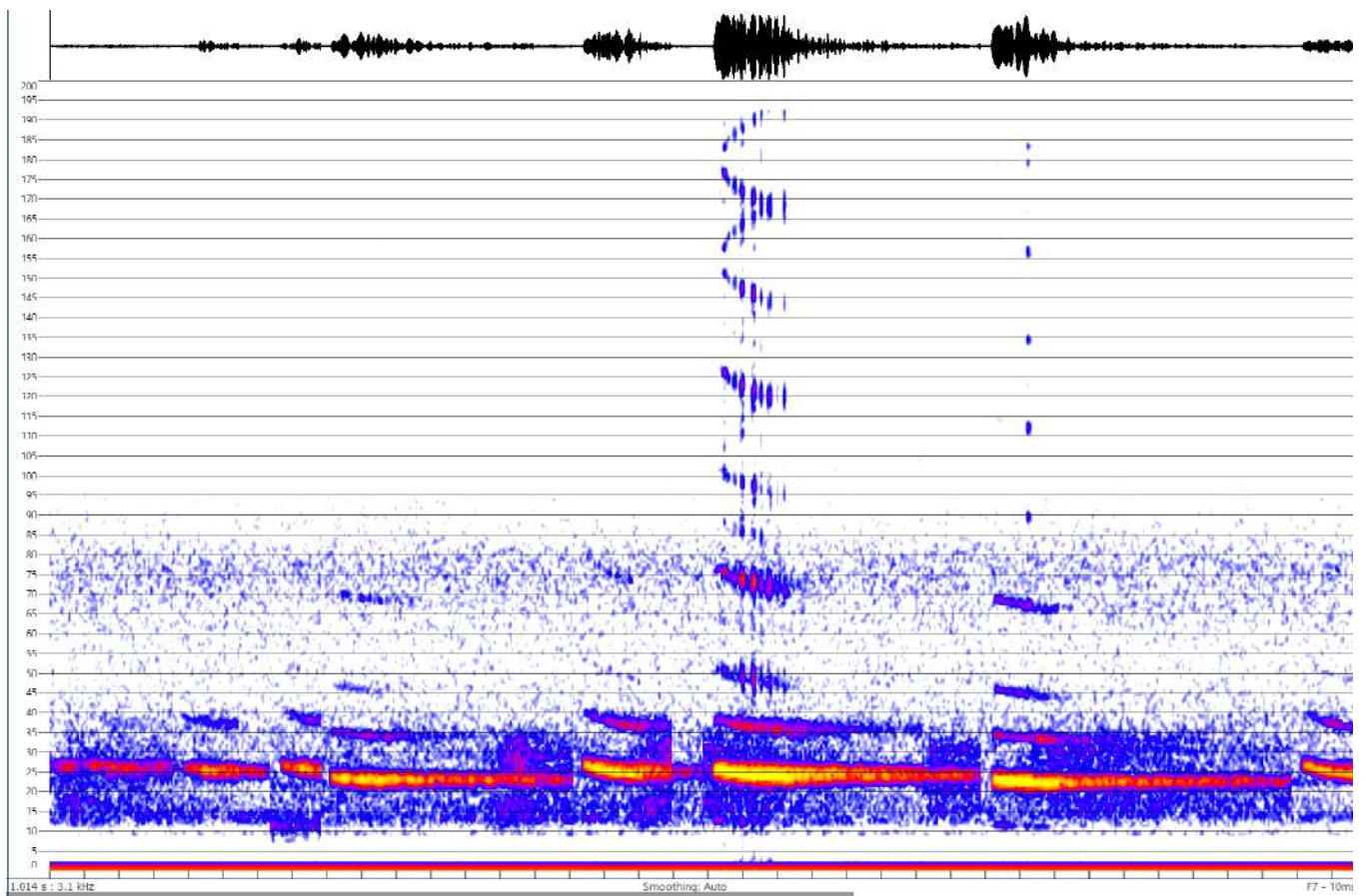


Figure 8 Definitely *Ozimops lumsdenae*. Characteristic frequency of 23 to 28 kHz. Harmonics at 35 and 45 help identify it.

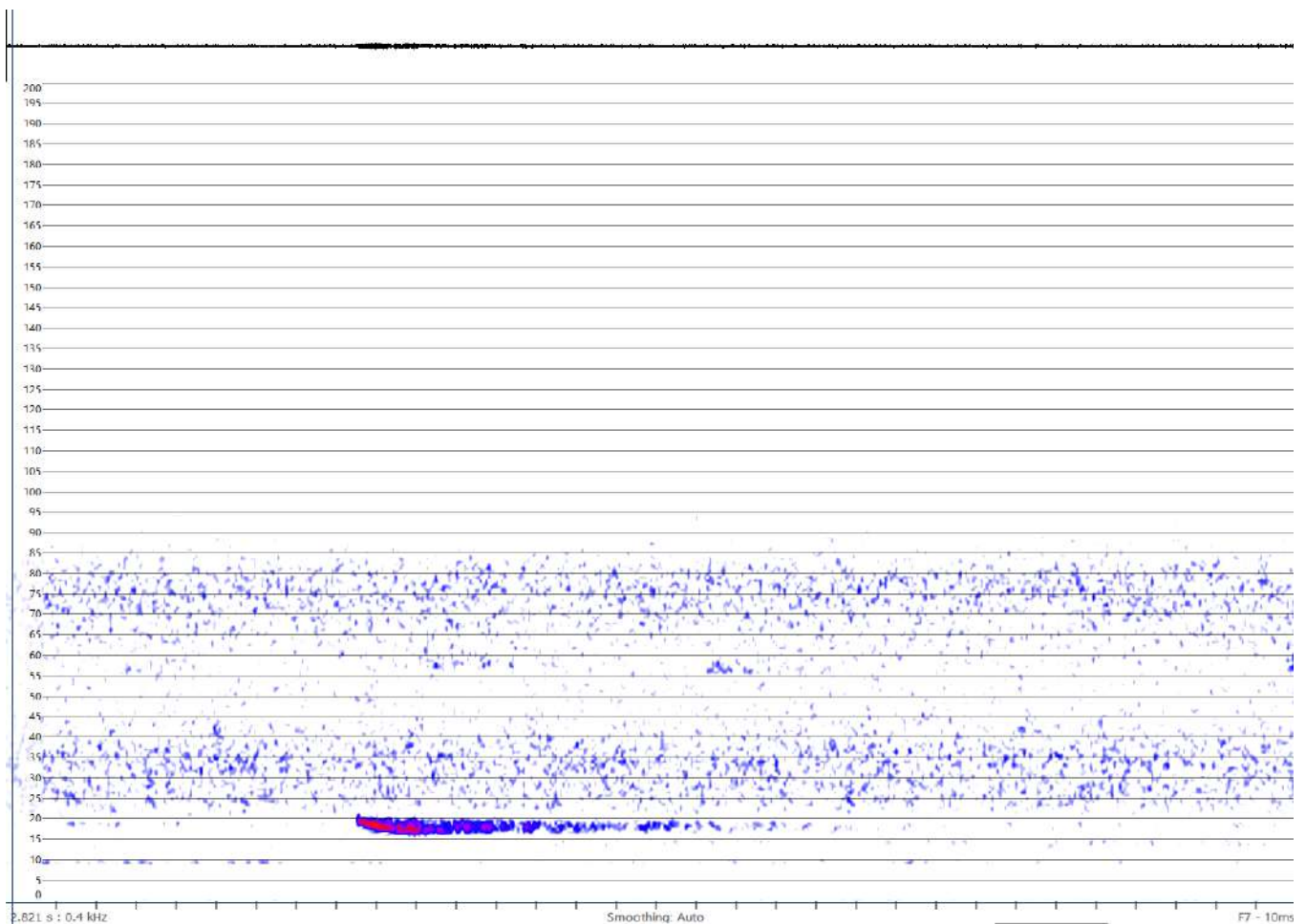


Figure 9 Possibly *Chaerephon jobensis* or *Saccolaimus flaviventris*. *Chaerephon* has a characteristic frequency call ranging between 16.1 - 23.6 kHz and *Saccolaimus* falls within 17.5 to 22.5 kHz. Lack of more calls and the presents of harmonics / other call features lowers accuracy.

References

Churchill, S. (2008) Australian Bats, Allen and Unwin, Sydney.

Pennay, M., B. Law & L. Reinhold (2004). Bat calls of New South Wales: Region based guide to the echolocation calls of Microchiropteran bats. Hurstville: NSW Department of Environment and Conservation.

Reinhold, L., Law, B., Ford, G. and Pennay, M. 2001, Key to the bat calls of southeast Queensland and north-east New South Wales. Forest Ecosystem Research and Assessment Technical paper 2001-07, Department of Natural Resources and Mines, Queensland.

Milne, D.J, Key To The Bat Calls Of The Top End Of The Northern Territory 2002, Parks and Wildlife Commission of the Northern Territory

Australasian Bat Society - BatMap. (<http://ausbats.org.au/batmap>) Accessed 2024)

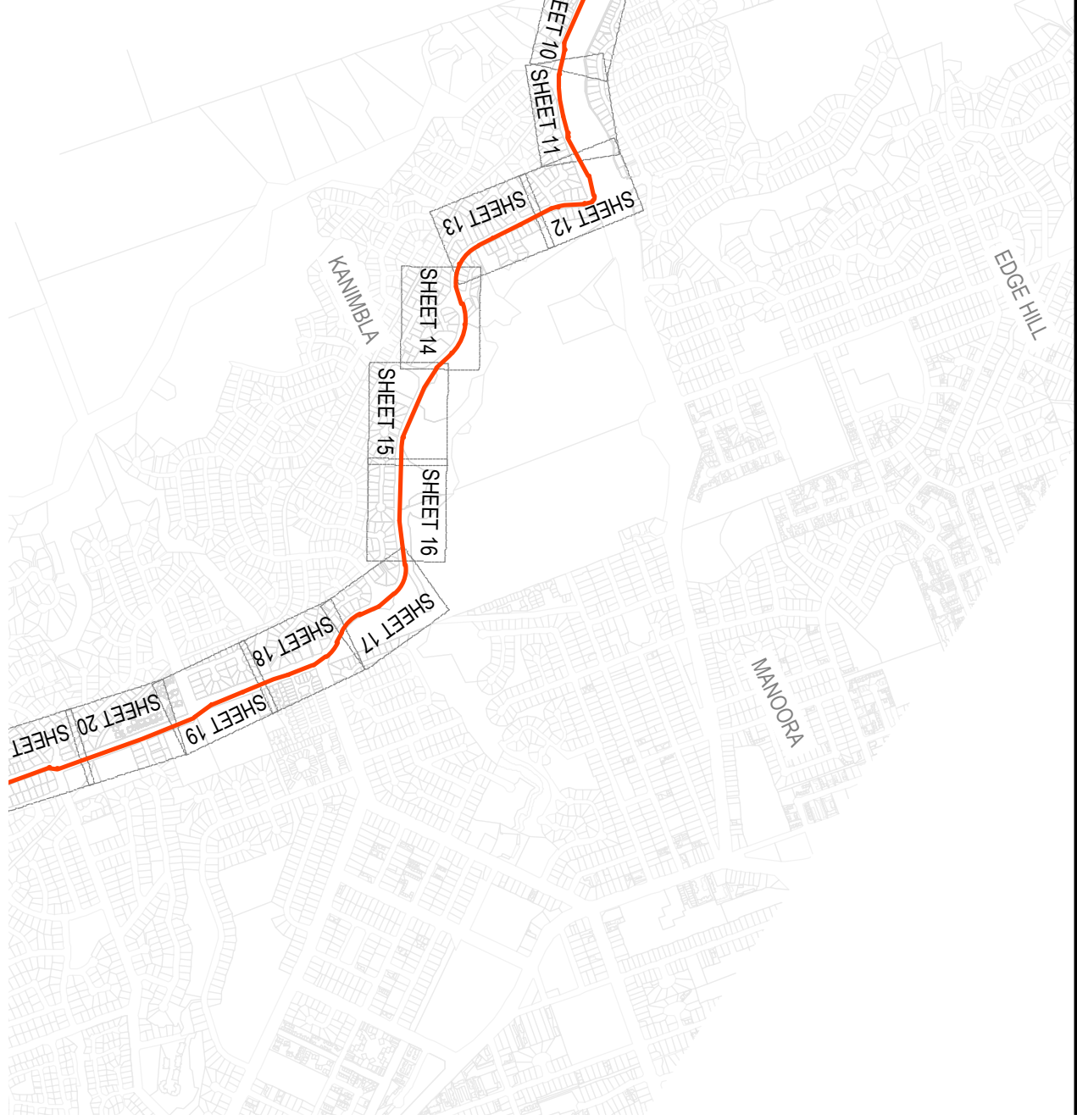
Baker, Andrew M., and Ian C. Gynther, editors, Strahan's Mammals of Australia 2023 (4th Edition), New Holland Publishers.



APPENDIX

E

GEOTECHNICAL EXCAVATION
POINTS

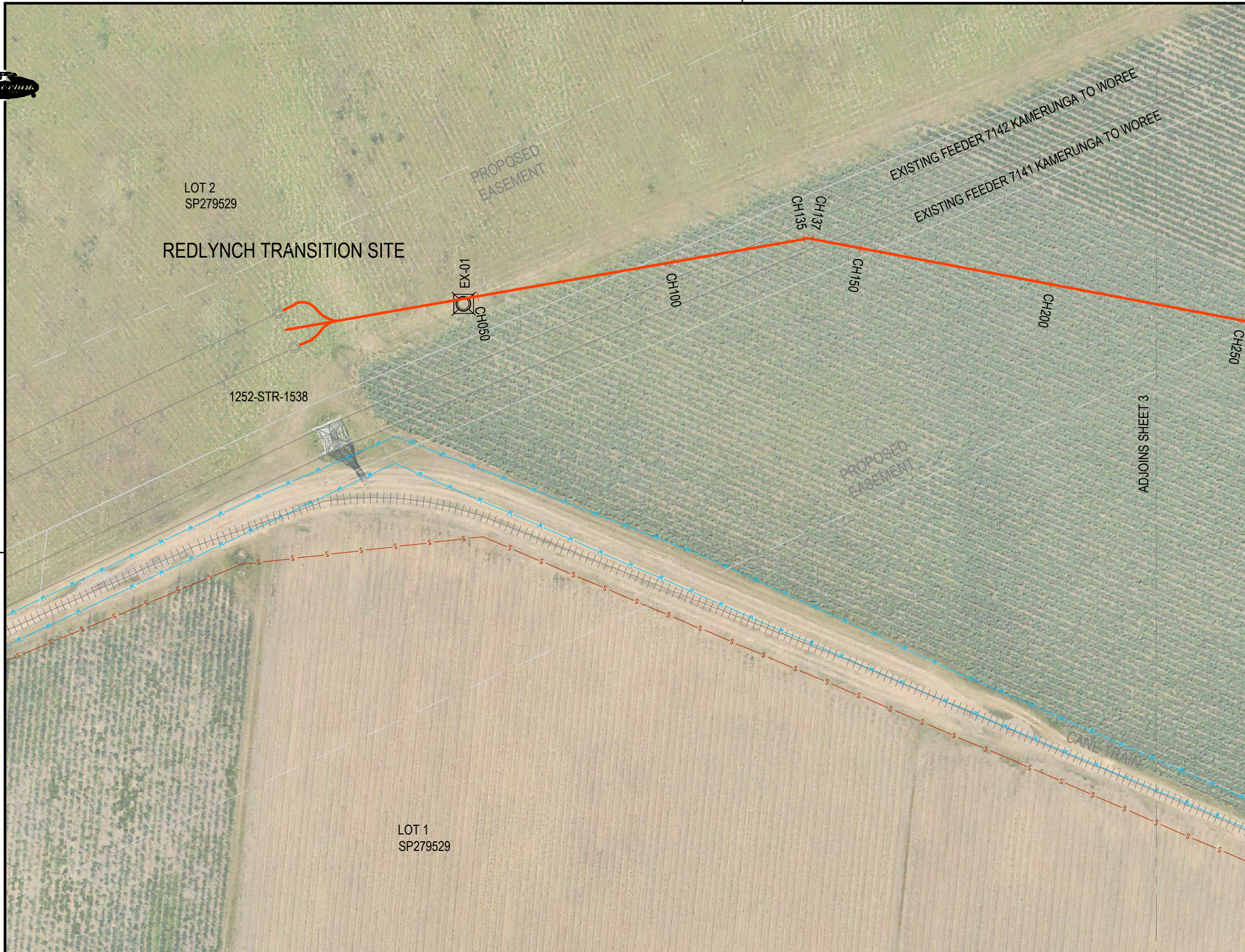




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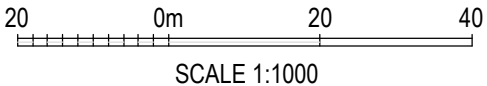
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


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3. PIPE SIZES ON THIS PLAN HAVE BEEN PLOTTED AND SHOWN IF INDICATED ON THE RELEVANT SERVICE AUTHORITY DRAWINGS.
4. COUNCIL STORMWATER RECORDS HAVE NOT BEEN SEARCHED.
5. CABLE LOCATION IS PROPOSED ONLY
6. JOINT BAY LOCATIONS ARE INDICATIVE ONLY

THE LOCATION OF SERVICES IS APPROXIMATE ONLY

LEGEND

- 132kV UNDERGROUND CABLE (PROPOSED)
- APPROX. TRENCHLESS CROSSING LOCATION. REFER J092-0001 TOPOGRAPHICAL SURVEY SCOPE REFER SCHEDULE: SHEET 37
- LV CABLE (ERGON)
- 22kV CABLE (ERGON)
- TELECOMMUNICATIONS CABLE
- SEWER PIPE
- WATER PIPE
- DRAINAGE / STORMWATER
- SERVICES CROSSING REFER SCHEDULE: SHEET 35/36/37
- INDICATIVE JOINT BAY LOCATION REFER SCHEDULE: SHEET 35
- INDICATIVE BOREHOLE LOCATION REFER SCHEDULE: SHEET 38
- INDICATIVE EXCAVATION LOCATION REFER SCHEDULE: SHEET 38
- INDICATIVE SLIT TRENCH LOCATION REFER SCHEDULE: SHEET 38



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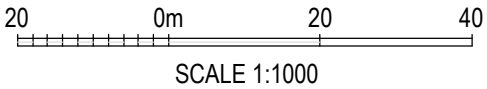
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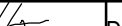

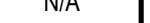
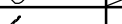
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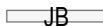





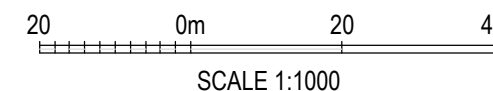
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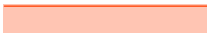











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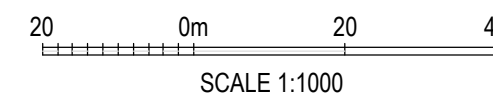
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APPROX. TRENCHLESS CROSSING LOCATION. REFER J092-0001 TOPOGRAPHICAL SURVEY SCOPE REFER SCHEDULE: SHEET 37

LV CABLE (ERGON)

22kV CABLE (ERGON)

TELECOMMUNICATIONS CABLE

SEWER PIPE

WATER PIPE

DRAINAGE / STORMWATER

SERVICES CROSSING REFER SCHEDULE: SHEET 35/36/37




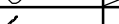
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

INDICATIVE EXCAVATION LOCATION REFER SCHEDULE: SHEET 38


INDICATIVE SLIT TRENCH LOCATION REFER SCHEDULE: SHEET 38

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ORIGINAL ISSUE DATE: 03/10/2024		DRAWN		DESIGN CHKD	N/A	<div>Powerlink QUEENSLAND</div> <div>REDLYNCH TO WOREE 132kV TRANSMISSION CABLE CONCEPT ROUTE IDENTIFICATION LAYOUT</div>	LOCATION	CONT/ORDER	PROJECT	DRG CLASS																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
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A	ORIGINAL ISSUE
	DATE: 03/10/2024

DRAWN		DESIGN CHKD	N/A
CHECKED		APP ELEC RPEQ No.	15331
DESIGNED		APP STRUC RPEQ No.	N/A
ORIGIN	PSD		
CIRCULATION	-		




REDLYNCH TO WOREE
132kv TRANSMISSION CABLE
CONCEPT ROUTE IDENTIFICATION LAYOUT

LOCATION	CONT/ORDER	PROJECT	DRG CLASS
7141 7142	-	CP.02731	A0
A3-H-159587-001			SHEET 8 OF 38
A			



- NOTES:**
- NO SURVEY HAS BEEN MADE OF THE BOUNDARIES.
 - SERVICES ON THIS PLAN HAVE BEEN PLOTTED BY STATED DIMENSIONS SCALING OR INTERPRETING THE RELEVANT SERVICE AUTHORITY DRAWINGS.
 - PIPE SIZES ON THIS PLAN HAVE BEEN PLOTTED AND SHOWN IF INDICATED ON THE RELEVANT SERVICE AUTHORITY DRAWINGS.
 - COUNCIL STORMWATER RECORDS HAVE NOT BEEN SEARCHED.
 - CABLE LOCATION IS PROPOSED ONLY
 - JOINT BAY LOCATIONS ARE INDICATIVE ONLY
- THE LOCATION OF SERVICES IS APPROXIMATE ONLY**

LEGEND



132kV UNDERGROUND CABLE (PROPOSED)

APPROX. TRENCHLESS CROSSING LOCATION. REFER J092-0001 TOPOGRAPHICAL SURVEY SCOPE REFER SCHEDULE: SHEET 37

— LV — LV —

LV CABLE (ERGON)

— 22kV — 22kV —

22kV CABLE (ERGON)

— T — T —

TELECOMMUNICATIONS CABLE

— S — S — S —


SEWER PIPE

— W — W — W —


WATER PIPE

— SW — SW —


DRAINAGE / STORMWATER




SERVICES CROSSING REFER SCHEDULE: SHEET 35/36/37




INDICATIVE JOINT BAY LOCATION REFER SCHEDULE: SHEET 35



INDICATIVE BOREHOLE LOCATION REFER SCHEDULE: SHEET 38



INDICATIVE EXCAVATION LOCATION REFER SCHEDULE: SHEET 38



INDICATIVE SLIT TRENCH LOCATION REFER SCHEDULE: SHEET 38

20

0m

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SCALE 1:1000



- NOTES:**
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LEGEND

132kV UNDERGROUND CABLE (PROPOSED)

APPROX. TRENCHLESS CROSSING LOCATION. REFER J092-0001 TOPOGRAPHICAL SURVEY SCOPE REFER SCHEDULE: SHEET 37

— LV — LV — LV CABLE (ERGON)

— 22kV — 22kV — 22kV CABLE (ERGON)

— T — T — TELECOMMUNICATIONS CABLE

— S — S — SEWER PIPE

— W — W — WATER PIPE

— SW — SW — DRAINAGE / STORMWATER

— JB — SERVICES CROSSING REFER SCHEDULE: SHEET 35/36/37

— BH-01 — INDICATIVE JOINT BAY LOCATION REFER SCHEDULE: SHEET 35

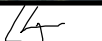
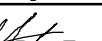

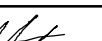
— EX-01 — INDICATIVE BOREHOLE LOCATION REFER SCHEDULE: SHEET 38

— ST-01 — INDICATIVE EXCAVATION LOCATION REFER SCHEDULE: SHEET 38

— ST-01 — INDICATIVE SLIT TRENCH LOCATION REFER SCHEDULE: SHEET 38

20 0m 20 40

SCALE 1:1000

ORIGINAL ISSUE DATE: 03/10/2024		DRAWN		DESIGN CHKD	N/A	<div>Powerlink QUEENSLAND</div> <div>REDLYNCH TO WOREE 132kV TRANSMISSION CABLE CONCEPT ROUTE IDENTIFICATION LAYOUT</div>	LOCATION	CONT/ORDER	PROJECT	DRG CLASS																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
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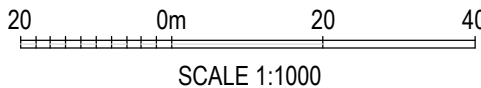
NOTES:

1. NO SURVEY HAS BEEN MADE OF THE BOUNDARIES.
2. SERVICES ON THIS PLAN HAVE BEEN PLOTTED BY STATED DIMENSIONS SCALING OR INTERPRETING THE RELEVANT SERVICE AUTHORITY DRAWINGS.
3. PIPE SIZES ON THIS PLAN HAVE BEEN PLOTTED AND SHOWN IF INDICATED ON THE RELEVANT SERVICE AUTHORITY DRAWINGS.
4. COUNCIL STORMWATER RECORDS HAVE NOT BEEN SEARCHED.
5. CABLE LOCATION IS PROPOSED ONLY
6. JOINT BAY LOCATIONS ARE INDICATIVE ONLY

THE LOCATION OF SERVICES IS APPROXIMATE ONLY

LEGEND

- 132kV UNDERGROUND CABLE (PROPOSED)
- APPROX. TRENCHLESS CROSSING LOCATION. REFER J092-0001 TOPOGRAPHICAL SURVEY SCOPE REFER SCHEDULE: SHEET 37
- LV CABLE (ERGON)
- 22kV CABLE (ERGON)
- TELECOMMUNICATIONS CABLE
- SEWER PIPE
- WATER PIPE
- DRAINAGE / STORMWATER
- SERVICES CROSSING REFER SCHEDULE: SHEET 35/36/37
- INDICATIVE JOINT BAY LOCATION REFER SCHEDULE: SHEET 35
- INDICATIVE BOREHOLE LOCATION REFER SCHEDULE: SHEET 38
- INDICATIVE EXCAVATION LOCATION REFER SCHEDULE: SHEET 38
- INDICATIVE SLIT TRENCH LOCATION REFER SCHEDULE: SHEET 38



ORIGINAL ISSUE DATE: 03/10/2024 A	DRAWN	DESIGN CHKD	N/A	Powerlink QUEENSLAND REDLYNCH TO WOREE 132kV TRANSMISSION CABLE CONCEPT ROUTE IDENTIFICATION LAYOUT	LOCATION	CONT/ORDER	PROJECT	DRG CLASS
	CHECKED	APP ELEC RPEQ No.	15331		7141 7142	-	CP.02731	A0
	DESIGNED	APP STRUC RPEQ No.	N/A		A3-H-159587-001			SHEET 10 OF 38
	ORIGIN	PSD			A			
	CIRCULATION	-						



NOTES:



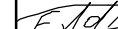

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THE LOCATION OF SERVICES IS APPROXIMATE ONLY

LEGEND

- 132kV UNDERGROUND CABLE (PROPOSED)
- APPROX. TRENCHLESS CROSSING LOCATION. REFER J092-0001 TOPOGRAPHICAL SURVEY SCOPE REFER SCHEDULE: SHEET 37
- LV CABLE (ERGON)
- 22kV CABLE (ERGON)
- TELECOMMUNICATIONS CABLE
- SEWER PIPE
- WATER PIPE
- DRAINAGE / STORMWATER
- SERVICES CROSSING REFER SCHEDULE: SHEET 35/36/37
- INDICATIVE JOINT BAY LOCATION REFER SCHEDULE: SHEET 35
- INDICATIVE BOREHOLE LOCATION REFER SCHEDULE: SHEET 38
- INDICATIVE EXCAVATION LOCATION REFER SCHEDULE: SHEET 38
- INDICATIVE SLIT TRENCH LOCATION REFER SCHEDULE: SHEET 38

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SCALE 1:1000

ORIGINAL ISSUE DATE: 03/10/2024		DRAWN		DESIGN CHKD	N/A	<div>Powerlink QUEENSLAND</div> <div>REDLYNCH TO WOREE 132kV TRANSMISSION CABLE CONCEPT ROUTE IDENTIFICATION LAYOUT</div>	LOCATION	CONT/ORDER	PROJECT	DRG CLASS		
		CHECKED		APP ELEC RPEQ No.	 15331		7141 7142	-	CP.02731	A0		
		DESIGNED		APP STRUC RPEQ No.	N/A		A3-H-159587-001				SHEET 11 OF 38	
		ORIGIN	PSD									
		CIRCULATION	-				A					



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LEGEND

132kV UNDERGROUND CABLE (PROPOSED)

APPROX. TRENCHLESS CROSSING LOCATION. REFER J092-0001 TOPOGRAPHICAL SURVEY SCOPE REFER SCHEDULE: SHEET 37

LV CABLE (ERGON)

22kV CABLE (ERGON)

TELECOMMUNICATIONS CABLE

SEWER PIPE

WATER PIPE

DRAINAGE / STORMWATER

SERVICES CROSSING REFER SCHEDULE: SHEET 35/36/37


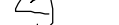
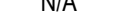
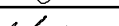
INDICATIVE JOINT BAY LOCATION REFER SCHEDULE: SHEET 35

INDICATIVE BOREHOLE LOCATION REFER SCHEDULE: SHEET 38

INDICATIVE EXCAVATION LOCATION REFER SCHEDULE: SHEET 38

INDICATIVE SLIT TRENCH LOCATION REFER SCHEDULE: SHEET 38

SCALE 1:1000

ORIGINAL ISSUE DATE: 03/10/2024		DRAWN		DESIGN CHKD	N/A	<div>Powerlink QUEENSLAND</div> <div>REDLYNCH TO WOREE 132kV TRANSMISSION CABLE CONCEPT ROUTE IDENTIFICATION LAYOUT</div>	LOCATION	CONT/ORDER	PROJECT	DRG CLASS							
		CHECKED		APP ELEC RPEQ No.	 15331		7141 7142	-	CP.02731	A0							
		DESIGNED		APP STRUC RPEQ No.	N/A		A3-H-159587-001				SHEET 12 OF 38						
		ORIGIN	PSD														
		CIRCULATION	-														
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LEGEND

132kV UNDERGROUND CABLE (PROPOSED)

APPROX. TRENCHLESS CROSSING LOCATION. REFER J092-0001 TOPOGRAPHICAL SURVEY SCOPE REFER SCHEDULE: SHEET 37

— LV — LV — LV CABLE (ERGON)

— 22kV — 22kV — 22kV CABLE (ERGON)

— T — T — TELECOMMUNICATIONS CABLE

— S — S — SEWER PIPE

— W — W — WATER PIPE

— SW — SW — DRAINAGE / STORMWATER

— JB — INDICATIVE JOINT BAY LOCATION REFER SCHEDULE: SHEET 35




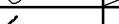
— BH-01 — INDICATIVE BOREHOLE LOCATION REFER SCHEDULE: SHEET 38

— EX-01 — INDICATIVE EXCAVATION LOCATION REFER SCHEDULE: SHEET 38

— ST-01 — INDICATIVE SLIT TRENCH LOCATION REFER SCHEDULE: SHEET 38

20 0m 20 40

SCALE 1:1000

ORIGINAL ISSUE DATE: 03/10/2024		DRAWN		DESIGN CHKD	N/A	<div>Powerlink QUEENSLAND</div> <div>REDLYNCH TO WOREE 132kV TRANSMISSION CABLE CONCEPT ROUTE IDENTIFICATION LAYOUT</div>	LOCATION	CONT/ORDER	PROJECT	DRG CLASS									
		CHECKED		APP ELEC RPEQ No.	 15331		7141 7142	-	CP.02731	A0									
		DESIGNED		APP STRUC RPEQ No.	N/A		A3-H-159587-001				SHEET 13 OF 38								
		ORIGIN	PSD																
		CIRCULATION	-																
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LEGEND

— 132kV UNDERGROUND CABLE (PROPOSED)

APPROX. TRENCHLESS CROSSING LOCATION. REFER J092-0001 TOPOGRAPHICAL SURVEY SCOPE REFER SCHEDULE: SHEET 37

— LV — LV — LV CABLE (ERGON)

— 22kV — 22kV — 22kV CABLE (ERGON)

— TELECOMMUNICATIONS CABLE

— S — S — S SEWER PIPE

— W — W — W WATER PIPE

— SW — SW — SW DRAINAGE / STORMWATER

— SERVICES CROSSING REFER SCHEDULE: SHEET 35/36/37

— JB — INDICATIVE JOINT BAY LOCATION REFER SCHEDULE: SHEET 35

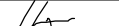
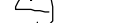

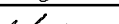
— BH-01 — INDICATIVE BOREHOLE LOCATION REFER SCHEDULE: SHEET 38

— EX-01 — INDICATIVE EXCAVATION LOCATION REFER SCHEDULE: SHEET 38

— ST-01 — INDICATIVE SLIT TRENCH LOCATION REFER SCHEDULE: SHEET 38

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SCALE 1:1000

ORIGINAL ISSUE DATE: 03/10/2024		DRAWN		DESIGN CHKD	N/A	<div>Powerlink QUEENSLAND</div> <div>REDLYNCH TO WOREE 132kV TRANSMISSION CABLE CONCEPT ROUTE IDENTIFICATION LAYOUT</div>	LOCATION	CONT/ORDER	PROJECT	DRG CLASS		
		CHECKED		APP ELEC RPEQ No.	 15331		7141 7142	-	CP.02731	A0		
		DESIGNED		APP STRUC RPEQ No.	N/A		A3-H-159587-001				SHEET 14 OF 38	
		ORIGIN	PSD									
		CIRCULATION	-				A					



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LEGEND

- 132kV UNDERGROUND CABLE (PROPOSED)
- APPROX. TRENCHLESS CROSSING LOCATION. REFER J092-0001 TOPOGRAPHICAL SURVEY SCOPE REFER SCHEDULE: SHEET 37
- LV CABLE (ERGON)
- 22kV CABLE (ERGON)
- TELECOMMUNICATIONS CABLE
- SEWER PIPE
- WATER PIPE
- DRAINAGE / STORMWATER
- SERVICES CROSSING REFER SCHEDULE: SHEET 35/36/37
- INDICATIVE JOINT BAY LOCATION REFER SCHEDULE: SHEET 35
- INDICATIVE BOREHOLE LOCATION REFER SCHEDULE: SHEET 38
- INDICATIVE EXCAVATION LOCATION REFER SCHEDULE: SHEET 38
- INDICATIVE SLIT TRENCH LOCATION REFER SCHEDULE: SHEET 38

20 0m 20 40
SCALE 1:1000

ORIGINAL ISSUE DATE: 03/10/2024 A	DRAWN	DESIGN CHKD	N/A	Powerlink QUEENSLAND REDLYNCH TO WOREE 132kV TRANSMISSION CABLE CONCEPT ROUTE IDENTIFICATION LAYOUT	LOCATION	CONT/ORDER	PROJECT	DRG CLASS
	CHECKED	APP ELEC RPEQ No.	15331		7141 7142	-	CP.02731	A0
	DESIGNED	APP STRUC RPEQ No.	N/A		A3-H-159587-001			SHEET 15 OF 38
	ORIGIN	PSD			A			
	CIRCULATION	-						



NOTES:



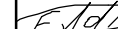

1. NO SURVEY HAS BEEN MADE OF THE BOUNDARIES.
2. SERVICES ON THIS PLAN HAVE BEEN PLOTTED BY STATED DIMENSIONS SCALING OR INTERPRETING THE RELEVANT SERVICE AUTHORITY DRAWINGS.
3. PIPE SIZES ON THIS PLAN HAVE BEEN PLOTTED AND SHOWN IF INDICATED ON THE RELEVANT SERVICE AUTHORITY DRAWINGS.
4. COUNCIL STORMWATER RECORDS HAVE NOT BEEN SEARCHED.
5. CABLE LOCATION IS PROPOSED ONLY
6. JOINT BAY LOCATIONS ARE INDICATIVE ONLY

THE LOCATION OF SERVICES IS APPROXIMATE ONLY

LEGEND

- 132kV UNDERGROUND CABLE (PROPOSED)
- APPROX. TRENCHLESS CROSSING LOCATION. REFER J092-0001 TOPOGRAPHICAL SURVEY SCOPE REFER SCHEDULE: SHEET 37
- LV CABLE (ERGON)
- 22kV CABLE (ERGON)
- TELECOMMUNICATIONS CABLE
- SEWER PIPE
- WATER PIPE
- DRAINAGE / STORMWATER
- SERVICES CROSSING REFER SCHEDULE: SHEET 35/36/37
- INDICATIVE JOINT BAY LOCATION REFER SCHEDULE: SHEET 35
- INDICATIVE BOREHOLE LOCATION REFER SCHEDULE: SHEET 38
- INDICATIVE EXCAVATION LOCATION REFER SCHEDULE: SHEET 38
- INDICATIVE SLIT TRENCH LOCATION REFER SCHEDULE: SHEET 38



ORIGINAL ISSUE DATE: 03/10/2024		DRAWN		DESIGN CHKD	N/A	<div>Powerlink QUEENSLAND</div> <div>REDLYNCH TO WOREE 132kV TRANSMISSION CABLE CONCEPT ROUTE IDENTIFICATION LAYOUT</div>	LOCATION	CONT/ORDER	PROJECT	DRG CLASS	
		CHECKED		APP ELEC RPEQ No.	 15331		7141 7142	-	CP.02731	A0	
		DESIGNED		APP STRUC RPEQ No.	N/A		A3-H-159587-001				SHEET 16 OF 38
		ORIGIN	PSD								
		CIRCULATION	-								
A											



NOTES:





1. NO SURVEY HAS BEEN MADE OF THE BOUNDARIES.
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4. COUNCIL STORMWATER RECORDS HAVE NOT BEEN SEARCHED.
5. CABLE LOCATION IS PROPOSED ONLY
6. JOINT BAY LOCATIONS ARE INDICATIVE ONLY

THE LOCATION OF SERVICES IS APPROXIMATE ONLY

LEGEND

- 132kV UNDERGROUND CABLE (PROPOSED)
- APPROX. TRENCHLESS CROSSING LOCATION. REFER J092-0001 TOPOGRAPHICAL SURVEY SCOPE REFER SCHEDULE: SHEET 37
- LV CABLE (ERGON)
- 22kV CABLE (ERGON)
- TELECOMMUNICATIONS CABLE
- SEWER PIPE
- WATER PIPE
- DRAINAGE / STORMWATER
- SERVICES CROSSING REFER SCHEDULE: SHEET 35/36/37
- INDICATIVE JOINT BAY LOCATION REFER SCHEDULE: SHEET 35
- INDICATIVE BOREHOLE LOCATION REFER SCHEDULE: SHEET 38
- INDICATIVE EXCAVATION LOCATION REFER SCHEDULE: SHEET 38
- INDICATIVE SLIT TRENCH LOCATION REFER SCHEDULE: SHEET 38

20 0m 20 40
SCALE 1:1000


ORIGINAL ISSUE DATE: 03/10/2024		DRAWN		DESIGN CHKD	N/A	Powerlink QUEENSLAND	LOCATION	CONT/ORDER	PROJECT	DRG CLASS		
		CHECKED		APP ELEC RPEQ No.	 15331	REDLYNCH TO WOREE 132kV TRANSMISSION CABLE CONCEPT ROUTE IDENTIFICATION LAYOUT	7141 7142	-	CP.02731	A0		
		DESIGNED		APP STRUC RPEQ No.	N/A		A3-H-159587-001				SHEET 17 OF 38	
		ORIGIN	PSD									
		CIRCULATION	-				A					





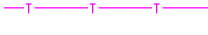
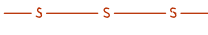






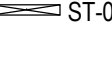


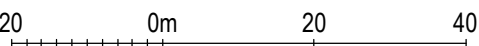
- NOTES:**
1. NO SURVEY HAS BEEN MADE OF THE BOUNDARIES.
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 3. PIPE SIZES ON THIS PLAN HAVE BEEN PLOTTED AND SHOWN IF INDICATED ON THE RELEVANT SERVICE AUTHORITY DRAWINGS.
 4. COUNCIL STORMWATER RECORDS HAVE NOT BEEN SEARCHED.
 5. CABLE LOCATION IS PROPOSED ONLY
 6. JOINT BAY LOCATIONS ARE INDICATIVE ONLY

THE LOCATION OF SERVICES IS APPROXIMATE ONLY

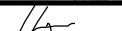
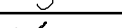
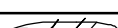

LEGEND



-  132kV UNDERGROUND CABLE (PROPOSED)
-  APPROX. TRENCHLESS CROSSING LOCATION. REFER J092-0001 TOPOGRAPHICAL SURVEY SCOPE REFER SCHEDULE: SHEET 37
-  LV CABLE (ERGON)
-  22kV CABLE (ERGON)
-  TELECOMMUNICATIONS CABLE
-  SEWER PIPE
-  WATER PIPE
-  DRAINAGE / STORMWATER
-  SERVICES CROSSING REFER SCHEDULE: SHEET 35/36/37
-  INDICATIVE JOINT BAY LOCATION REFER SCHEDULE: SHEET 35
-  INDICATIVE BOREHOLE LOCATION REFER SCHEDULE: SHEET 38
-  INDICATIVE EXCAVATION LOCATION REFER SCHEDULE: SHEET 38
-  INDICATIVE SLIT TRENCH LOCATION REFER SCHEDULE: SHEET 38



SCALE 1:1000

ORIGINAL ISSUE DATE: 03/10/2024	DRAWN		DESIGN CHKD	N/A	<div>Powerlink QUEENSLAND</div> <div>REDLYNCH TO WOREE 132kV TRANSMISSION CABLE CONCEPT ROUTE IDENTIFICATION LAYOUT</div>	LOCATION	CONT/ORDER	PROJECT	DRG CLASS					
	CHECKED		APP ELEC RPEQ No.	 15331		7141 7142	-	CP.02731	A0					
	DESIGNED		APP STRUC RPEQ No.	N/A		A3-H-159587-001				SHEET 18 OF 38				
	ORIGIN	PSD												
	A	CIRCULATION	-			A								



- NOTES:**
1. NO SURVEY HAS BEEN MADE OF THE BOUNDARIES.
 2. SERVICES ON THIS PLAN HAVE BEEN PLOTTED BY STATED DIMENSIONS SCALING OR INTERPRETING THE RELEVANT SERVICE AUTHORITY DRAWINGS.
 3. PIPE SIZES ON THIS PLAN HAVE BEEN PLOTTED AND SHOWN IF INDICATED ON THE RELEVANT SERVICE AUTHORITY DRAWINGS.
 4. COUNCIL STORMWATER RECORDS HAVE NOT BEEN SEARCHED.
 5. CABLE LOCATION IS PROPOSED ONLY
 6. JOINT BAY LOCATIONS ARE INDICATIVE ONLY

THE LOCATION OF SERVICES IS APPROXIMATE ONLY

LEGEND

132kV UNDERGROUND CABLE (PROPOSED)

APPROX. TRENCHLESS CROSSING LOCATION. REFER J092-0001 TOPOGRAPHICAL SURVEY SCOPE REFER SCHEDULE: SHEET 37

LV CABLE (ERGON)

22kV CABLE (ERGON)

TELECOMMUNICATIONS CABLE

SEWER PIPE

WATER PIPE

DRAINAGE / STORMWATER

SERVICES CROSSING REFER SCHEDULE: SHEET 35/36/37

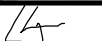
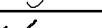
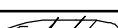

INDICATIVE JOINT BAY LOCATION REFER SCHEDULE: SHEET 35

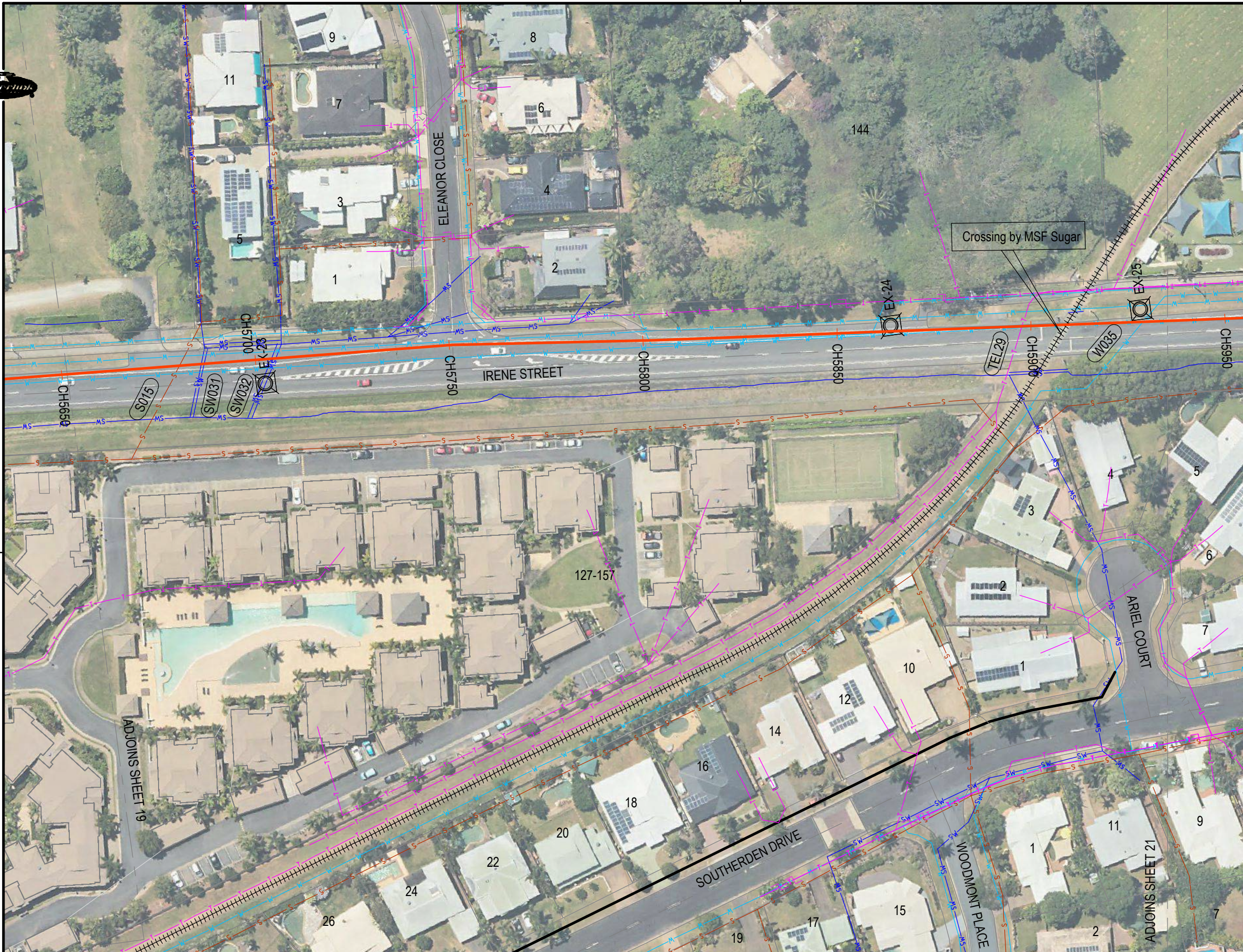
INDICATIVE BOREHOLE LOCATION REFER SCHEDULE: SHEET 38

INDICATIVE EXCAVATION LOCATION REFER SCHEDULE: SHEET 38

INDICATIVE SLIT TRENCH LOCATION REFER SCHEDULE: SHEET 38

SCALE 1:1000

ORIGINAL ISSUE DATE: 03/10/2024		DRAWN		DESIGN CHKD	N/A	<div>Powerlink QUEENSLAND</div> <div>REDLYNCH TO WOREE 132kV TRANSMISSION CABLE CONCEPT ROUTE IDENTIFICATION LAYOUT</div>	LOCATION	CONT/ORDER	PROJECT	DRG CLASS		
		CHECKED		APP ELEC RPEQ No.	 15331		7141 7142	-	CP.02731	A0		
		DESIGNED		APP STRUC RPEQ No.	N/A		A3-H-159587-001				SHEET 19 OF 38	
		ORIGIN	PSD									
		CIRCULATION	-				A					



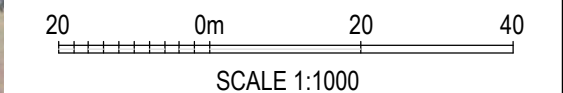
NOTES:

1. NO SURVEY HAS BEEN MADE OF THE BOUNDARIES.
2. SERVICES ON THIS PLAN HAVE BEEN PLOTTED BY STATED DIMENSIONS SCALING OR INTERPRETING THE RELEVANT SERVICE AUTHORITY DRAWINGS.
3. PIPE SIZES ON THIS PLAN HAVE BEEN PLOTTED AND SHOWN IF INDICATED ON THE RELEVANT SERVICE AUTHORITY DRAWINGS.
4. COUNCIL STORMWATER RECORDS HAVE NOT BEEN SEARCHED.
5. CABLE LOCATION IS PROPOSED ONLY
6. JOINT BAY LOCATIONS ARE INDICATIVE ONLY

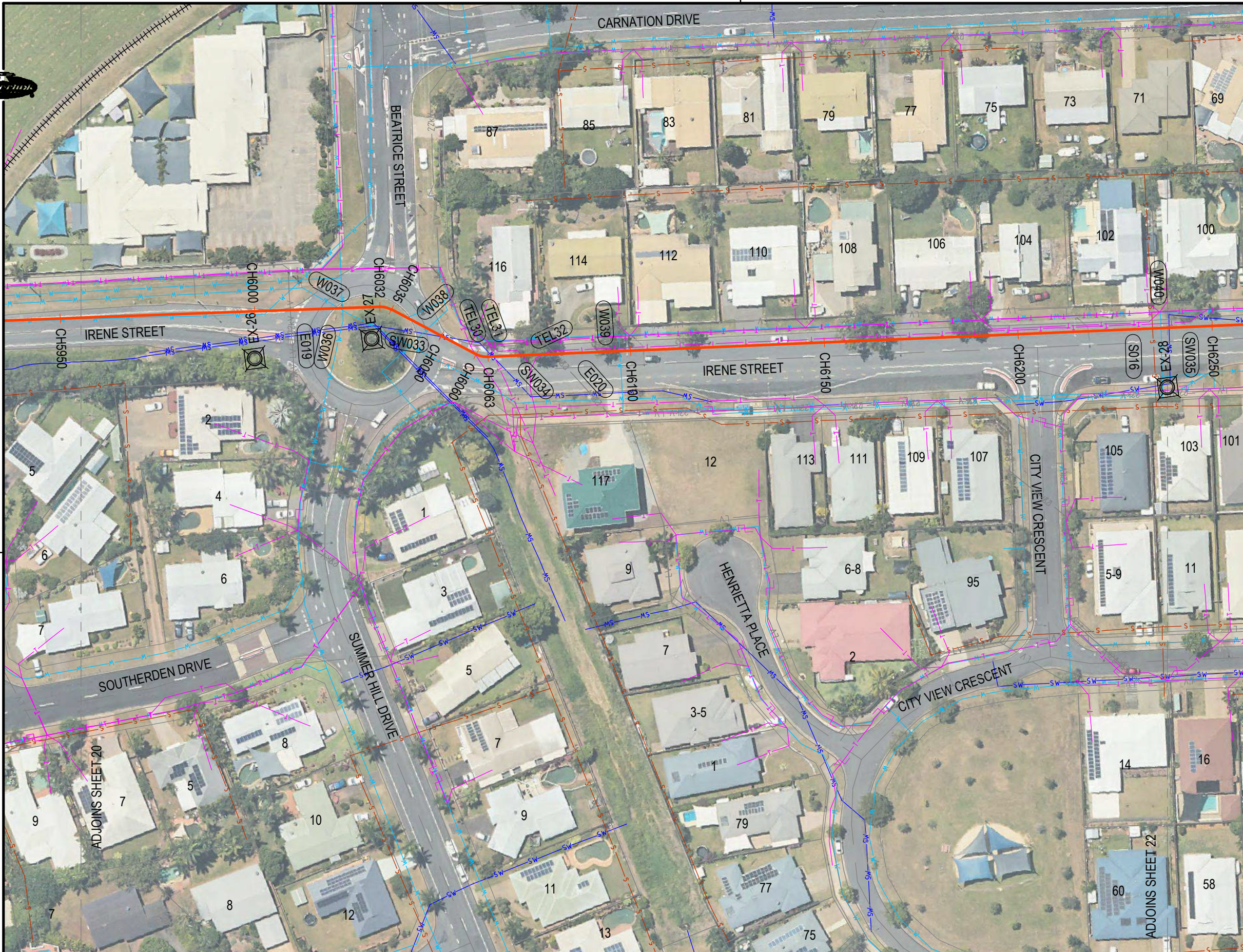
THE LOCATION OF SERVICES IS APPROXIMATE ONLY

LEGEND

- 132kV UNDERGROUND CABLE (PROPOSED)
- APPROX. TRENCHLESS CROSSING LOCATION. REFER J092-0001 TOPOGRAPHICAL SURVEY SCOPE REFER SCHEDULE: SHEET 37
- LV CABLE (ERGON)
- 22kV CABLE (ERGON)
- TELECOMMUNICATIONS CABLE
- SEWER PIPE
- WATER PIPE
- DRAINAGE / STORMWATER
- SERVICES CROSSING REFER SCHEDULE: SHEET 35/36/37
- INDICATIVE JOINT BAY LOCATION REFER SCHEDULE: SHEET 35
- INDICATIVE BOREHOLE LOCATION REFER SCHEDULE: SHEET 38
- INDICATIVE EXCAVATION LOCATION REFER SCHEDULE: SHEET 38
- INDICATIVE SLIT TRENCH LOCATION REFER SCHEDULE: SHEET 38



ORIGINAL ISSUE DATE: 03/10/2024 A	DRAWN			DESIGN CHKD		N/A	Powerlink QUEENSLAND REDLYNCH TO WOREE 132kV TRANSMISSION CABLE CONCEPT ROUTE IDENTIFICATION LAYOUT	LOCATION	CONT/ORDER	PROJECT	DRG CLASS
	CHECKED			APP ELEC RPEQ No.		15331		7141 7142	-	CP.02731	A0
	DESIGNED			APP STRUC RPEQ No.		N/A		A3-H-159587-001			SHEET 20 OF 38
	ORIGIN			PSD				A			
	CIRCULATION										



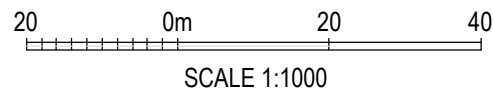
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


1. NO SURVEY HAS BEEN MADE OF THE BOUNDARIES.
2. SERVICES ON THIS PLAN HAVE BEEN PLOTTED BY STATED DIMENSIONS SCALING OR INTERPRETING THE RELEVANT SERVICE AUTHORITY DRAWINGS.
3. PIPE SIZES ON THIS PLAN HAVE BEEN PLOTTED AND SHOWN IF INDICATED ON THE RELEVANT SERVICE AUTHORITY DRAWINGS.
4. COUNCIL STORMWATER RECORDS HAVE NOT BEEN SEARCHED.
5. CABLE LOCATION IS PROPOSED ONLY
6. JOINT BAY LOCATIONS ARE INDICATIVE ONLY

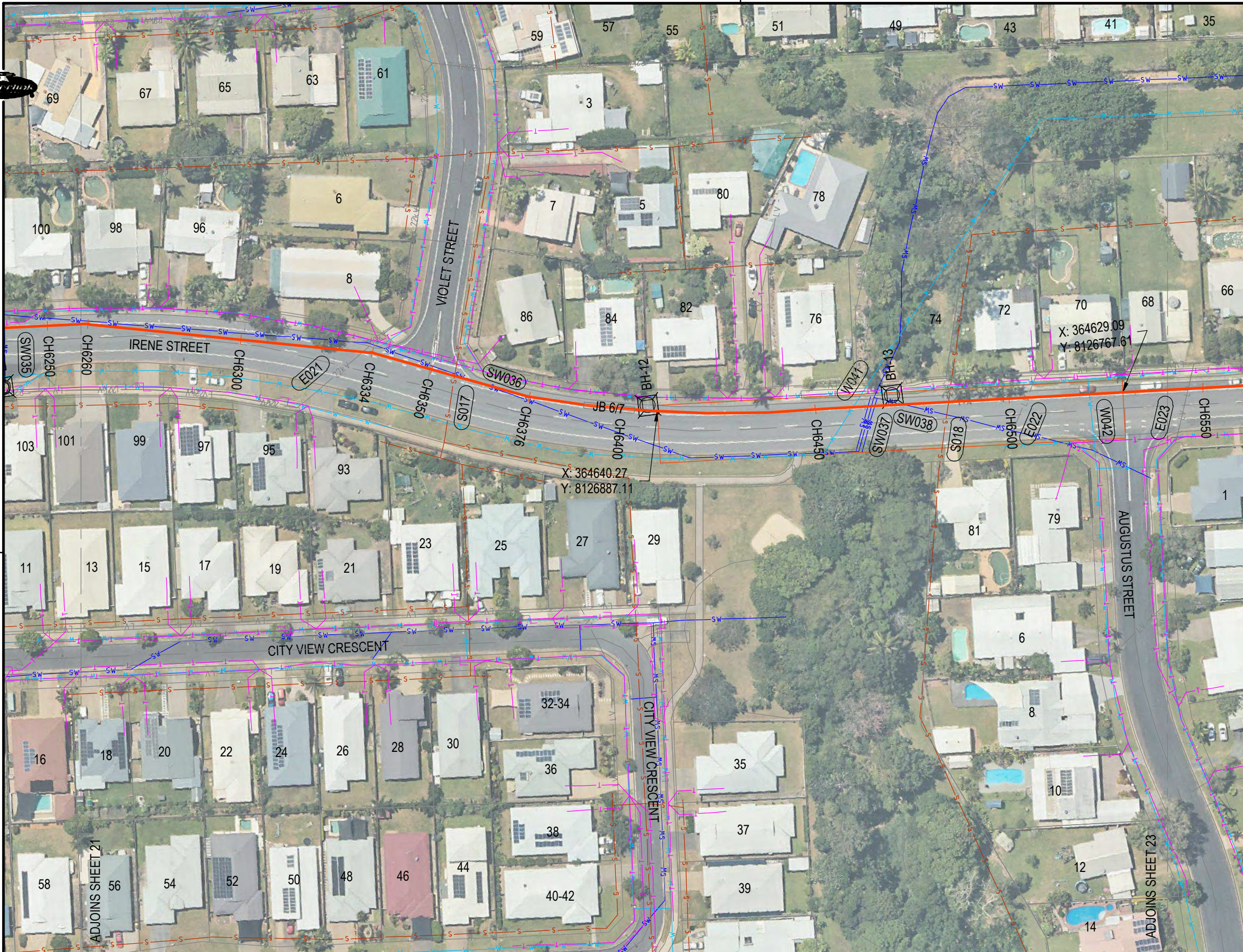
THE LOCATION OF SERVICES IS APPROXIMATE ONLY

LEGEND

- 132kV UNDERGROUND CABLE (PROPOSED)
- APPROX. TRENCHLESS CROSSING LOCATION. REFER J092-0001 TOPOGRAPHICAL SURVEY SCOPE REFER SCHEDULE: SHEET 37
- LV CABLE (ERGON)
- 22kV CABLE (ERGON)
- TELECOMMUNICATIONS CABLE
- SEWER PIPE
- WATER PIPE
- DRAINAGE / STORMWATER
- SERVICES CROSSING REFER SCHEDULE: SHEET 35/36/37
- INDICATIVE JOINT BAY LOCATION REFER SCHEDULE: SHEET 35
- INDICATIVE BOREHOLE LOCATION REFER SCHEDULE: SHEET 38
- INDICATIVE EXCAVATION LOCATION REFER SCHEDULE: SHEET 38
- INDICATIVE SLIT TRENCH LOCATION REFER SCHEDULE: SHEET 38



ORIGINAL ISSUE DATE: 03/10/2024		DRAWN		DESIGN CHKD	N/A	<div>Powerlink QUEENSLAND</div> <div>REDLYNCH TO WOREE 132kV TRANSMISSION CABLE CONCEPT ROUTE IDENTIFICATION LAYOUT</div>	LOCATION	CONT/ORDER	PROJECT	DRG CLASS	
		CHECKED		APP ELEC RPEQ No.	 15331		7141 7142	-	CP.02731	A0	
		DESIGNED		APP STRUC RPEQ No.	N/A		A3-H-159587-001				SHEET 21 OF 38
		ORIGIN	PSD								
		CIRCULATION	-				A				



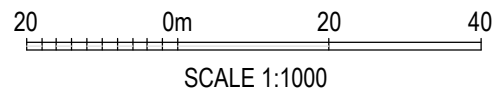
NOTES:

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4. COUNCIL STORMWATER RECORDS HAVE NOT BEEN SEARCHED.
5. CABLE LOCATION IS PROPOSED ONLY
6. JOINT BAY LOCATIONS ARE INDICATIVE ONLY

THE LOCATION OF SERVICES IS APPROXIMATE ONLY

LEGEND

- 132kV UNDERGROUND CABLE (PROPOSED)
- APPROX. TRENCHLESS CROSSING LOCATION. REFER J092-0001 TOPOGRAPHICAL SURVEY SCOPE REFER SCHEDULE: SHEET 37
- LV CABLE (ERGON)
- 22kV CABLE (ERGON)
- TELECOMMUNICATIONS CABLE
- SEWER PIPE
- WATER PIPE
- DRAINAGE / STORMWATER
- SERVICES CROSSING REFER SCHEDULE: SHEET 35/36/37
- INDICATIVE JOINT BAY LOCATION REFER SCHEDULE: SHEET 35
- INDICATIVE BOREHOLE LOCATION REFER SCHEDULE: SHEET 38
- INDICATIVE EXCAVATION LOCATION REFER SCHEDULE: SHEET 38
- INDICATIVE SLIT TRENCH LOCATION REFER SCHEDULE: SHEET 38



ORIGINAL ISSUE DATE: 03/10/2024 A	DRAWN	DESIGN CHKD	N/A	Powerlink QUEENSLAND REDLYNCH TO WOREE 132kV TRANSMISSION CABLE CONCEPT ROUTE IDENTIFICATION LAYOUT	LOCATION	CONT/ORDER	PROJECT	DRG CLASS
	CHECKED	APP ELEC RPEQ No.	15331		7141 7142	-	CP.02731	A0
	DESIGNED	APP STRUC RPEQ No.	N/A		A3-H-159587-001			SHEET 22 OF 38
	ORIGIN	PSD			A			
	CIRCULATION							



- NOTES:**
1. NO SURVEY HAS BEEN MADE OF THE BOUNDARIES.
 2. SERVICES ON THIS PLAN HAVE BEEN PLOTTED BY STATED DIMENSIONS SCALING OR INTERPRETING THE RELEVANT SERVICE AUTHORITY DRAWINGS.
 3. PIPE SIZES ON THIS PLAN HAVE BEEN PLOTTED AND SHOWN IF INDICATED ON THE RELEVANT SERVICE AUTHORITY DRAWINGS.
 4. COUNCIL STORMWATER RECORDS HAVE NOT BEEN SEARCHED.
 5. CABLE LOCATION IS PROPOSED ONLY
 6. JOINT BAY LOCATIONS ARE INDICATIVE ONLY
- THE LOCATION OF SERVICES IS APPROXIMATE ONLY**

LEGEND

132kV UNDERGROUND CABLE (PROPOSED)

APPROX. TRENCHLESS CROSSING LOCATION. REFER J092-0001 TOPOGRAPHICAL SURVEY SCOPE REFER SCHEDULE: SHEET 37

— LV — LV — LV CABLE (ERGON)

— 22kV — 22kV — 22kV CABLE (ERGON)

— T — T — TELECOMMUNICATIONS CABLE

— S — S — SEWER PIPE

— W — W — WATER PIPE

— SW — SW — DRAINAGE / STORMWATER

— JB — INDICATIVE JOINT BAY LOCATION REFER SCHEDULE: SHEET 35





— BH-01 — INDICATIVE BOREHOLE LOCATION REFER SCHEDULE: SHEET 38

— EX-01 — INDICATIVE EXCAVATION LOCATION REFER SCHEDULE: SHEET 38

— ST-01 — INDICATIVE SLIT TRENCH LOCATION REFER SCHEDULE: SHEET 38

20 0m 20 40

SCALE 1:1000

ORIGINAL ISSUE DATE: 03/10/2024		DRAWN		DESIGN CHKD	N/A	<div>Powerlink QUEENSLAND</div> <div>REDLYNCH TO WOREE 132kV TRANSMISSION CABLE CONCEPT ROUTE IDENTIFICATION LAYOUT</div>	LOCATION	CONT/ORDER	PROJECT	DRG CLASS		
		CHECKED		APP ELEC RPEQ No.	 15331		7141 7142	-	CP.02731	A0		
		DESIGNED		APP STRUC RPEQ No.	N/A		A3-H-159587-001				SHEET 23 OF 38	
		ORIGIN	PSD									
		CIRCULATION	-				A					



- NOTES:**
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 4. COUNCIL STORMWATER RECORDS HAVE NOT BEEN SEARCHED.
 5. CABLE LOCATION IS PROPOSED ONLY
 6. JOINT BAY LOCATIONS ARE INDICATIVE ONLY

THE LOCATION OF SERVICES IS APPROXIMATE ONLY

LEGEND

132kV UNDERGROUND CABLE (PROPOSED)

APPROX. TRENCHLESS CROSSING LOCATION. REFER J092-0001 TOPOGRAPHICAL SURVEY SCOPE REFER SCHEDULE: SHEET 37

— LV — LV — LV CABLE (ERGON)

— 22kV — 22kV — 22kV CABLE (ERGON)

— T — T — TELECOMMUNICATIONS CABLE

— S — S — SEWER PIPE

— W — W — WATER PIPE

— SW — SW — DRAINAGE / STORMWATER

SERVICES CROSSING REFER SCHEDULE: SHEET 35/36/37

JB INDICATIVE JOINT BAY LOCATION REFER SCHEDULE: SHEET 35





BH-01 INDICATIVE BOREHOLE LOCATION REFER SCHEDULE: SHEET 38

EX-01 INDICATIVE EXCAVATION LOCATION REFER SCHEDULE: SHEET 38

ST-01 INDICATIVE SLIT TRENCH LOCATION REFER SCHEDULE: SHEET 38

20 0m 20 40

SCALE 1:1000

ORIGINAL ISSUE DATE: 03/10/2024		DRAWN		DESIGN CHKD	N/A	<div>Powerlink QUEENSLAND</div> <div>REDLYNCH TO WOREE 132kV TRANSMISSION CABLE CONCEPT ROUTE IDENTIFICATION LAYOUT</div>	LOCATION	CONT/ORDER	PROJECT	DRG CLASS				
		CHECKED		APP ELEC RPEQ No.	 15331		7141 7142	-	CP.02731	A0				
		DESIGNED		APP STRUC RPEQ No.	N/A		A3-H-159587-001				SHEET			
		ORIGIN	PSD								24 OF 38			
		CIRCULATION	-				A							
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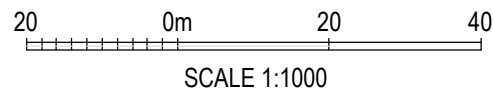
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

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5. CABLE LOCATION IS PROPOSED ONLY
6. JOINT BAY LOCATIONS ARE INDICATIVE ONLY

THE LOCATION OF SERVICES IS APPROXIMATE ONLY

LEGEND

- 132kV UNDERGROUND CABLE (PROPOSED)
- APPROX. TRENCHLESS CROSSING LOCATION. REFER J092-0001 TOPOGRAPHICAL SURVEY SCOPE REFER SCHEDULE: SHEET 37
- LV CABLE (ERGON)
- 22kV CABLE (ERGON)
- TELECOMMUNICATIONS CABLE
- SEWER PIPE
- WATER PIPE
- DRAINAGE / STORMWATER
- SERVICES CROSSING REFER SCHEDULE: SHEET 35/36/37
- INDICATIVE JOINT BAY LOCATION REFER SCHEDULE: SHEET 35
- INDICATIVE BOREHOLE LOCATION REFER SCHEDULE: SHEET 38
- INDICATIVE EXCAVATION LOCATION REFER SCHEDULE: SHEET 38
- INDICATIVE SLIT TRENCH LOCATION REFER SCHEDULE: SHEET 38



ORIGINAL ISSUE DATE: 03/10/2024 A	DRAWN 			DESIGN CHKD	N/A	 REDLYNCH TO WOREE 132kV TRANSMISSION CABLE CONCEPT ROUTE IDENTIFICATION LAYOUT	LOCATION	CONT/ORDER	PROJECT	DRG CLASS
	CHECKED 			APP ELEC RPEQ No.	15331		7141 7142	-	CP.02731	A0
	DESIGNED 			APP STRUC RPEQ No.	N/A		A3-H-159587-001			SHEET 25 OF 38
	ORIGIN			PSD						
	CIRCULATION			-			A			

POWERLINK QUEENSLAND IS THE TRADING NAME OF THE QUEENSLAND ELECTRICITY TRANSMISSION CORPORATION LIMITED ACN 078 849 233

283x394

CAD



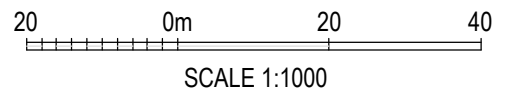
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ORIGINAL ISSUE DATE: 03/10/2024 A	DRAWN	DESIGN CHKD	N/A	Powerlink QUEENSLAND REDLYNCH TO WOREE 132kV TRANSMISSION CABLE CONCEPT ROUTE IDENTIFICATION LAYOUT	LOCATION	CONT/ORDER	PROJECT	DRG CLASS
	CHECKED	APP ELEC RPEQ No.	15331		7141 7142	-	CP.02731	A0
	DESIGNED	APP STRUC RPEQ No.	N/A		A3-H-159587-001			SHEET 26 OF 38
	ORIGIN	PSD			A			
	CIRCULATION							

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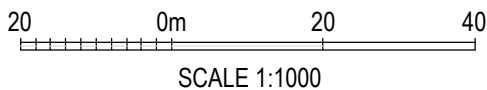
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LEGEND

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- APPROX. TRENCHLESS CROSSING LOCATION. REFER J092-0001 TOPOGRAPHICAL SURVEY SCOPE REFER SCHEDULE: SHEET 37
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ORIGINAL ISSUE DATE: 03/10/2024 A	DRAWN	DESIGN CHKD	N/A	Powerlink QUEENSLAND REDLYNCH TO WOREE 132kV TRANSMISSION CABLE CONCEPT ROUTE IDENTIFICATION LAYOUT	LOCATION	CONT/ORDER	PROJECT	DRG CLASS
	CHECKED	APP ELEC RPEQ No.	15331		7141 7142	-	CP.02731	A0
	DESIGNED	APP STRUC RPEQ No.	N/A		A3-H-159587-001			SHEET 27 OF 38
	ORIGIN	PSD			A			
	CIRCULATION							

POWERLINK QUEENSLAND IS THE TRADING NAME OF THE QUEENSLAND ELECTRICITY TRANSMISSION CORPORATION LIMITED ACN 078 849 233

283x394

CAD



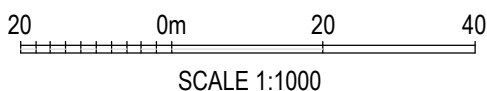
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- INDICATIVE SLIT TRENCH LOCATION REFER SCHEDULE: SHEET 38



ORIGINAL ISSUE DATE: 03/10/2024	A	DRAWN		DESIGN CHKD	N/A	<div>Powerlink QUEENSLAND</div> <div>REDLYNCH TO WOREE 132kV TRANSMISSION CABLE CONCEPT ROUTE IDENTIFICATION LAYOUT</div>	LOCATION	CONT/ORDER	PROJECT	DRG CLASS	
		CHECKED		APP ELEC RPEQ No.	 15331		7141 7142	-	CP.02731	A0	
		DESIGNED		APP STRUC RPEQ No.	N/A		A3-H-159587-001				SHEET 28 OF 38
		ORIGIN	PSD								
		CIRCULATION	-								



NOTES:





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ORIGINAL ISSUE DATE: 03/10/2024		DRAWN		DESIGN CHKD	N/A	<div>Powerlink QUEENSLAND</div> <div>REDLYNCH TO WOREE 132kV TRANSMISSION CABLE CONCEPT ROUTE IDENTIFICATION LAYOUT</div>	LOCATION	CONT/ORDER	PROJECT	DRG CLASS							
		CHECKED		APP ELEC RPEQ No.	 15331		7141 7142	-	CP.02731	A0							
		DESIGNED		APP STRUC RPEQ No.	N/A		A3-H-159587-001				SHEET 29 OF 38						
		ORIGIN	PSD														
		CIRCULATION	-														
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


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LEGEND



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SCALE 1:1000

ORIGINAL ISSUE DATE: 03/10/2024		DRAWN		DESIGN CHKD	N/A	<div>Powerlink QUEENSLAND</div> <div>REDLYNCH TO WOREE 132kV TRANSMISSION CABLE CONCEPT ROUTE IDENTIFICATION LAYOUT</div>	LOCATION	CONT/ORDER	PROJECT	DRG CLASS					
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		DESIGNED		APP STRUC RPEQ No.	N/A		A3-H-159587-001				SHEET 30 OF 38				
		ORIGIN		PSD											
		CIRCULATION		-											
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LEGEND

132kV UNDERGROUND CABLE (PROPOSED)

APPROX. TRENCHLESS CROSSING LOCATION. REFER J092-0001 TOPOGRAPHICAL SURVEY SCOPE REFER SCHEDULE: SHEET 37

LV CABLE (ERGON)

22kV CABLE (ERGON)

TELECOMMUNICATIONS CABLE

SEWER PIPE

WATER PIPE

DRAINAGE / STORMWATER

SERVICES CROSSING REFER SCHEDULE: SHEET 35/36/37


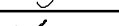
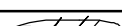
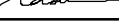
INDICATIVE JOINT BAY LOCATION REFER SCHEDULE: SHEET 35

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INDICATIVE EXCAVATION LOCATION REFER SCHEDULE: SHEET 38

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SCALE 1:1000

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		DESIGNED		APP STRUC RPEQ No.	N/A		A3-H-159587-001				SHEET 31 OF 38					
		ORIGIN	PSD													
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TELECOMMUNICATIONS CABLE

SEWER PIPE

WATER PIPE

DRAINAGE / STORMWATER

SERVICES CROSSING REFER SCHEDULE: SHEET 35/36/37



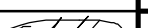
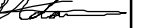
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		ORIGIN	PSD									
		CIRCULATION	-				A					




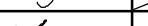
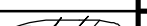
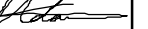
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
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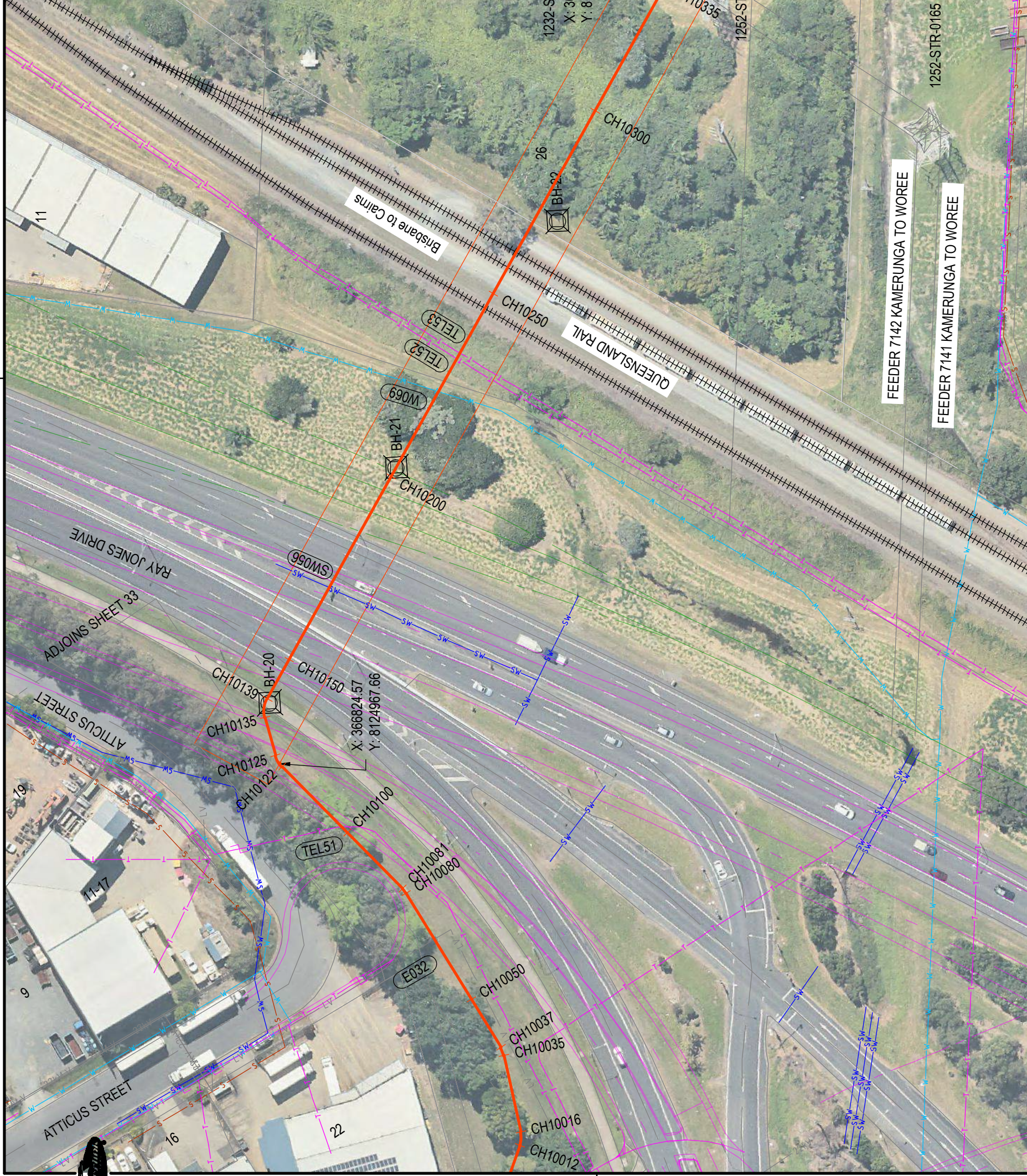
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SCALE 1:1000

ORIGINAL ISSUE DATE: 03/10/2024 A	DRAWN				DESIGN CHKD	N/A	<div>Powerlink QUEENSLAND</div> <div>REDLYNCH TO WOREE 132kV TRANSMISSION CABLE CONCEPT ROUTE IDENTIFICATION LAYOUT</div>	LOCATION	CONT/ORDER	PROJECT	DRG CLASS	
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	DESIGNED				APP STRUC RPEQ No.	N/A		A3-H-159587-001				SHEET 33 OF 38
	ORIGIN		PSD									
	CIRCULATION		-									

DRAWN		DESIGN CHKD	N/A
CHECKED		APP ELEC RPEQ No.	15331
DESIGNED		APP STRUC RPEQ No.	N/A
ORIGIN	PSD		
CIRCULATION	-		





DRAINAGE / STORMWATER PIPE CROSSINGS						
ITEM	LOCATION REFERENCE	SERVICE TYPE	SIZE	MATERIAL	DEPTH	SHEET NUMBER
SW001	SHALE STREET	U/G PIPE	675	RCP	1300	05
SW002	SHALE STREET	U/G PIPE	375	RCP	500	06
SW003	CHRISTIE DRIVE	U/G PIPE	750	RCP	1120	07
SW004	BRINSMEAD ROAD	OPEN DRAIN	-	CONCRETE	600	07
SW005	BRINSMEAD ROAD	ABANDONED	525	RCP	1610	07
SW006	BRINSMEAD TERRACE	U/G PIPE	600	RCP	1300	09
SW007	RAMSEY DRIVE	2 x U/G PIPE	900	RCP	2200	12
SW008	RAMSEY DRIVE	2 x U/G PIPE	900	RCP	-	12
SW009	RAMSEY DRIVE	U/G PIPE	900	RCP	-	12
SW010	RAMSEY DRIVE	CULVERT	2100 x 1500	RCBC	-	12 / 13
SW011	RAMSEY DRIVE	U/G PIPE	525	RCP	-	13
SW012	RAMSEY DRIVE	CULVERT	2400 x 2400	RCBC	-	13
SW013	RAMSEY DRIVE	U/G PIPE	375	RCP	1500	14
SW014	RAMSEY DRIVE	U/G PIPE	525	RCP	2300	14
SW015	RAMSEY DRIVE	U/G PIPE	525	RCP	1500	14
SW016	RAMSEY DRIVE	2 x CULVERT	2400 x 2400	RCBC	-	14
SW017	RAMSEY DRIVE	U/G PIPE	375	RCP	1100	15
SW018	RAMSEY DRIVE	CULVERT	2400 x 2400	RCBC	-	15
SW019	RAMSEY DRIVE	U/G PIPE	450	RCP	1900	15
SW020	RAMSEY DRIVE	U/G PIPE	375	RCP	1100	16
SW021	RAMSEY DRIVE	U/G PIPE	750	RCP	2000	16
SW022	RAMSEY DRIVE	U/G PIPE	1650	RCP	3100	16
SW023	RAMSEY DRIVE	U/G PIPE	375	RCP	1500	17
SW024	RAMSEY DRIVE	U/G PIPE	450	RCP	8300	17
SW025	RAMSEY DRIVE	U/G PIPE	1200	RCP	2600	17
SW026	RAMSEY DRIVE	U/G PIPE	900	RCP	2100	17
SW027	RAMSEY DRIVE	U/G PIPE	375	RCP	1300	17
SW028	RAMSEY DRIVE	U/G PIPE	375	RCP	700	18
SW029	RAMSEY DRIVE	U/G PIPE	375	RCP	400	18
SW030	IRENE STREET	2 x CULVERT	2100 x 1500	RCBC	-	18
SW031	IRENE STREET	2 x CULVERT	750 x 300	RCBC	-	20
SW032	IRENE STREET	2 x U/G PIPE	450	RCP	-	20
SW033	IRENE STREET	U/G PIPE	450	RCP	-	21
SW034	IRENE STREET	U/G PIPE	375	RCP	-	21
SW035	IRENE STREET	U/G PIPE	375	RCP	-	21 / 22
SW036	IRENE STREET	U/G PIPE	450	RCP	-	22
SW037	IRENE STREET	3 x U/G PIPE	1800	RCP	-	22
SW038	IRENE STREET	U/G PIPE	450	RCP	-	22
SW039	IRENE STREET	U/G PIPE	375	RCP	-	23
SW040	IRENE STREET	U/G PIPE	525	RCP	-	23
SW041	IRENE STREET	U/G PIPE	450	RCP	-	23 / 24
SW042	IRENE STREET	U/G PIPE	600	RCP	-	23 / 24
SW043	IRENE STREET	4 x CULVERT	2100 x 2100	RCBC	-	24
SW044	LANGAN STREET	U/G PIPE	600	RCP	-	24
SW045	WATSON STREET	CULVERT	450 x 225	RCBC	-	25
SW046	WATSON STREET	CULVERT	600 x 300	RCBC	-	25
SW047	CAVENDISH STREET	U/G PIPE	825	RCP	-	26 / 27
SW048	CAVENDISH STREET	U/G PIPE	600	RCP	-	27
SW049	HENLEY STREET	OPEN DRAIN	-	CONCRETE	-	28
SW050	HENLEY STREET	U/G PIPE	525	RCP	-	28
SW051	MULGRAVE ROAD	6 x CULVERT	3000 x 1800	RCBC	-	29
SW052	MCGUIGAN STREET	OPEN DRAIN	-	CONCRETE	-	29
SW053	MCGUIGAN STREET	U/G PIPE	750	RCP	-	30
SW054	MCGUIGAN STREET	CULVERT	1200 x 300	CONCRETE	-	31
SW055	MULGRAVE ROAD	OPEN DRAIN	-	UNLINED	-	33
SW056	RAY JONES DRIVE	U/G PIPE	375	PRIV-RCP	1080	34






SEWER PIPE CROSSINGS						
ITEM	LOCATION REFERENCE	SERVICE TYPE	SIZE	MATERIAL	DEPTH	SHEET NUMBER
S001	GOOMBOORA PARK	OVERFLOW	150	PVC	2100	05
S002	SHALE STREET	GMAIN	150	PVC	2450	05
S003	SHALE STREET	GMAIN	150	PVC	2050	05 / 06
S004	SHALE STREET	GMAIN	150	PVC	2150	06
S005	SHALE STREET	RMAIN	100	PVC	1500	06
S006	CHRISTIE DRIVE	GMAIN	150	PVC	1450	06
S007	CHRISTIE DRIVE	GMAIN	150	PVC	1200	07
S008	BRINSMEAD TERRACE	RMAIN	80	PVC	-	08 / 09
S009	BRINSMEAD TERRACE	RMAIN	80	PVC	-	09
S010	RAMSEY DRIVE	GMAIN	150	PVC	1700	12
S011	RAMSEY DRIVE	GMAIN	150	PVC	1750	12
S012	RAMSEY DRIVE	GMAIN	150	PVC	2600	13
S013	RAMSEY DRIVE	GMAIN	225	PVC	2200	14
S014	IRENE STREET	GMAIN	300	PVC	4150	18
S015	IRENE STREET	GMAIN	150	PVC	1600	20
S016	IRENE STREET	GMAIN	225	UPVC	2300	21
S017	IRENE STREET	GMAIN	225	AC	2155	22
S018	IRENE STREET	GMAIN	150	AC	2680	22
S019	IRENE STREET	GMAIN	150	AC	1000	23
S020	IRENE STREET	GMAIN	150	AC	2800	23
S021	IRENE STREET	GMAIN	150	AC	1600	23
S022	IRENE STREET	GMAIN	225	AC	865	23 / 24
S023	WATSON STREET	GMAIN	150	AC	1290	24 / 25
S024	WATSON STREET	GMAIN	150	AC	820	25
S025	DOWNING STREET	GMAIN	300	AC	2210	27
S026	HENLEY STREET	GMAIN	150	PVC	1825	27 / 28
S027	MCGUIGAN STREET	RMAIN	100	AC	1200	32
S028	SALTER CLOSE	GMAIN	450	CONCRETE	2950	33

JOINT BAY LOCATION						
ITEM	SECTION	CHAINAGE	LOCATION	SECTION LENGTH	TYPE	SHEET NUMBER
JB 1/2	1	1150	20 SHALE STREET - SAMUAL CHRISTENSEN PARK	1150	CROSS	06
JB 2/3	2	2300	13 BRINSMEAD TERRACE	1150	CROSS	09
JB 3/4	3	3450	30 RAMSEY DRIVE	1150	EARTH	13
JB 4/5	4	4390	813 RAMSEY DRIVE - BEHIND 8 MESSINA CLOSE	940	CROSS	16
JB 5/6	5	5330	172 IRENE STREET - BEHIND 4 WOLLY CLOSE	940	CROSS	19
JB 6/7	6	6270	84 IRENE STREET	940	EARTH	22
JB 7/8	7	7600	36 CAVENDISH STREET	1330	CROSS	26
JB 8/9	8	8930	583 MCGUIGAN ST	1330	CROSS	30

DRAWING REFERENCE:

CONCEPT ROUTE IDENTIFICATION LAYOUT

SHEETS: 1 TO 34

ORIGINAL ISSUE DATE: 03/10/2024		DRAWN		DESIGN CHKD	N/A		LOCATION	CONT/ORDER	PROJECT	DRG CLASS			
		CHECKED		APP ELEC RPEQ No.	 15331	REDLYNCH TO WOREE 132kV TRANSMISSION CABLE CONCEPT ROUTE IDENTIFICATION LAYOUT	7141 7142	-	CP.02731	A0			
		DESIGNED		APP STRUC RPEQ No.	N/A		A3-H-159587-001				SHEET 35 OF 38		
		ORIGIN	PSD										
		CIRCULATION	-				A						



WATER PIPE CROSSINGS						
ITEM	LOCATION REFERENCE	SERVICE TYPE	SIZE	MATERIAL	DEPTH	SHEET NUMBER
W001	FRESHWATER CREEK	TRUNK	375	DICL	-	04
W002	GOOMBOORA PARK	RETIC MINOR	50	PVC	-	05
W003	GOOMBOORA PARK	TRUNK	375	DICL	-	05
W004	SHALE STREET	TRUNK	375	DICL	-	05
W005	SHALE STREET	RETIC MAJOR	100	AC	-	05
W006	SHALE STREET	RETIC MAJOR	100	PVC	-	06
W007	SHALE STREET	RETIC MINOR	40	PVC	-	06
W008	VIEW STREET	RETIC MAJOR	100	AC	-	06
W009	VIEW STREET	TRUNK	375	DICL	-	06
W010	VIEW STREET	RETIC MINOR	40	PVC	-	06
W011	CHRISTIE DRIVE	TRUNK	375	DICL	-	06
W012	CHRISTIE DRIVE	RETIC MAJOR	100	DICL	-	06
W013	CHRISTIE DRIVE	TRUNK	525	AC	-	06 / 07
W014	CHRISTIE DRIVE	ABANDONED	300	AC	-	06 / 07
W015	CHRISTIE DRIVE	RETIC MAJOR	100	PVC	-	07
W016	BRINSMEAD TERRACE	TRUNK	1085	MSCL	-	09
W017	BRINSMEAD TERRACE	TRUNK	1085	MSCL	-	09
W018	BRINSMEAD TERRACE	TRUNK	1085	MSCL	-	09
W019	BRINSMEAD TERRACE	TRUNK	600	MSCL	-	10
W020	BRINSMEAD TERRACE	TRUNK	1085	MSCL	-	10
W021	RAMSEY DRIVE	TRUNK	600	AC	-	12
W022	RAMSEY DRIVE	RETIC MAJOR	100	AC	-	12
W023	RAMSEY DRIVE	RETIC MAJOR	150	AC	-	12
W024	RAMSEY DRIVE	RETIC MAJOR	150	AC	-	13
W025	RAMSEY DRIVE	RETIC MAJOR	100	AC	-	13
W026	RAMSEY DRIVE	RETIC MAJOR	150	PVC	-	14
W027	RAMSEY DRIVE	RETIC MAJOR	100	PVC	-	17
W028	RAMSEY DRIVE	RETIC MAJOR	150	PVC	-	18
W029	RAMSEY DRIVE	TRUNK	450	DICL	-	18
W030	IRENE STREET	RETIC MINOR	40	PVC	-	18
W031	IRENE STREET	TRUNK	1085	MSCL	-	18
W032	IRENE STREET	RETIC MAJOR	100	PVC	-	18
W033	IRENE STREET	RETIC MAJOR	100	PVC	-	19
W034	IRENE STREET	TRUNK	450	AC	-	19
W035	IRENE STREET	TRUNK	450	DICL	-	20
W036	IRENE STREET	TRUNK	375	DICL	-	21
W037	IRENE STREET	TRUNK	450	AC	-	21
W038	IRENE STREET	RETIC MAJOR	150	PVC	-	21
W039	IRENE STREET	RETIC MAJOR	150	DICL	-	21
W040	IRENE STREET	RETIC MAJOR	150	AC	-	21
W041	IRENE STREET	TRUNK	450	AC	-	22
W042	IRENE STREET	RETIC MAJOR	150	AC	-	22
W043	IRENE STREET	RETIC MAJOR	100	AC	-	23
W044	IRENE STREET	RETIC MAJOR	100	AC	-	23
W045	IRENE STREET	RETIC MAJOR	150	AC	-	23
W046	IRENE STREET	RETIC MAJOR	150	AC	-	24
W046	IRENE STREET	RETIC MAJOR	225	AC	-	24
W047	LANGAN STREET	RETIC MAJOR	100	AC	-	24
W048	LANGAN STREET	TRUNK	450	AC	-	24
W049	WATSON STREET	RETIC MAJOR	100	AC	-	25
W050	WATSON STREET	RETIC MAJOR	100	AC	-	25
W051	WATSON STREET	RETIC MAJOR	225	AC	-	25
W052	WATSON STREET	RETIC MAJOR	100	CICL	-	25
W053	WATSON STREET	RETIC MAJOR	150	CICL	-	26
W054	CAVENDISH STREET	RETIC MAJOR	100	AC	-	26
W055	CAVENDISH STREET	RETIC MINOR	40	PVC	-	26 / 27
W056	CAVENDISH STREET	TRUNK	375	AC	-	26 / 27
W057	CAVENDISH STREET	RETIC MAJOR	150	CICL	-	26 / 27
W058	CAVENDISH STREET	RETIC MAJOR	100	AC	-	26/27
W059	CAVENDISH STREET	RETIC MAJOR	100	AC	-	27
W060	DOWNING STREET	RETIC MAJOR	100	CICL	-	27






W061	DOWNING STREET	RETIC MAJOR	100	AC	-	27
W062	HENLEY STREET	TRUNK	500	CICL	-	28
W063	HENLEY STREET	TRUNK	1085	MSCL	-	28
W064	HENLEY STREET	RETIC MAJOR	225	AC	-	28 / 29
W065	MULGRAVE ROAD	RETIC MAJOR	150	DICL	-	29
W066	MCGUIGAN STREET	RETIC MAJOR	100	AC	-	32
W067	SALTER CLOSE	RETIC MAJOR	150	PVC	-	33
W068	SALTER CLOSE	ABANDONED	75	AC	-	33
W069	RAY JONES DRIVE	RETIC MAJOR	150	PVC	-	34

ELECTRICAL CROSSINGS						
ITEM	LOCATION REFERENCE	SERVICE TYPE	SIZE	MATERIAL	DEPTH	SHEET NUMBER
E001	CHRISTIE DRIVE	LV U/G CABLE (ERGON)	-	-	-	07
E002	CHRISTIE DRIVE	22kV U/G CABLE (ERGON)	-	-	-	07
E003	BRINSMEAD TERRACE	22kV U/G CABLE (ERGON)	-	-	-	10
E004	BRINSMEAD TERRACE	LV U/G CABLE (ERGON)	-	-	-	10
E005	RAMSEY DRIVE	LV U/G CABLE (ERGON)	-	-	-	12
E006	RAMSEY DRIVE	LV U/G CABLE (ERGON)	-	-	-	12
E007	RAMSEY DRIVE	LV U/G CABLE (ERGON)	-	-	-	12
E008	RAMSEY DRIVE	22kV U/G CABLE (ERGON)	-	-	-	12
E009	RAMSEY DRIVE	LV U/G CABLE (ERGON)	-	-	-	13
E010	RAMSEY DRIVE	LV U/G CABLE (ERGON)	-	-	-	13
E011	RAMSEY DRIVE	LV U/G CABLE (ERGON)	-	-	-	13
E012	RAMSEY DRIVE	LV U/G CABLE (ERGON)	-	-	-	13
E013	RAMSEY DRIVE	22kV U/G CABLE (ERGON)	-	-	-	13
E014	RAMSEY DRIVE	LV & 22kV U/G CABLE (ERGON)	-	-	-	14
E015	RAMSEY DRIVE	22kV U/G CABLE (ERGON)	-	-	-	17
E016	RAMSEY DRIVE	22kV U/G CABLE (ERGON)	-	-	-	18
E017	IRENE STREET	LV U/G CABLE (ERGON)	-	-	-	18
E018	IRENE STREET	LV & 22kV U/G CABLE (ERGON)	-	-	-	18
E019	IRENE STREET	LV & 22kV U/G CABLE (ERGON)	-	-	-	21
E020	IRENE STREET	LV & 22kV U/G CABLE (ERGON)	-	-	-	21
E021	IRENE STREET	22kV U/G CABLE (ERGON)	-	-	-	22
E022	IRENE STREET	LV U/G CABLE (ERGON)	-	-	-	22
E023	IRENE STREET	LV U/G CABLE (ERGON)	-	-	-	22 / 23
E024	IRENE STREET	LV U/G CABLE (ERGON)	-	-	-	23
E025	IRENE STREET	LV & 22kV U/G CABLE (ERGON)	-	-	-	23
E026	IRENE STREET	LV U/G CABLE (ERGON)	-	-	-	23
E027	IRENE STREET	LV & 22kV U/G CABLE (ERGON)	-	-	-	23 / 24
E028	CAVENDISH STREET	LV U/G CABLE (ERGON)	-	-	-	26 / 27
E029	CAVENDISH STREET	LV U/G CABLE (ERGON)	-	-	-	27
E030	SALTER CLOSE	LV & 22kV U/G CABLE (ERGON)	-	-	-	33
E031	SALTER CLOSE	LV U/G CABLE (ERGON)	-	-	-	33
E032	ATTICUS STREET	LV U/G CABLE (ERGON)	-	-	-	34

DRAWING REFERENCE:

CONCEPT ROUTE IDENTIFICATION LAYOUT

SHEETS: 1 TO 34

ORIGINAL ISSUE DATE: 03/10/2024		DRAWN		DESIGN CHKD	N/A		LOCATION	CONT/ORDER	PROJECT	DRG CLASS			
		CHECKED		APP ELEC RPEQ No.	 15331	REDLYNCH TO WOREE 132kV TRANSMISSION CABLE CONCEPT ROUTE IDENTIFICATION LAYOUT	7141 7142	-	CP.02731	A0			
		DESIGNED		APP STRUC RPEQ No.	N/A		A3-H-159587-001				SHEET 36 OF 38		
		ORIGIN	PSD										
		CIRCULATION	-				A						



TELECOMMUNICATIONS CROSSINGS						
ITEM	LOCATION REFERENCE	SERVICE TYPE	SIZE	MATERIAL	DEPTH TO TOP	SHEET NUMBER
TEL01	SHALE STREET	TELSTRA U/G CABLE	-	-	-	05
TEL02	SHALE STREET	TELSTRA U/G CABLE	-	-	-	05
TEL03	SHALE STREET	TELSTRA U/G CABLE	-	-	-	06
TEL04	SHALE STREET	TELSTRA U/G CABLE	-	-	-	06
TEL05	VIEW STREET	TELSTRA U/G CABLE	-	-	-	06
TEL06	CHRISTIE DRIVE	TELSTRA U/G CABLE	-	-	-	07
TEL07	CHRISTIE DRIVE	TELSTRA U/G CABLE	-	-	-	07
TEL08	BRINSMEAD TERRACE	TELSTRA U/G CABLE	-	-	-	09
TEL09	BRINSMEAD TERRACE	TELSTRA U/G CABLE	-	-	-	09
TEL10	BRINSMEAD TERRACE	TELSTRA U/G CABLE	-	-	-	09
TEL11	BRINSMEAD TERRACE	TELSTRA U/G CABLE	-	-	-	10
TEL12	BRINSMEAD TERRACE	TELSTRA U/G CABLE	-	-	-	10
TEL13	BRINSMEAD TERRACE	TELSTRA U/G CABLE	-	-	-	10
TEL14	BRINSMEAD TERRACE	TELSTRA U/G CABLE	-	-	-	10
TEL15	BRINSMEAD TERRACE	TELSTRA U/G CABLE	-	-	-	10
TEL16	BRINSMEAD TERRACE	TELSTRA U/G CABLE	-	-	-	10
TEL17	RAMSEY DRIVE	TELSTRA U/G CABLE	-	-	-	12
TEL18	RAMSEY DRIVE	TELSTRA U/G CABLE	-	-	-	12
TEL19	RAMSEY DRIVE	TELSTRA U/G CABLE	-	-	-	12
TEL20	RAMSEY DRIVE	TELSTRA U/G CABLE	-	-	-	12
TEL21	RAMSEY DRIVE	TELSTRA U/G CABLE	-	-	-	13
TEL22	RAMSEY DRIVE	TELSTRA U/G CABLE	-	-	-	13
TEL23	RAMSEY DRIVE	TELSTRA U/G CABLE	-	-	-	13
TEL24	RAMSEY DRIVE	TELSTRA U/G CABLE	-	-	-	13
TEL25	RAMSEY DRIVE	TELSTRA U/G CABLE	-	-	-	14
TEL26	RAMSEY DRIVE	TELSTRA/OPTUS U/G CABLE	-	-	-	14
TEL27	RAMSEY DRIVE	TELSTRA U/G CABLE	-	-	-	14
TEL28	IRENE STREET	TELSTRA U/G CABLE	-	-	-	18
TEL29	IRENE STREET	TELSTRA U/G CABLE	-	-	-	20

TEL30	IRENE STREET	TELSTRA U/G CABLE	-	-	-	21
TEL31	IRENE STREET	TELSTRA U/G CABLE	-	-	-	21
TEL32	IRENE STREET	TELSTRA U/G CABLE	-	-	-	21
TEL33	IRENE STREET	TELSTRA U/G CABLE	-	-	-	23
TEL34	IRENE STREET	TELSTRA U/G CABLE	-	-	-	24
TEL35	LANGAN STREET	TELSTRA U/G CABLE	-	-	-	24
TEL36	WATSON STREET	TELSTRA U/G CABLE	-	-	-	25
TEL37	WATSON STREET	TELSTRA U/G CABLE	-	-	-	25
TEL38	CAVENDISH STREET	TELSTRA U/G CABLE	-	-	-	26 / 27
TEL39	CAVENDISH STREET	TELSTRA U/G CABLE	-	-	-	26 / 27
TEL40	CAVENDISH STREET	TELSTRA U/G CABLE	-	-	-	26 / 27
TEL41	CAVENDISH STREET	TELSTRA U/G CABLE	-	-	-	26 / 27
TEL42	CAVENDISH STREET	TELSTRA U/G CABLE	-	-	-	27
TEL43	HENLEY STREET	TPG U/G CABLE	-	-	-	27 / 28
TEL44	HENLEY STREET	TELSTRA/OPTUS U/G CABLE	-	-	-	27 / 28
TEL45	HENLEY STREET	TELSTRA U/G CABLE	-	-	-	29
TEL46	MCGUIGAN STREET	TELSTRA U/G CABLE	-	-	-	29
TEL47	MCGUIGAN STREET	TELSTRA U/G CABLE	-	-	-	31
TEL48	MULGRAVE ROAD	TELSTRA U/G CABLE	-	-	-	33
TEL49	MULGRAVE ROAD	TELSTRA U/G CABLE	-	-	-	33
TEL50	MULGRAVE ROAD	TELSTRA U/G CABLE	-	-	-	33
TEL51	ATTICUS STREET	TELSTRA U/G CABLE	-	-	-	34
TEL52	RAY JONES DRIVE	OPTUS U/G CABLE	-	-	-	34
TEL53	RAY JONES DRIVE	REEF NETWORKS U/G CABLE	-	-	-	34




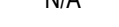

TRENCHLESS CROSSINGS					
NUMBER	STREET / LOCATION	APPROX. LENGTH	CROSSING TYPE	PROPOSED METHOD	SHEET NUMBER
1	GOOMBOORA PARK	240	CREEK	HDD	4
2	12 RAMSEY DRIVE	50	STORMWATER, CREEK OR CULVERT	HDD	12 / 13
3	34 RAMSEY DRIVE	50	STORMWATER, CREEK OR CULVERT	HDD	13
4	7 ANGEL	50	STORMWATER, CREEK OR CULVERT	HDD	14
5	2 NELL CLOSE	50	STORMWATER, CREEK OR CULVERT	HDD	18 / 19
6	81 IRENE STREET	50	STORMWATER, CREEK OR CULVERT	HDD	22
7	536 MULGRAVE ROAD	70	HIGHWAY AND CULVERT	HDD	28 / 29
8	CANNON PARK	150	CREEK	HDD	32 / 33
9	27-17 ATTICUS STREET	210	HIGHWAY, QUEENSLAND RAIL (3 LINES), CREEK & INTO SUBSTATION	HDD	34

THIRD PARTY CONSTRUCTION			
STREET / LOCATION	CROSSING TYPE	COMPLETED BY	SHEET NUMBER
ARIEL COURT	CANE TRAIN CROSSING	MSF SUGAR	20
HENLEY ST	CANE TRAIN CROSSING	MSF SUGAR	28

DRAWING REFERENCE:

CONCEPT ROUTE IDENTIFICATION LAYOUT

SHEETS: 1 TO 34

ORIGINAL ISSUE DATE: 03/10/2024		DRAWN		DESIGN CHKD	N/A		LOCATION	CONT/ORDER	PROJECT	DRG CLASS			
		CHECKED		APP ELEC RPEQ No.	 15331	REDLYNCH TO WOREE 132kV TRANSMISSION CABLE CONCEPT ROUTE IDENTIFICATION LAYOUT	7141 7142	-	CP.02731	A0			
		DESIGNED		APP STRUC RPEQ No.	N/A		A3-H-159587-001				SHEET 37 OF 38		
		ORIGIN		PSD									
		CIRCULATION		-			A						



GEOTECH LOCATIONS							
ITEM	APPROX. CHAINAGE	TYPE	DEPTH (M)	LOCATION REFERENCE	EASTING	NORTHING	SHEET NUMBER
EX-01	50	EXCAVATION	1.5	REDLYNCH SPORTS	362080.66	8131327.08	02
EX-02	260	EXCAVATION	1.5	REDLYNCH SPORTS	362066.42	8131106.69	03
EX-03	560	EXCAVATION	1.5	FRESHWATER CREEK	361991.30	8130788.96	04
BH-01	650	BOREHOLE	12	FRESHWATER CREEK	362014.12	8130721.61	04
BH-02	790	BOREHOLE	12	FRESHWATER CREEK	362022.25	8130583.99	04
EX-04	820	EXCAVATION	1.5	FRESHWATER CK BORE	362028.18	8130537.41	05
EX-05	990	EXCAVATION	1.5	SHALE STREET	362153.59	8130458.81	05
EX-06	1250	EXCAVATION	1.5	SHALE STREET	362406.95	8130501.37	06
EX-07	1365	EXCAVATION	1.5	VIEW STREET	362518.04	8130483.65	06
EX-08	1515	EXCAVATION	1.5	CHRISTIE DRIVE	362634.10	8130422.16	07
EX-09	1630	EXCAVATION	1.5	BRINSMEAD ROAD (CWAR)	362709.04	8130352.25	07
EX-10	1700	EXCAVATION	1.5	BRINSMEAD ROAD (CWAR)	362753.45	8130585.46	07
EX-11	1835	EXCAVATION	1.5	BRINSMEAD ROAD (CWAR)	362801.56	8130157.04	08
EX-12	2030	EXCAVATION	1.5	BRINSMEAD TERRACE	362913.96	8130015.29	08
ST-01	2315	EXCAVATION (SLIT TRENCH)	1.5	BRINSMEAD TERRACE	363158.49	8129864.30	09
ST-02	2500	EXCAVATION (SLIT TRENCH)	1.5	BRINSMEAD TERRACE	363270.79	8129737.82	10
ST-03	2600	EXCAVATION (SLIT TRENCH)	1.5	BRINSMEAD TERRACE	363344.16	8129652.41	10
EX-13	2676	EXCAVATION	1.5	RESERVOIR ROAD (CWAR)	363410.20	8129608.41	10 / 11
EX-14	2900	EXCAVATION	1.5	RESERVOIR ROAD (CWAR)	363623.42	8129540.66	11
EX-15	3100	EXCAVATION	1.5	RAMSEY DRIVE	363796.51	8129539.87	11
BH-03	3225	BOREHOLE	8	RAMSEY DRIVE	363803.26	8129437.68	12
BH-04	3370	BOREHOLE	8	FRASER CLOSE	363799.46	8129277.98	13
BH-05	3460	BOREHOLE	8	LAWSON CLOSE	363795.37	8129193.04	13
BH-06	3605	BOREHOLE	8	RAMSEY DRIVE	363833.78	8129053.80	13
EX-16	3710	EXCAVATION	1.5	TERAGLIN STREET	363931.53	8129010.93	14
BH-07	3780	BOREHOLE	8	RAMSEY DRIVE	363999.90	8128998.95	14
BH-08	3900	BOREHOLE	8	RAMSEY DRIVE	364076.52	8128910.72	14
BH-09	4000	BOREHOLE	8	ELPHINSTONE STREET	364110.58	8128829.73	15
EX-17	4100	EXCAVATION	1.5	RAMSEY DRIVE	364184.99	8128743.08	15
EX-18	4250	EXCAVATION	1.5	RAMSEY DRIVE	364276.38	8128646.35	15
EX-19	4520	EXCAVATION	1.5	RAMSEY DRIVE	364534.96	8128526.39	16
EX-20	4730	EXCAVATION	1.5	MCFARLANE DRIVE	364682.23	8128405.49	17
EX-21	4970	EXCAVATION	1.5	MCGREGOR STREET	364747.09	8128181.77	18
EX-22	5100	EXCAVATION	1.5	SILKY OAK COURT	364762.43	8128055.26	18
BH-10	5185	BOREHOLE	8	IRENE STREET	364759.64	8127967.42	18
BH-11	5300	BOREHOLE	8	VICO OVAL	364754.34	8127855.11	19

EX-23	5585	EXCAVATION	8	ELEANOR CLOSE	364741.41	8127580.68	20
EX-24	5740	EXCAVATION	3	IRENE STREET	364734.57	8127418.98	20
EX-25	5800	EXCAVATION	3	IRENE STREET	364730.03	8127354.79	20
EX-26	5875	EXCAVATION	1.5	BEATRICE STREET	364707.85	8127285.29	21
EX-27	5900	EXCAVATION	1.5	BEATRICE ST R/ABOUT	364708.82	8127254.75	21
EX-28	6120	EXCAVATION	1.5	CITY VIEW CRESCENT	364669.00	8127053.28	21
BH-12	6280	BOREHOLE	8	IRENE STREET	364642.09	8126889.27	22
BH-13	6350	BOREHOLE	8	IRENE STREET	364636.26	8126826.54	22
EX-29	6530	EXCAVATION	1.5	WATKINS CLOSE	364619.64	8126642.72	23
EX-30	6780	EXCAVATION	1.5	IRENE STREET	364628.97	8126405.11	24
BH-14	6850	BOREHOLE	10	IRENE STREET	364639.36	8126328.58	24
BH-15	7010	BOREHOLE	10	LANGAN STREET	364714.63	8126219.12	24
EX-31	7340	EXCAVATION	1.5	WATSON STREET	364829.31	8125922.08	25 / 26
EX-32	7540	EXCAVATION	1.5	CAVENDISH STREET	364920.88	8125775.82	26
EX-33	7716	EXCAVATION	1.5	GORDON STREET	365085.98	8125825.16	26 / 27
EX-34	7960	EXCAVATION	1.5	CAVENDISH STREET	365320.95	8125884.64	27
EX-35	8050	EXCAVATION	1.5	HENLEY STREET	365369.50	8125822.74	27 / 28
EX-36	8120	EXCAVATION	3	HENLEY STREET	365428.57	8125832.14	28
EX-37	8182	EXCAVATION	3	MSF XING	365479.17	8125842.23	28
BH-16	8378	BOREHOLE	12	CLARKES CREEK	365642.75	8125937.51	28 / 29
BH-17	8465	BOREHOLE	12	MCGUIGAN STREET	365730.99	8125929.83	29
EX-38	8760	EXCAVATION	1.5	OLLEY STREET	365931.73	8125717.64	30
EX-39	9160	EXCAVATION	1.5	MCGUIGAN ST (MULGRAVE RD)	366240.39	8125456.69	31
EX-40	9380	EXCAVATION	1.5	MCGUIGAN ST (MULGRAVE RD)	366410.36	8125302.07	32
BH-18	9460	BOREHOLE	10	MCGUIGAN ST (MULGRAVE RD)	366473.51	8125266.88	32
BH-19	9610	BOREHOLE	10	GORDON CREEK	366566.05	8125170.34	32 / 33
EX-41	9840	EXCAVATION	1.5	MULGRAVE ROAD	366687.53	8124968.69	33
BH-20	10033	BOREHOLE	8	RAY JONES DRIVE	366839.16	8124969.28	34
BH-21	10100	BOREHOLE	8	RAY JONES DRIVE (ADJ TO QLD RAIL)	366893.81	8124936.21	34
BH-22	10170	BOREHOLE	8	WOREE SUBSTATION (ADJ TO QLD RAIL)	366950.68	8124894.86	34
EX-42	10240	EXCAVATION	1.5	WOREE SUBSTATION	367016.03	8124863.95	34





NOTE:
POSITION DETAILS ARE
FROM DESKTOP
CALCULATIONS AND ARE TO
BE GROUND TRUTHED

NOTE:
CHAINAGES NOT ADJUSTED
FOR ROUTE CHANGES

DRAWING REFERENCE:

CONCEPT ROUTE IDENTIFICATION LAYOUT

SHEETS: 1 TO 34

ORIGINAL ISSUE DATE: 03/10/2024		DRAWN		DESIGN CHKD	N/A	<div>Powerlink QUEENSLAND</div> <div>REDLYNCH TO WOREE 132kV TRANSMISSION CABLE CONCEPT ROUTE IDENTIFICATION LAYOUT</div>	LOCATION	CONT/ORDER	PROJECT	DRG CLASS			
		CHECKED		APP ELEC RPEQ No.	 15331		7141 7142	-	CP.02731	A0			
		DESIGNED		APP STRUC RPEQ No.	N/A		A3-H-159587-001				SHEET 38 OF 38		
		ORIGIN	PSD										
		CIRCULATION	-				A						

DOCUMENT INFORMATION

Prepared for	JBS&G
Project Name	Ecological Assessment Report
Document Name	Proposed Kamerunga to Woree Transmission Line Replacement and the New Barron River Substation Development
Date	August 2025
Version	10

DOCUMENT CONTROL

Version	Date	Author	Details
1	20/10/23	Maxim Gunther and Emily Krunes	Draft Preparation
	30/10/23	Emily Krunes	Draft Finalisation
2	01/11/23	Amy Hestehauge	JBS&G Review
	13/11/23	Emily Krunes	Document Finalised
3	31/03/24	Emily Krunes	Document revised to include Section 1 OH Component, post Tropical Cyclone Jasper
4	27/06/24	Emily Krunes and Alice Bakker	Revised maps and document to include changes to the new Barron River Substation
5	30/09/24	Emily Krunes and Alice Bakker	Revised and finalised following Powerlink's review
6	06/11/24	Emily Krunes and Alice Bakker	Revised to update Freshwater Creek Geotechnical Investigation area and reflect additional Powerlink comments.
7	09/01/25	Emily Krunes	Revised to update clearing impacts within Kamerunga Conservation Park regarding s34 application to DESI
8	04/02/25	Emily Krunes	Revised following final comments from Powerlink
9	11/07/25	Emily Krunes and Maxim Gunther	Revised following changes to P2 location
10	01/08/25	Emily Krunes and Maxim Gunther	Revised following comments from Powerlink

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PHOTOGRAPHS

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