



Ecological Technical Memo

Karara BESS Project
Carbean Road, Karara, Queensland, 4352

Prepared for Acciona Energía
2 December 2024

11954 E



Document Control

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Acronyms and Abbreviations

AE	Acciona Energia
ADR	Accepted Development Requirements
BESS	Battery Energy Storage System
DAF	Department of Agriculture and Fisheries
DAMS	Development Assessment Mapping Systems (produced by SARA)
DES	Department of Environment and Science (Qld)
DSDMIP	Department of State Development, Manufacturing, Infrastructure and Planning
EPBC	<i>Environment Protection and Biodiversity Act 1999</i> (Cth)
EVNT	Extinct, Endangered, Vulnerable and/or Near Threatened (as defined by the NCWR)
GRC	Goondiwindi Regional Council
MISS	MacIntyre Intermediate Switching Station (owned by Powerlink)
MLES	Matters of Local Environmental Significance
MNES	Matters of National Environmental Significance (as defined under the EPBC)
MSES	Matters of State Environmental Significance (as mapped by the SPP)
NCA	<i>Nature Conservation Act 1992</i> (Qld)
NCAR	Nature Conservation (Animals) Regulation 2020 (Qld)
NCPR	Nature Conservation (Plants) Regulation 2020 (Qld)
NJKHT	Non-juvenile Koala Habitat Tree
OHTL	Overhead Transmission Line
PA	<i>Planning Act 2016</i> (Qld)
PR	Planning Regulation 2017 (Qld)
PSP	Planning Scheme Provisions
SARA	State Referral Assessment Agency (a branch of DLGRMA)
SHG	Saunders Havill Group
SPP	State Planning Policy (July 2017) (Qld)
TEC	Threatened Ecological Community
VMA	<i>Vegetation Management Act 1999</i> (Qld)
WWBW	Waterway for Waterway Barrier Works

1. Introduction

The Environmental Management Division of Saunders Havill Group (SHG) was engaged by Acciona Energia (the Applicant) to prepare this Ecological Technical Memo to provide advice with respect to environmental matters prescribed within the adopted *Goondiwindi Region Planning Scheme 2020*. The application area is located 46 km south-west of the township of Warwick and 90 km south of Toowoomba in Queensland. The proposed project is for a Battery Energy Storage System (BESS) and associated access infrastructure within a portion of Lot 15 on SP332758, located at Carbean Road, Karara, Queensland, 4352 (refer **Appendix A** for proposed project layout). The proposed project is currently mapped within a Rural Zone under the *Goondiwindi Region Planning Scheme* with the proposed project not aligning with this zoning, however the site is not within an Important Agricultural Area as defined by the Economic Development Strategic Framework. This memo is intended to support a Material Change of Use (MCU) application to Goondiwindi Region Council (GRC). This Ecological Technical Memo provides a review of the site's ecological values in accordance with Commonwealth, State and Local Government legislation.

The Applicant has undertaken a range of background investigations to identify areas with appropriate physical characteristics for a battery energy storage system (BESS) approximately 400MW in capacity. A maximum development footprint of 13.81 hectares has been identified for the project, which includes the project infrastructure and required bushfire asset protection zone (APZ). The specific layout of the BESS and associated infrastructure is subject to ongoing detailed design investigation and development. Core features of the site layout include:

- 400MW battery energy storage system;
- Perimeter fencing (approximately 1.8 m high);
- One (1) construction access/egress points;
- Temporary Laydown area;
- Operation and maintenance building/compound;
- Substation;
- Underground medium voltage reticulation cabling between BESS and substation; and
- Overhead cable between substation and MISS (approximately 54m, with no transmission towers required).

Part of the project lot is currently utilized by Powerlink for the MacIntyre Intermediate Switching Station (MISS) and contains the over-head 330kV transmission line which forms part of Powerlink's transmission network and connects to the MacIntyre Wind Farm, as well as an area leased for mining activities north of the site. The remaining areas of the lot are utilized for cattle and goat grazing containing a matrix of regrowth bushland and cleared open space, which reflects the previous broadscale clearing that occurred on-site during the 1980's. As a result of the historical and on-going land uses, State and Local environmental overlays are limited across the project lot. The proposed BESS infrastructure is located adjacent to the MISS Substation and has attempted to utilize as much currently cleared and disturbed area as possible in order to avoid disturbance to surrounding vegetation and areas of higher environmental value.

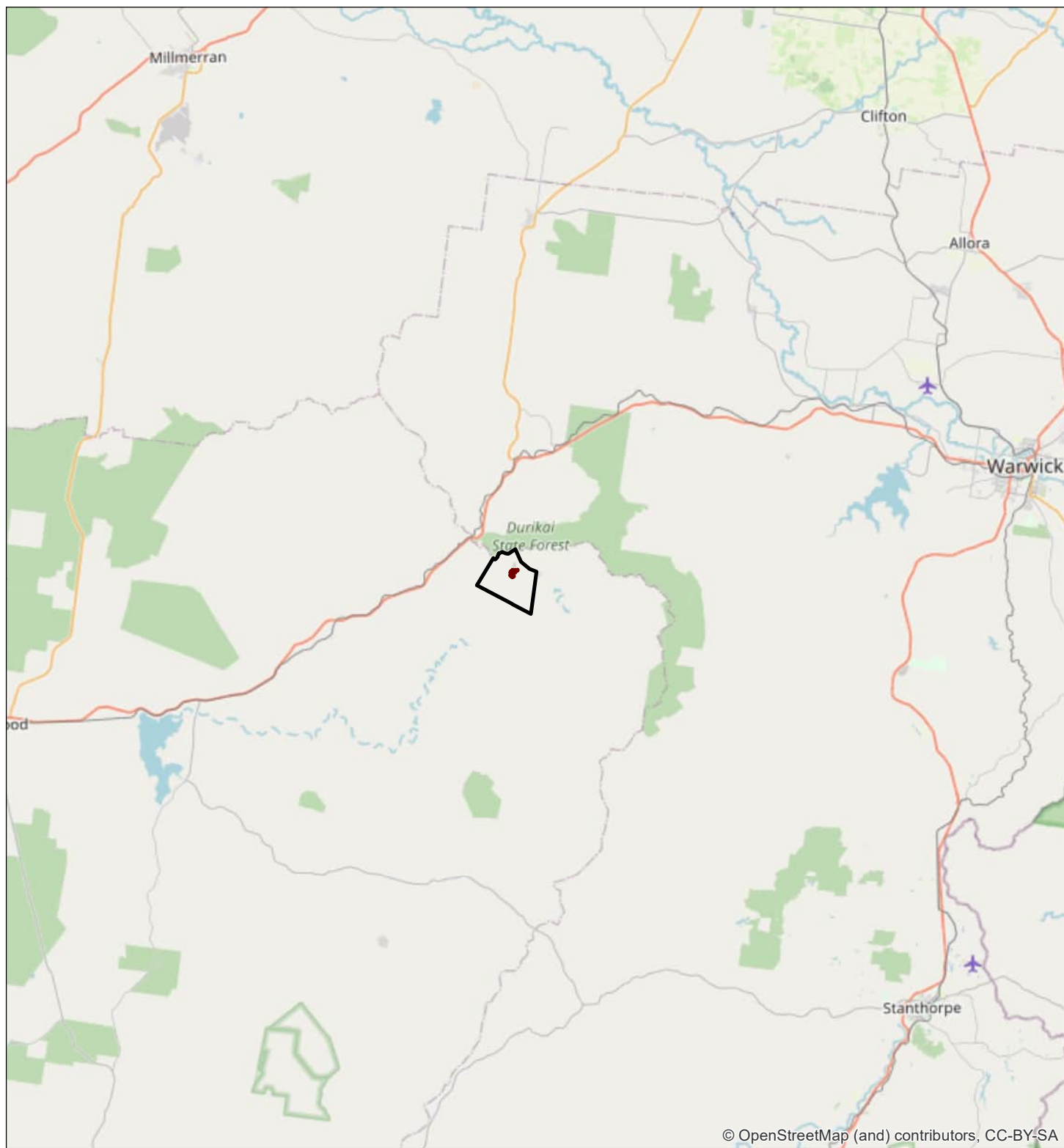
As mentioned above, the project area is largely unconstrained under State and Local Government overlays and legislative provisions. Under the *Vegetation Management Act 1999* the proposed project area is mapped with Category X (non-remnant) vegetation, with the broader landscape containing patches of Category B (remnant) vegetation. This vegetation is locked in by a PMAV across the entire lot (application number: 2017/006981). The majority of mapped remnant vegetation across the wider lot occurs in fragmented patches, with the most intact areas to the north of the lot in association with Durikai State Forest. Notably, two polygons of Category B (remnant) are mapped adjacent to the project area, one approximately 60 m east of the development footprint and another approximately 170 m north of the infrastructure. As a result of being outside of the South-east Queensland mapping, the site is not mapped as a Koala Priority Area (KPA) nor are Koala Habitat Areas (KHA) present. However, based on regional ecosystem mapping, the areas of remnant vegetation are indicated to be dominated by Non-juvenile Koala Habitat Trees (NJKHTs) and thus could constitute Koala Habitat.

Under the *Goondiwindi Region Planning Scheme* natural environment overlay, areas of regulated vegetation are mapped within the wider lot however the project area itself avoids impact to these areas due to its location in a highly disturbed environment. In order to address the projects avoidance of environmental matters a response to the 8.2.1 Biodiversity areas overlay code of the *Goondiwindi Region Planning Scheme* is provided in conjunction with this report.

Refer to **Figure 1** and **Figure 2** for site aerial and site context. Key site details are provided in **Table 1**.

Table 1: Key Site Details

Address	Carbean Road, Karara, Queensland, 4352
Real Property Description	Lot 15 on SP332758
Local Government Area	Goondiwindi Regional Council (GRC)
Planning Scheme / Local Plan	<i>Goondiwindi Region Planning Scheme 2020</i>
Zoning	Rural
VMA	Category X (non-remnant) Category B (remnant) PMAV Application: 2017/006981
Existing Land Use	Livestock grazing (cattle and goat) Non-linear Infrastructure (Energy Sector) Mining Lease
Proposed Land Use	Battery Energy Storage System (BESS)



Legend

-  Site DCDB
-  Disturbance Footprint

Figure 1

Site Context

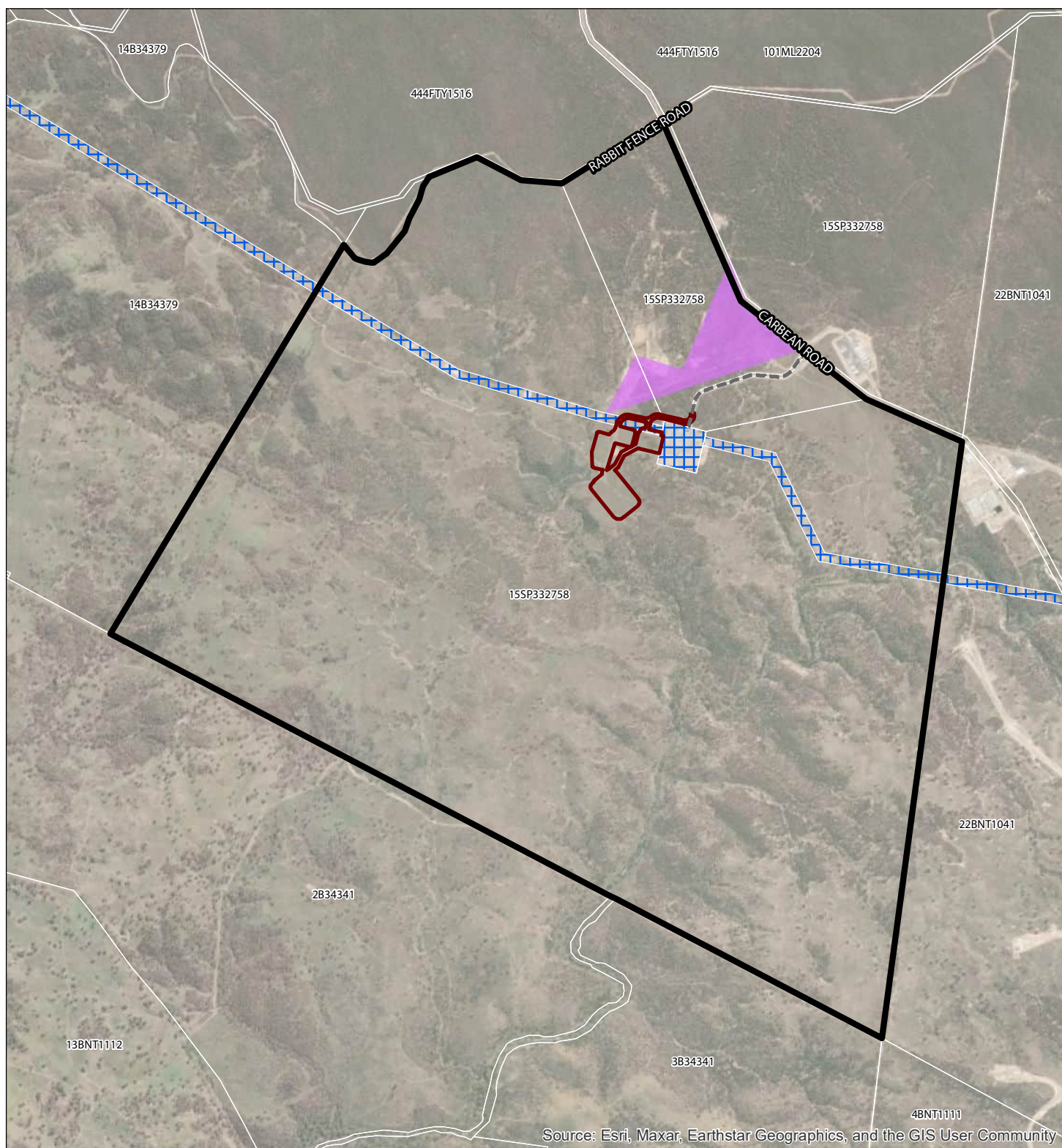
File ref. 11945 E Figure 1 Site Context D
Date 20/11/2024
Project Carbean Road, Karara

0 2 4 6 8 10 12 14 16 18 20 km

Scale (A4): 1:500,000 [GDA 2020 MGA Z56]



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Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

Legend

- Qld DCDB
- Site DCDB
- Disturbance Footprint
- 2020/8759 (Overhead Transmission Line - MacIntyre Wind Energy Precinct)
- Forest Creek (historical mining lease)
- Existing vehicle access

Figure 2

Site Aerial

File ref. 11945 E Figure 2 Site Aerial D
Date 20/11/2024
Project Carbean Road, Karara

0 200 400 600 800 1,000 m

Scale (A4): 1:35,000 [GDA 2020 MGA Z56]



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2. Desktop Review

2.1. Historical and Contemporary Legislative Review

Table 2 below provides a review of contemporary legislative provisions not considered to constrain the site. Maps are provided in **Appendix B**.

Table 2: State and Local governmental legislation and mapping constraints relative to the site.

Legislation	Mapping	Purpose	Contemporary Site Relevance
<i>Environmental Protection & Biodiversity Conservation Act 1999</i> (EPBC Act)	N/A	The Australian Government's key piece of environmental legislation is the <i>Environment Protection and Biodiversity Conservation Act 1999</i> (EPBC Act). The EPBC Act aims to protect and manage matters of environmental significance which include nationally and internationally important flora, fauna, ecological communities and heritage places.	Not applicable The PMST identified thirty-two (32) protected fauna species, twelve (12) flora species, and three (3) Threatened Ecological Communities as potentially occurring within a 5 km radius of the site. A MNES self-assessment report has been provided for this project separately which considers the potential for MNES to occur on or adjacent the project area and the likelihood for a significant impact to occur. These assessments have identified that the majority of flora and fauna species listed as threatened under the EPBC Act and NCA as low or unlikely to occur within the proposed project footprint. This is with exception to Grey-headed Flying Fox, Regent Honeyeater and Squatter Pigeon. These species were considered due to the presence of minor potential foraging habitat within and surrounding the project site and their known high mobility. Thus, these three species may occur as fly-over species or individual opportunistic foragers to the project area. However, the limited vegetation within the project footprint is not considered to constitute critical habitat to the survival of these species. In addition

Legislation	Mapping	Purpose	Contemporary Site Relevance
			the small size of the project impact further limits the potential for residual impacts to occur to listed MNES species. Thus, no significant impact will occur as a result of the project on MNES species or ecosystems. Refer to Appendix C for full search results.
<i>Nature Conservation Act 1992 (NCA)</i>	Appendix B – The Nature Conservation Act 1992 (NCA) Map Protected Plants Trigger Map	7: classifies and protects significant areas (Protected Areas) and protects Threatened plant and animal species. The Nature Conservation (Wildlife) Regulation 2006 (NCWR) lists plant and animal species presumed extinct, endangered, vulnerable, near threatened, least concern, international or prohibited.	Not applicable The site is not mapped as a High-Risk Area for protected plants. Therefore, a Flora Trigger Survey for NCA plants in accordance with the Protected Plants Guideline is not required to be undertaken for the site. Five (5) species, three (3) flora and two (2) fauna, listed under the NCA were identified in the Wildlife Online search as potentially occurring within a 5 km radius of the site. However, surveys of the proposed impact area and surrounding vegetation found these areas to be in a highly modified state as a result of historical clearing and on-going land management. Furthermore, project design has considered surrounding areas of regulated vegetation and mapped waterways and avoided these mapped environmental values to the greatest possible extent by utilizing already cleared areas or non-remnant vegetation exhibiting disturbance. Therefore, potential impacts to NCA listed species are considered unlikely. No species listed under the NCA or EPBC Act were identified on-site nor were areas of critical habitat to support threatened species

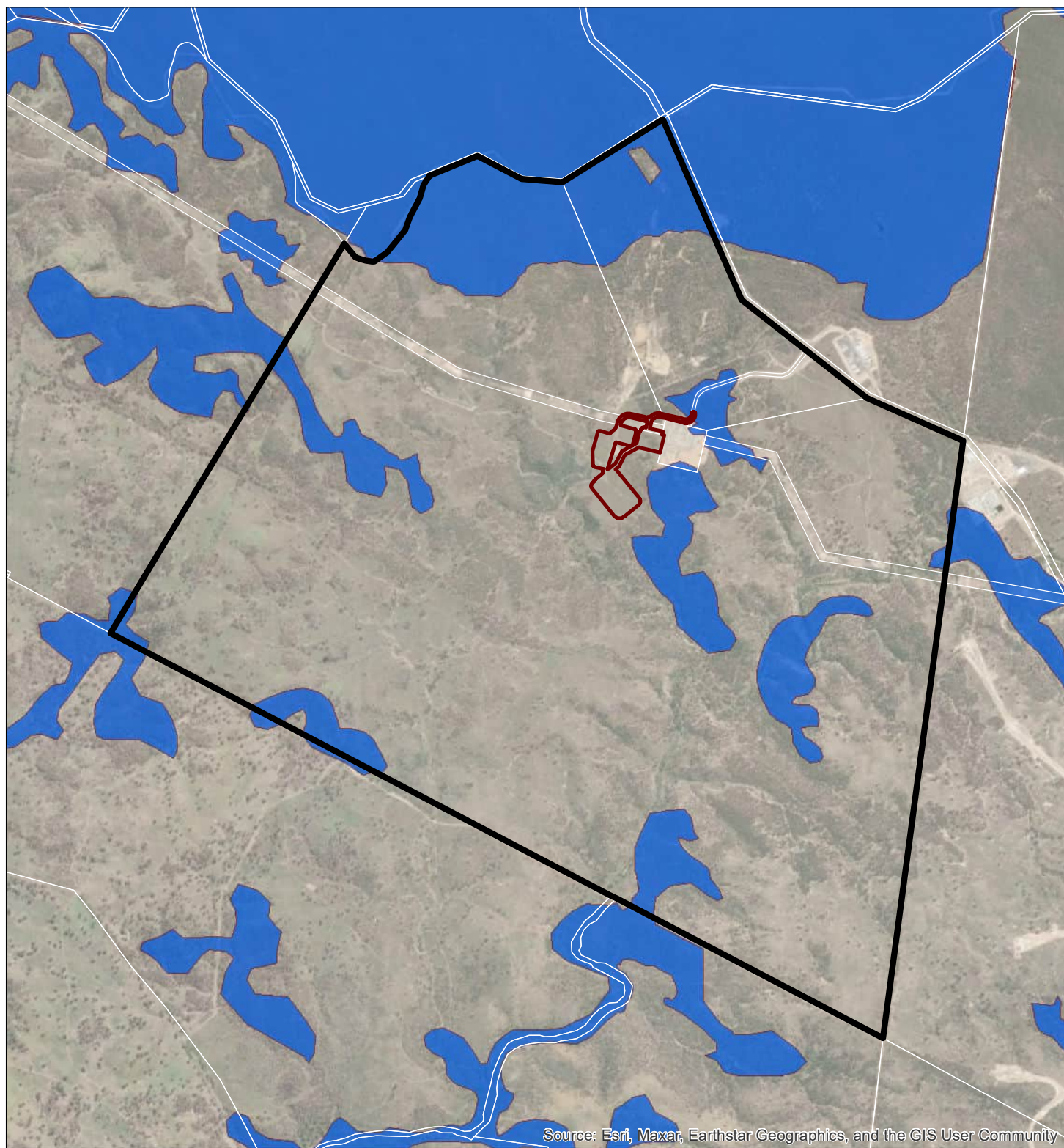
Legislation	Mapping	Purpose	Contemporary Site Relevance
			identified to occur on-site or within the surrounding area. Given the records of <i>Macrozamia conferta</i>, <i>Calotis glabrescens</i> and <i>Vincetoxicum forsteri</i> within 5 km of the project site, particular attention was paid for these species during site walkovers and specific vegetation assessments however none were recorded within the project footprint or surrounds. In addition, disturbance to the ground layer, in particular continued heavy grazing by goat, has significantly modified the substrate and degraded areas of the land therefore the land is unlikely to support threatened species in the current state. Refer to Appendix D for full search results.
Vegetation Management Act 1999 (VMA)	Figure 3: Regulated Vegetation Management Map; Figure 4: Supporting Vegetation Management Map	The <i>Vegetation Management Act 1999</i> (VMA) is the key mechanism by which the Queensland Government protects the state's environmental resources pertaining to vegetation. Under the VMA, a series of maps delineate vegetation features across the landscape which are each assigned a conservation value directly related to the remaining extent of these features in the landscape. The VMA also protects 'essential habitat' vegetation where listed threatened species have been known to occur.	Not applicable The lot in which the project is proposed contains Category X (non-remnant) vegetation and Category B (remnant) vegetation. This vegetation is locked in by a PMAV across the entire lot (application number: 2017/006981). The project footprint has considered the remnant vegetation and avoided clearing of this vegetation. All proposed impacts will occur within Category X (non-remnant) vegetation which is not regulated under the VMA. Therefore, a response to <i>State Code 16</i> is not required.
Koala Legislation – Planning Regulation 2017 – Schedule 11	Figure 5: Koala priority areas and Koala habitat areas	South East Queensland Koala habitat protection mechanisms are incorporated into the Planning Regulation 2017 (PR). Schedule 10 Part 10 of the Regulation sets out what is	Not applicable. The site is located entirely outside of a Koala Priority Area and does not contain any Koala Habitat Areas. This is due to the fact this mapping does

Legislation	Mapping	Purpose	Contemporary Site Relevance
		and is not prohibited or assessable development in a Koala Habitat Area (KHA). Where inside a Koala Priority Area (KPA), the provisions of Schedule 11 of the Planning Regulation apply unless certain criteria are met (refer Part 10 Division 2 Section 16 A (2)). Where outside of a KPA, development that involves interfering with a Koala Habitat Area is assessable, also unless certain criteria apply (refer Part 10 Division 3 Section 16 B (2)). Development for extractive industries in key resource areas is dealt with under Part 10 Division 4. Development that is assessable outside of a KPA is referable to the State and must address SDAP Code 25 Development in South East Queensland Koala Habitat Areas.	not extend beyond south-east Queensland. Therefore, referral to State with a response to State Code 25 is not required as the project is not impacting a mapped Koala Habitat Area. All proposed impacts will occur within Category X (non-remnant) which contains limited Koala Habitat features. The majority of the proposed project impact area is proposed for already cleared space which is largely absent of trees. Minor areas of non-remnant vegetation containing Non-juvenile Koala Habitat Trees (NJKHTs) are proposed for removal. The majority of this vegetation is along the edge of a larger patch, is fragmented, or occurs scattered trees in a cleared open space. While the non-remnant vegetation proposed for removal has the potential to support vagrant Koala, the possibility of this is deemed low. This is with consideration to records of Koala in the local area, which are largely situated north within the intact vegetation associated with Durikai State Forest. The proposed project area and these records are separated by cleared tracks, power easements and mining activities. Although not impossible for Koala to traverse south into the project area, the availability of highly connected intact remnant habitat within Durikai State Forest, likely preferred by Koala, indicates it is unlikely the species would enter the project area. This is supported by field surveys finding no evidence of Koala within the vicinity of the project area

Legislation	Mapping	Purpose	Contemporary Site Relevance
			despite 5 SAT surveys, indicating a low usage by the species.
State Planning Policy 2014	Appendix B – Provides interim development of State Environmental Significance (Biodiversity) Map 12: Matters assessment requirements which ensures that state interests are considered by local government when assessing development applications where the local government planning scheme does not yet integrate the State interests in the SPP. MSES include Biodiversity, Coastal Environment, and Water Quality.		Not applicable. Mapped MSES within the project lot include MSES regulated vegetation; Category B – of concern vegetation and defined watercourse. Both of these MSES features are mapped adjacent to the project area. However, as mentioned previously, project design has considered these identified areas of environmental significance and has avoided direct impact. No Category B vegetation nor defined watercourse vegetation is intended to be impacted by the project.
Fish Habitat Areas (Fisheries Act 1994)	Figure 5: Fisheries WWBW Map	The <i>Fisheries Act 1994</i> deals with the use, conservation and improvement of Queensland's fisheries resources and fish habitats. The legislation deals with the impact from coastal development on marine fish habitat, including protected marine plants and declared fish habitat areas.	Not applicable No fish habitat is mapped adjacent to the project area. However, one (1) DAF <i>low-risk</i> waterway for waterway barrier works (WWBW) is located to the east, one (1) <i>moderate-risk</i> WWBW to the west and one <i>high-risk</i> WWBW to the south of the project footprint (refer Figure 5). The <i>low-risk</i> waterway mapped to the east is considered to be inaccurate as it is within a currently cleared and partially developed area associated with the existing Powerlink. Waterway assessments were conducted on the western <i>moderate-risk</i> waterway which is closest to the proposed impact area, discussed further in Section 3.2.1 . Project design intends to avoid impact to mapped waterways on-site, therefore referral to DAF nor a

Legislation	Mapping	Purpose	Contemporary Site Relevance
			response to <i>State code 18: Constructing or raising waterway barrier works in fish habitats</i> is not required. Access tracks to the proposed infrastructure will largely utilize current access roads, thus not requiring further interference with mapped waterways. Should any work be proposed within a mapped WWBW, it would have to adhere to Accepted Development Requirements (ADR), thus avoiding referral to DAF.

Coastal Hazards (Coastal Protection and Management Act 1995)	Appendix B – The Coastal Protection and Management Act 1995 seeks to protect the coastal resources of the coastal zone under State Code 8: Coastal development and tidal works. It establishes a framework for the protection, conservation, rehabilitation and management of the coastal zone with regard to the core objectives of the national strategy for ecologically sustainable development in the use of the Coastal Zone. It also ensures decisions about land use and development safeguard life and property from the threat of coastal hazards.	Map 16: Coastal Protection Areas	Not applicable. No areas subject to coastal hazards are mapped on-site and the site is not located within a Coastal Management Area.
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Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

Legend

- Qld DCDB
- Site DCDB
- Disturbance Footprint

Regulated Vegetation

- Category B area -
Remnant vegetation
- Category X area -
Vegetation not regulated
under the VMA

Figure 3

Regulated Vegetation Management Map

File ref. 11945 E Figure 3 RVM D

Date 20/11/2024

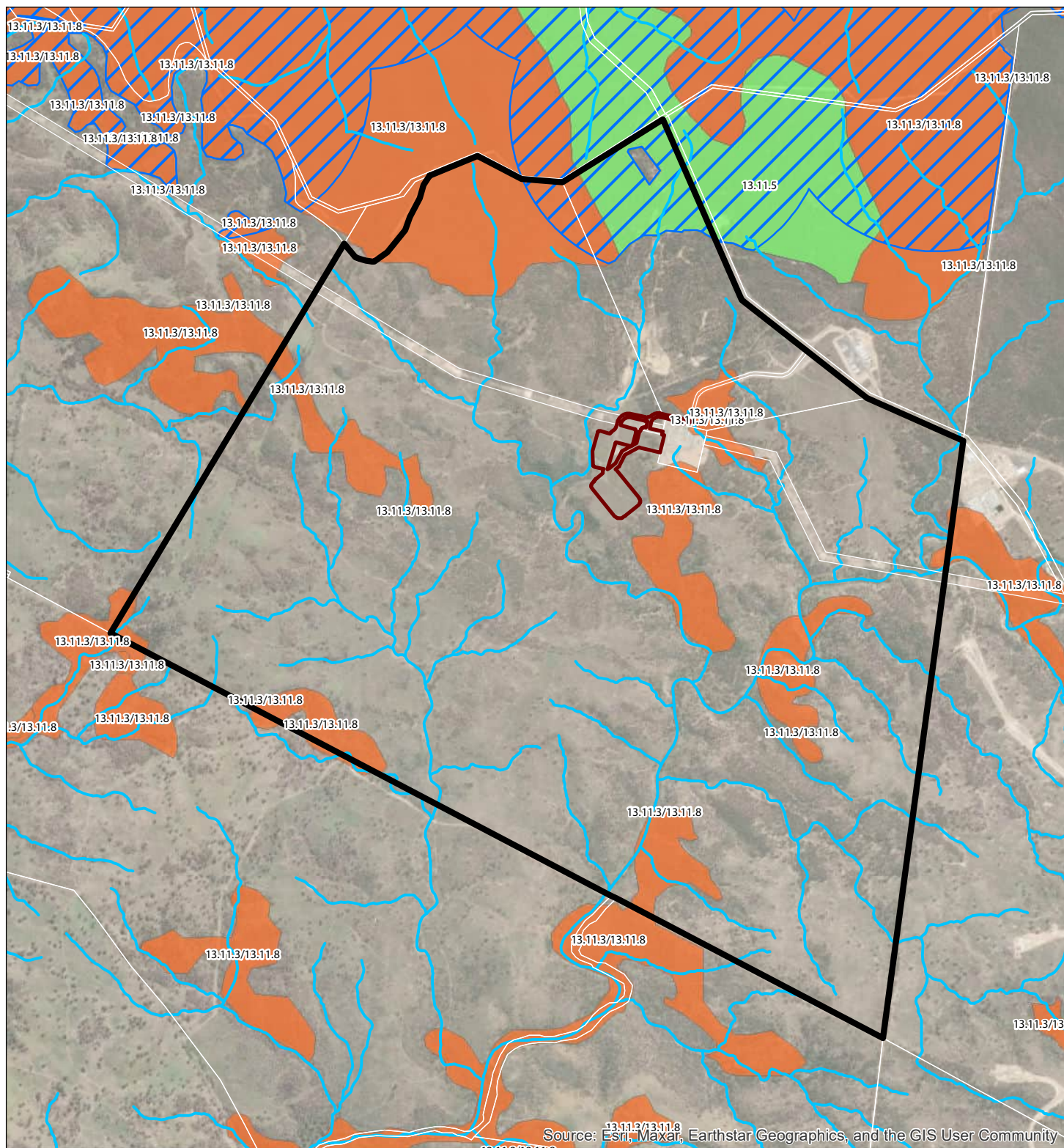
Project Carbean Road, Karara

0 200 400 600 800 1,000 m

Scale (A4): 1:35,000 [GDA 2020 MGA Z56]



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Legend

- Qld DCDB
- Site DCDB
- Disturbance Footprint
- VM Watercourses
- VM Essential Habitat

Vegetation Management Regional Ecosystems Map

- Category A or B area containing of concern regional ecosystems
- Category A or B area that is a least concern regional ecosystem

Figure 4

Vegetation Management Regional Ecosystem Map

File ref. 11945 E Figure 4 VMRE D

Date 20/11/2024

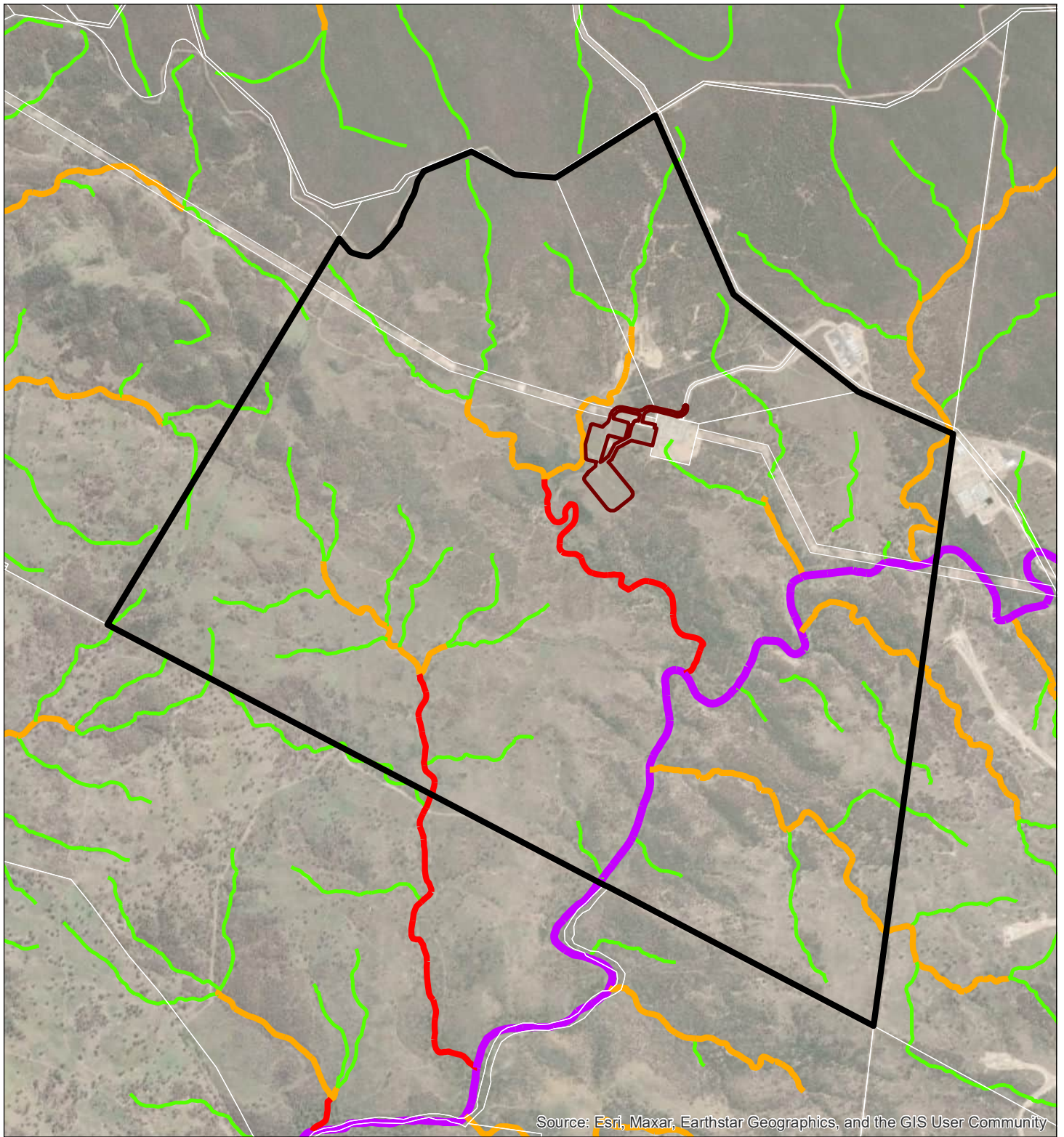
Project Carbean Road, Karara

0 200 400 600 800 1,000 m

Scale (A4): 1:35,000 [GDA 2020 MGA Z56]



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Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

Legend

- Qld DCDB
- Site DCDB
- Disturbance Footprint

Waterways

Risk of Impact

- 1 - Low
- 2 - Moderate
- 3 - High
- 4 - Major

Figure 5

Fisheries - Waterways for
Waterway Barrier Works

File ref. 11945 E Figure 5 Fisheries D

Date 20/11/2024

Project Carbean Road, Karara

0 200 400 600 800 1,000 m

Scale (A4): 1:35,000 [GDA 2020 MGA Z56]



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2.2. Town Planning Instruments

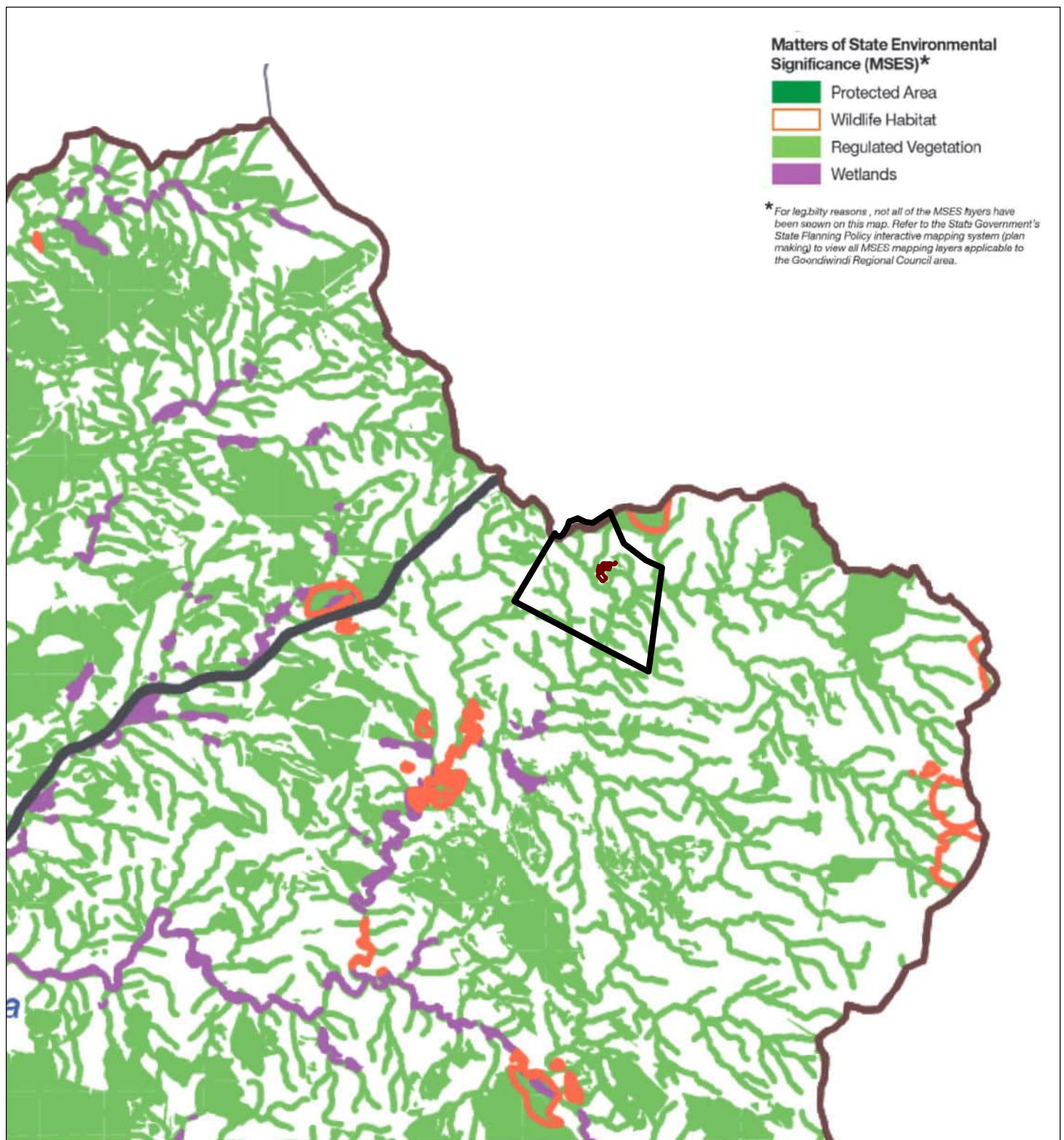
The site is located within the jurisdiction of Goondiwindi Regional Council and is subject to the provisions of the *Goondiwindi Region Planning Scheme 2020*. Under the Goondiwindi Region Planning Scheme, the site is zoned as rural.

Goondiwindi Regional Council identified a strategic framework for natural environment where protected areas, wildlife habitat, regulated vegetation, wetlands and legally secured offset areas are identified and form a network of corridors. Locally mapped natural environment areas on and adjacent the site is limited to regulated vegetation. Under the strategic framework mapping, Lot 15 in which the project is proposed, contains three distinct regulated vegetation corridors. The proposed BESS project footprint sits outside of this mapping and largely utilizes areas of already cleared and regularly maintained land, with adjacent land uses including Powerlink infrastructure and mining leased land. Therefore, the proposed BESS project condenses impacts within an area already containing significant disturbance and similar industry activities. Field and desktop surveys, both contemporary in 2024 and previously conducted in 2020, have been utilized to identify areas of highest ecological value on-site, with the proposed design avoiding highest value vegetation and waterway features.

Refer **Figure 6** for GRC Strategic Framework Natural Environment mapping.

2.3. Aerial History

The project area has been subject to extensive modification, historically through broad-acre clearing, ring-barking and aerial poisoning and extensive livestock grazing (sheep and goat). Subsequently vegetation is patchy across the wider project lot (refer to **Plan 1** for historical aerial imagery). A review of the most recent aerial image indicates the proposed project area and surrounding environment includes areas of varying levels of vegetation cover, attributed to continued land management, grazing activities and recent clearing for surrounding approved projects; MacIntyre Wind Farm and the existing MISS. Historical imagery indicates that almost the entirety of the project lot had been cleared as early as the 1950's with widescale clearing continuing through to the late 1990's. Clearing was still occurring across the project lot throughout the 2000's however the steeper sloping hills of the site had begun to regrow. The north-eastern portion of the project lot was utilized for cropping in the 1990s before a mining lease was granted and Ironbark Mine established in the early 2000s. Construction of the MacIntyre Wind Farm to the east of the project area and clearing for adjacent Powerlink easement and MISS occurred within 2022 – 2023. The proposed project impact area is largely within a regularly maintained cleared open space which has been cleared since the 1950's with minor areas of non-remnant vegetation around the edges regrowing in the late 2000's (refer **Plan 1**).



Legend

- Site DCDB
- Disturbance Footprint

Figure 6

Goondiwindi Natural Environment Overlay

File ref. 11945 E Figure 6 Natural Environment D
Date 20/11/2024
Project Carbean Road, Karara

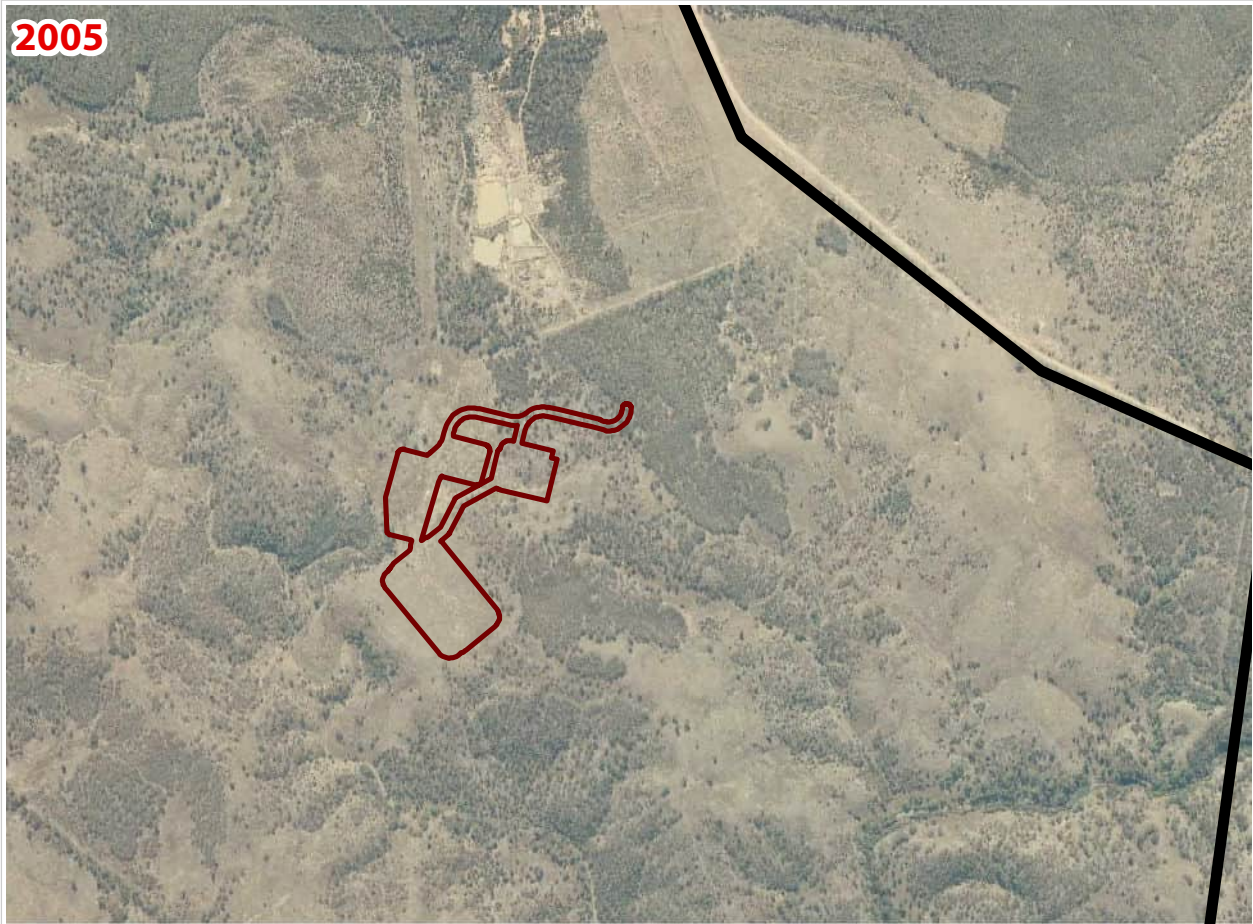
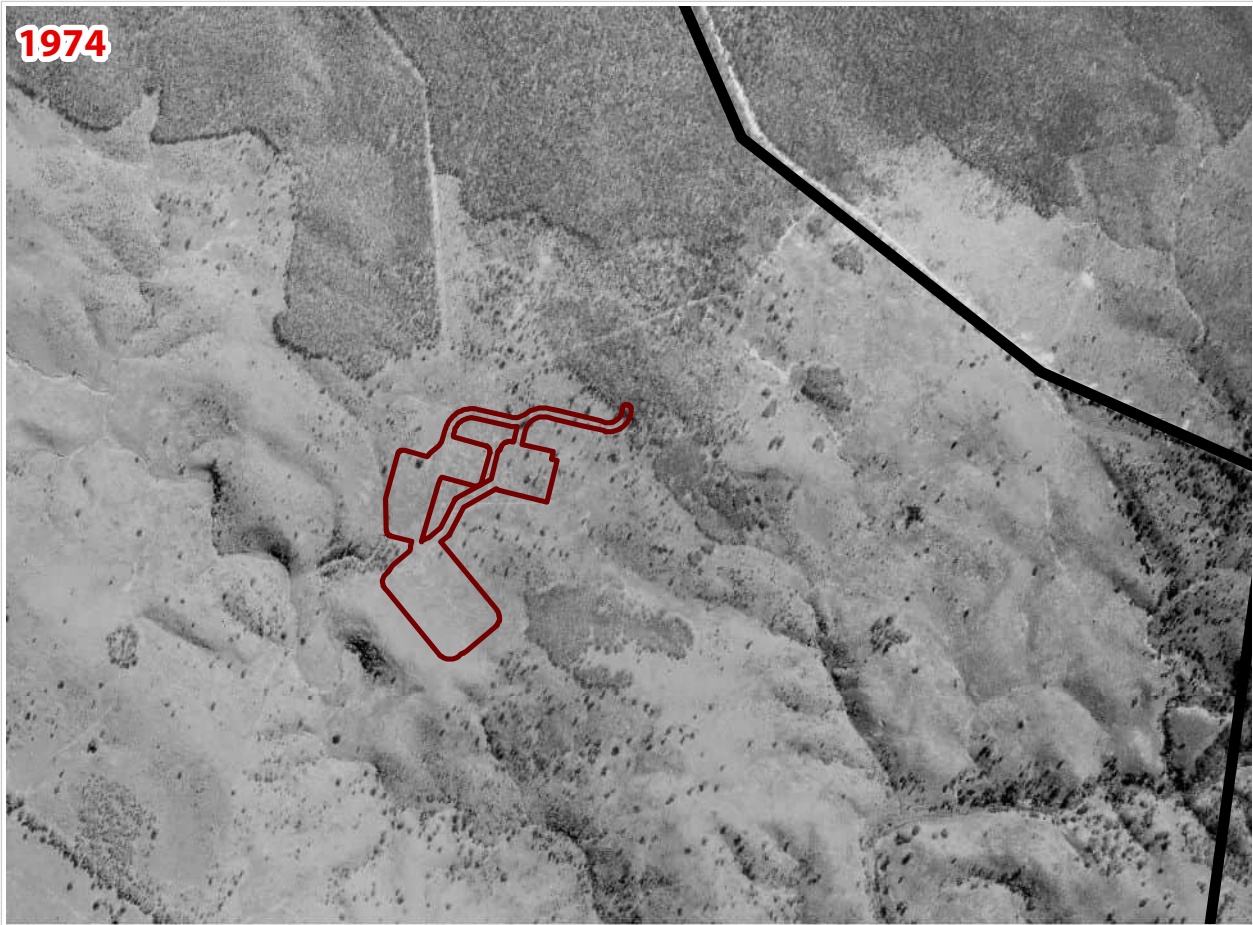
0 2 4 6 8 km

Scale (A4): 1:200,000 [GDA 2020 MGA Z56]



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01. Historical Aerial Imagery

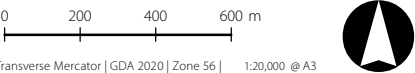


Notes:
This plan was prepared as a desktop assessment tool. The information on this plan is not suitable for any other purpose. Property dimensions, areas, numbers of lots and contours and other physical features shown have been compiled from existing information and may not have been verified by field survey. These may need verification if the development application is approved and development proceeds, and may change when a full survey is undertaken or in order to comply with development approval conditions. No reliance should be placed on the information on this plan for detailed design or for any financial dealings involving the land. Saunders Havill Group therefore disclaims any liability for any loss or damage whatsoever or howsoever incurred, arising from any party using or relying upon this plan for any purpose other than as a document prepared for the sole purpose of accompanying a development application and which may be subject to alteration beyond the control of the Saunders Havill Group. Unless a development approval states otherwise, this is not an approved plan.

Layer Sources
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- Legend
-  Qld DCDB
 -  Site DCDB
 -  Disturbance Footprint

Issue	Date	Description	Drawn	Checked
C	10/10/2024	Updated layout	TC	NT
D	20/11/2024	Updated layout	LS	NT



Address / RPD: Lot 15 on B34379

20/11/2024 | 11945 E01 Aerial History D

3. Field Surveys

Two (2) Ecologists, inclusive of a Senior and Principal, from SHG surveyed the project area on 20th, 21st and 22nd February 2024 to assess ecological values and confirm ecological characteristics on-ground. The entire proposed impact footprint and adjacent vegetation was walked to ensure all vegetation communities and species were recorded. Particular attention was paid to any threatened flora and habitat for any threatened fauna species that were listed as potentially occurring within the vicinity of the application area, and specific micro assemblage which may support these threatened species. Surveys included habitat quality assessments to confirm on-ground values and potential habitat features, waterway assessments, fauna and flora lists, SAT assessments for Koala usage, Grey-headed Flying-fox (GHFF) stem density counts and Greater Glider hollow bearing trees assessments.

3.1.1 Ground-truthing of vegetation communities

Vegetation was ground-truthed and assessed against current VMA Regional Ecosystem mapping and pre-clear mapping. A comprehensive flora survey was undertaken using a methodology consistent with the established formats used by the Queensland Herbarium Nelder et al. (2020) and Hnatiuk et al. (2009). Survey methodology comprised of an initial visual audit, followed by quantitative assessment of vegetation associations and communities.

The initial visual audit consisted of a random meander over the project area to ground-truth desktop investigations and identify the location and extent of any vegetation associations and communities. Qualitative assessments were undertaken by collecting data associated with structural formations (*i.e.*, growths form, stratum intervals, crown cover and height) and floristic associations (*i.e.*, species diversity) for each broad vegetation type.

3.1.2 Identification of Biodiversity Values

The site was assessed for any potential biodiversity values which included habitat quality transects and observations for significant flora and vertebrate fauna species that are listed under the Commonwealth's EPBC Act including the JAMBA, CAMBA, ROKAMBA and the Bonn Convention, and Queensland's NCA. Particular attention was paid to any threatened species that were listed as possibly occurring on or within the vicinity of the application area and specific micro-assemblages which may support these threatened species.

The results of the field surveys are presented in **Plan 2**.

3.1.3 Incidental bird surveys

This technique is a non-intrusive active area search that provides an estimate of diurnal bird species occurrence and abundance. Inclement weather was avoided as this greatly reduces the detection of bird species. The abundance of flowering trees at the survey site was observed, as this can influence the abundance and composition of nectar feeding diurnal birds. Further observations were recorded over several hours during other survey activities. Birds were identified from either direct observation or by their calls. Surveys focused on detecting glossy black-cockatoo, swift parrot and regent honeyeater.

3.1.4 Quaternary Assessments and Habitat Quality Transects

Verification of mapped RE communities was undertaken using Modified Habitat Quality Assessments and Quaternary level assessments in accordance with the methods detailed in Neldner et al. 2017. Data collected includes species, canopy coverage, and structural composition along with geology and landscape attributes. Verification of REs was used to refine habitat mapping for MNES and confirm the presence/absence of potential TECs within or adjacent the project area.

3.1.5 Targeted Fauna Habitat Search

Identification of habitat values relevant to threatened fauna within vegetation patches on site. This included recording of any hollow-bearing trees which may support Greater Glider, rocky areas which may support Spotted Tail Quoll, leaf litter for threatened reptiles and any denning or roosting structures and ecological features. The survey covered all habitat features on-site negating the need for subsampling. In addition, habitat quality transects included recording all potential Grey-headed Flying Fox foraging trees greater than 100 mm DBH to give an estimate of foraging habitat quality within the area.

3.1.6 Koala habitat assessment and Spot Assessment Technique surveys

Koala Habitat and Spot Assessment Technique (SAT) surveys were undertaken on-site in accordance with the methodology developed by the Australian Koala Foundation (as per Phillips and Callaghan 2011). The SAT method is an assessment of koala activity involving a search for any koalas and signs of koala usage.

The SAT methodology involves the selection of a focal non-juvenile tree that is either observed to have a Koala or scats or is known to be a food tree or otherwise important for koalas, followed by a systematic search for scats, identifiable scratches and direct observations of koala. Assessment of each tree requires the assessor to search the ground for koala scats within a 1 m radius of the trunk. If scats are not readily observed, the assessor should gently comb through the leaf litter or grass. After approximately two minutes of searching for scats, the base of the trunk is observed for scratches and the crown for koala. The next closest non-juvenile tree to the first tree is then assessed and so on until 30 trees have been surveyed. Only non-juvenile trees (DBH of 100 mm or greater) are assessed which includes native and non-native species.

A total of five (5) SAT surveys were completed within the project area and surrounding vegetation during the February 2024 field surveys (refer **Plan 2**). The number of trees showing evidence of koala activity is expressed as a percentage of the total number of trees sampled to indicate the frequency of koala usage. These surveys did not identify any scats or other evidence of Koala despite 150 total trees being surveyed for evidence of scats. This indicates the project area and directly adjacent habitat exhibits low usage by Koala.

3.1.7 Waterway Assessment

The project area sits adjacent to several DAF mapped WWBWs which are also mapped as VMA drainage features / watercourses. One *low-risk* DAF waterway, also mapped as a stream order 1 VMA watercourse, is present east of the project area. This waterway is mapped through an area currently containing development for the adjacent MISS and therefore is considered to be mapped incorrectly. Regardless, the BESS project will not interfere with this mapped waterway. Further, a *moderate-risk* DAF waterway / stream order 2 watercourse is present to the west of the project area. This waterway is mapped as traversing north of the project area from where mining lease land, through scattered vegetation into non-remnant vegetation before joining a *high-*

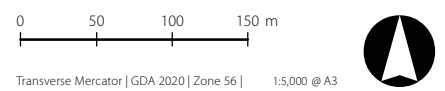
risk DAF WWBW / VMA stream order 3 watercourse in the south. Although the project does not intend to impact this mapped waterway, due to the adjacency of to the proposed impact footprint this feature was investigated with present values and habitat values recorded. The assessment of this waterway included:

- General description of bed and bank with photos
- Upstream and downstream characteristics and photos
- Vegetation quality and coverage (e.g. embankments, channel and overall corridor)
- Presence of riparian or macrophyte vegetation
- Extent of invasive weed cover.

Legend

	Qld DCDB
	2020/8759 (Overhead Transmission Line - MacIntyreWind Energy Precinct)
	Forest Creek (historical mining lease)
	Site DCDB
	Existing vehicle access
	Disturbance Footprint
Vegetation Management Regional Ecosystems	
	Category A or B area containing of concern regional ecosystems
Waterways - Risk of Impact	
	1 - Low
	2 - Moderate
	3 - High
Field Survey	
	Habitat Quality Transect
	NCA Transect
	GPS Track Log
	Hollow Bearing Tree
	SAT Survey
	Waterway Assessments
	Quarternary Survey

Issue	Date	Description	Drawn	Checked
C	10/10/2024	Updated layout	TC	NT
D	20/11/2024	Updated layout	LS	NT



Address / RPD: Lot 15 on B34379

20/11/2024 | 11945 E 02 Field Survey D

3.2. General Habitat Values

Under the VMA the proposed project area is mapped with Category X (non-remnant) vegetation, with the broader landscape containing patches of Category B (remnant) vegetation (locked in under PMAV 2017/006981). The majority of mapped remnant vegetation within Lot 15 occurs as fragmented patches, with the most intact areas to the north of the lot in association with Durikai State Forest. The project area has been subject to generations of sheep and goat grazing as well as timber harvesting, which have contributed to substantial loss and fragmentation of vegetation. Through these land uses, the natural environment has been subject to extensive loss of natural habitat features, which is evident through significant fragmentation. In addition, remnant vegetation across the project lot has been subject to historical clearing either through broad-acre clearing or ring-barking and aerial poisoning. In addition, field surveys identified that the understorey vegetation and natural substrates have been extensively degraded by grazing and trampling by stock. The historical logging activities and clearing have resulted in limited large trees and a general lack of hollow-bearing vegetation, further limiting niche habitat value within the area.

The project footprint has considered regulated vegetation mapping and proposes a project which avoids any direct clearing of remnant vegetation. All proposed impacts will occur within Category X (non-remnant), with the majority of the project area previously cleared of vegetation for use grazing activities and construction of and access to the MISS and over-head transmission line. Minor areas of non-remnant vegetation are proposed for clearing, all of which are either fragmented patches or on the edge of vegetation and therefore contain high evidence of disturbance.

Directly north-east of the proposed impact footprint is the MISS and associated access road which runs through a mapped remnant vegetation polygon to Carbean Road (refer **Photo Set 1**). North of the project area is a cleared powerline easement and an area currently under mining lease. East, west and south of the project footprint contains a matrix of vegetation patches and cleared paddock, reflecting of historical clearing that has occurred across the project lot and surrounding areas. The majority of surrounding vegetation is mapped as non-remnant with polygons of remnant vegetation directly north and east. All vegetation surrounding the proposed project footprint was observed to contain regrowth characteristics, a result of the historical disturbance and on-going land management of the site. Higher value vegetation within the wider area is largely associated with Durikai State Forest, 1 km north of the project area.



Photo Set 1: Land uses directly adjacent the proposed project; MISS and access road

3.2.1 Cleared Open Space

As mentioned above, the majority of the proposed BESS infrastructure and associated access road have been strategically designed to occupy existing cleared areas. This area is characterized by pastural grasses, largely dominated by native *Sporobolus creber* (Slender Rats Tail Grass), *Aristida caput-medusae* (Many-headed Wiregrass) and *Chloris truncata* (Australian Windmill Grass) (refer **Photo Set 2**). Canopy trees and shrubs are highly limited throughout the open areas, with some scattered *Callitris glaucophylla* (White Cypress) throughout and larger *Eucalyptus tereticornis* (Forest Red Gum) specimens around the edges of the paddock spaces. Weed presence is generally low considering the long-standing disturbance to the site however general pastural forbs were observed; *Onopordum acanthium* (Scotch Thistle), *Doellingeria infirma* (Cornel-leaf Whitetop), *Verbena bonariensis* (Purple-top Verbena) and *Vigna vexillata* (Wild Cowpea).

Pre-clear mapping across the cleared paddocks indicate composite RE 13.11.3/11.3.8 used to be present however indicator species of these regional ecosystems are absent from the area as a result of the on-going grazing and historical clearing of the area. In particular, the Queensland Herbarium regional ecosystems description of both of these REs indicate that poor management and heavy grazing has a significant impact on recruitment of canopy and shrub species. Further, the current use of the land for grazing goats has resulted in obvious damages to the ground layer and natural substrate. Consequently, portions of the ground layer lack any vegetation at all.

The project area also incorporates areas where previously approved clearing for surrounding infrastructure has occurred. The northern and north-eastern portion of the project area is largely characterised by exposed soil as it has been used for activities associated with the adjacent Powerlink MISS with the northern area running under a powerline easement, thus being regularly maintained (refer **Photo Set 3**). The proposed access road for the project intends to utilize these already cleared portions of the site in order to avoid further vegetation clearing.



Photo Set 3: General vegetation characteristics of the majority of the project area; cleared open space with scattered minor trees.



Photo Set 2: Previously cleared areas with little to no vegetation

3.2.2 Non-remnant Vegetation

Although the majority of the proposed project footprint is located in cleared areas, portions of non-remnant canopy vegetation will be impacted to ensure adequate buffers to proposed infrastructure from bushfire hazards. However, design has considered environmental overlays and on-ground validation surveys with the initial layout being moved outside of any remnant vegetation or mapped waterways. Habitat quality assessments, quaternary observational surveys and threatened species habitat assessments were undertaken within the non-remnant vegetations patches proposed for and adjacent the impact area in order to assess the overall quality and provide on-ground validation of flora.

The majority of the non-remnant vegetation was identified to reflect RE 13.11.3, dominated by *Eucalyptus dealbata* (Tumbledown Red Gum) with *E. albens* (White Box) and scattered *E. crebra* (Narrow-leaved Ironbark). Large trees, both in DBH and height, were noted to be generally absent the vegetation with the average height of the canopy vegetation recorded at 8 – 11 m and DBH's largely below 200 mm (refer **Photo Set 4**). These

factors are reflective of the previous clearing of the vegetation with continued grazing and land management continuing to limit regenerating canopy species. The shrub layer was observed to be relatively sparse with scattered *Leptospermum polygalifolium* (Wild May), *Persoonia adenantha* (Persoonia) and limited regrowth *E. dealbata* (Tumbledown Red Gum). Ground layer species were similar to the cleared paddock, largely dominated by *Sporobolus creber* (Slender Rats Tail Grass), *Aristida caput-medusae* (Many-headed Wiregrass) and *Cymbopogon refractus* (Barbwire Grass). The vegetated areas were noted to contain a higher diversity of native forb species however all were noted as common ground layer species in pastoral land; *Wahlenbergia gracilis* (Small Bluebell), *Goodenia rotundifolia* (Star Goodenia), *Lomandra multiflora* (Many Flowered Mat Rush) and *Chrysocephalum apiculatum* (Yellow Buttons). In general, invasive species coverage was observed to be low (2 – 5%) with *Opuntia tomentosa* (Velvet Tree Pear) and *Opuntia stricta* (Common Pest Pear) noted throughout the vegetation.

Some areas of the non-remnant vegetation, particularly to the west and south of the cleared open space, were noted to be dominated by *Callitris glaucophylla* (White Cypress) with only scattered *E. crebra* (Narrow-leaved Ironbark) (refer **Photo Set 5**) and therefore largely lack foraging vegetation for species such as Koala, Grey-headed Flying Fox and Regent Honeyeater. The shrub and ground layers of these portions of vegetation do not differ from the surrounding Eucalypt dominated non-remnant areas. It was however noted that invasive *Opuntia* species were in higher numbers in these portions of the site.



Photo Set 4: Non-remnant vegetation characteristics, dominated by immature Eucalypt species.



Photo Set 5: Non-remnant vegetation dominated by *Callitris glaucophylla* with invasive *Opuntia*.

3.2.3 Remnant Vegetation

As mentioned previously, the proposed project has been designed to avoid remnant vegetation patches, which are in general scattered and fragmented across the wider project lot. Two remnant polygons are present adjacent the project area, one directly east and one north-east surrounding the current access road. The polygon directly east of the project area was observed to be co-dominated by *Eucalyptus crebra* (Narrow-leaved Ironbark) and *E. albens* (White Box) with *E. dealbata* (Tumbledown Red Gum), reflective of RE 13.11.3. No *E. melliodora* (Yellow Box), *E. microcarpa* (Grey Box) or *E. moluccana* (Gum-topped Box), were noted within the vegetation, which are indicator species of endangered RE 13.11.8. The maturity of the vegetation was observed to be similar to that of the non-remnant vegetation, with average height observed at approximately 7m and DBH's largely below 200 mm (refer **Photo Set 6**) and large trees generally absent, indicative of the previous clearing across the area. The shrub layer is largely sparse with scattered *Leptospermum polygalifolium* (Wild May) and minor *E. albens* (White Box) regrowth. Ground cover is alike to the non-remnant vegetation areas, largely native grasses; *Sporobolus creber* (Slender Rats Tail Grass), *Aristida caput-medusae* (Many-headed Wiregrass) and *Cymbopogon refractus* (Barbwire Grass) with native forbs throughout; *Glycine clandestine* (Twining Glycine), *Goodenia rotundifolia* (Star Goodenia), *Solanum amblymerum* (Dunal), and *Lomandra multiflora* (Many Flowered Mat Rush).

The White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland threatened ecological community (TEC) is known to potentially form a small component of areas mapped as RE 13.11.3. Field assessments reviewed the remnant vegetation patches against the key diagnostic characteristics listed in the conservation advice from the TEC. Within the eastern remnant polygon, an area of approximately 0.56 ha was observed to be dominated by *E. albens*, which is a potential indicator of this community. However as mentioned above, none of the other listed indicator species (*E. melliodora* and/or *E. blakelyi* and/or *E. microcarpa* and/or *E. moluccana*) were observed within this patch. When assessing this patch of *E. albens* against the condition thresholds for the TEC it is found that it does not constitute condition Class A or Class B due to the entirety of the patch containing no mature trees and less than 12 native ground cover species recorded. Similarly, it does not constitute condition Class C due to being less than 2 ha in size and containing no mature trees under the TEC definition. It therefore has been determined that the White Box-Yellow Box-

Blakely's Red Gum Grassy Woodland and Derived Native Grassland TEC is not present in this remnant area due to historical and on-going land uses removing large trees and impacting the ground layer. Regardless, the proposed project does not intend to interfere with this vegetation and will be retained *in situ* with the proposed impact area located over 100 m from this patch.

The north-eastern polygon surrounding the access road was observed with the same canopy species as listed above however dominated by *E. crebra* (Narrow-leaved Ironbark) rather than *E. albens* (White Box). Furthermore, the overall height of canopy vegetation was observed to be taller in this portion of the site (approx. 16m on average) with a higher number of trees with a DBH greater than 200 mm observed. However, the majority of vegetation was still observed to be immature, and evidence of historical logging uses apparent. In addition, infestations of *Opuntia tomentosa* (Velvet Tree Pear) were observed in higher densities within this area, approximately 15% coverage (refer **Photo Set 7**), indicative of the longstanding modification of the environment and on-going land uses. Ground cover in this area does not significantly differ from surrounding non-remnant vegetation, containing largely native grass and forb species. However, historical and on-going hooved animal grazing is evident in the patchy nature of the ground layer species and bare patches of hardened substrate.



Photo Set 6: Remnant vegetation patch directly east of project area; dominated by immature Eucalypt species.



Photo Set 7: Remnant vegetation patch in north-east; dominated by *E. crebra* with a higher coverage of invasive *Opuntia*.

3.2.4 Waterway Assessment

As mentioned in **Section 3.1.7**, the project area is surrounded by several DAF mapped WWBWs which are also mapped as VMA drainage features / watercourses. One *low-risk* DAF waterway, also mapped as a stream order 1 watercourse, is present east of the project area. This waterway is mapped through an area already containing development for the adjacent Powerlink MISS and therefore is considered to be mapped incorrectly. Regardless, the proposed BESS project does not propose to interfere with this mapping. A *moderate-risk* DAF waterway / stream order 2 watercourse is present to the west of the project area. This waterway is mapped as traversing north of the project area from the area designated as mining lease land, meandering south through scattered vegetation into a patch non-remnant vegetation before joining a *high-risk* DAF waterway / VMA stream order 3 watercourse in the south. Due to the adjacency of the waterway to the proposed impact footprint this waterway was investigated with present values and habitat features recorded.

These assessments found that the waterway generally reflects a low-lying drainage feature between sloping hilled areas (refer **Photo Set 8**). Ecologists found a flow path to be evident, ranging from 30 cm to 3 m in width, however within the upstream portion banks are largely not defined, rather occurring as gently sloping hills into the flow path. No permanent water pooling was noted within the channel, with flow anticipated to be ephemeral during times of heavy rain. Marcophytes and riparian vegetation were not noted however *Juncus usitatus* (Common Rush), a common wet area species, was observed growing through the flow path. As a result of historical clearing, vegetation surrounding the waterway is a matrix of cleared open paddock dominated by *Sporobolus creber* (Slender Rats Tail Grass) and non-remnant open woodland containing *Callitris glaucophylla* (White Cypress) and *Eucalyptus crebra* (Narrow-leaved Ironbark). Fish habitat features are generally limited, such as overhanging roots, as a result of the modification to the surrounding area. Disturbances cut through the northern extent of the waterway including cleared areas for a power easement and bed level crossing for road access (refer **Photo Set 8**).

The waterway itself originates from sediment dams associated with mining activity and meanders through to a *high-risk* DAF WWBWs downstream. Field surveys have noted that approximately 140 m upstream of the

intersection between the *moderate-risk* and *high-risk* waterways a 3-tiered rocky “waterfall” is present (refer **Photo Set 9**). This vertical structure is approximately 5 m high and considered a major barrier to fish passage upstream. Therefore, north of this structure is considered not a waterway for fish passage under the DAF definition of a waterway.

Regardless, project design has proposed the avoidance of the waterway, leaving the mapped flow path to exist *in-situ*. Should any crossings or infrastructure be proposed through the mapped channel, these will adhere to Accepted Development Requirements (ADR) otherwise referral to DAF for assessment will occur.



Photo Set 9: Southern portion of mapped *moderate risk* WWBW; 3-tiered rock face in channel creating a barrier to fish movement upstream.



Photo Set 8: Characteristics of mapped *moderate-risk* WWBW to west of project area.

3.2.5 Flora Survey Results

A total of eighty-one (81) flora species were recorded on-site during the field surveys. Of these species, fifty-eight (58) were identified to be native species (refer **Table 3**) with the remaining twenty-three (23) identified

as invasive species (refer **Table 4**). Two (2) of the invasive species, *Opuntia stricta* (Common Pest Pear) and *Opuntia tomentosa* (Velvet Tree Pear), are considered restricted under the *Biosecurity Act 2014* and will require specific management techniques to limit spread. In general, the majority of species observed are ground layer species, which is indicative of the historical clearing and modification of the site and significant lack of canopy.

No species listed under the NCA or EPBC Act were identified on-site nor were areas of critical habitat to support threatened species identified to occur on-site or within the surrounding area. Given the records of *Macrozamia conferta*, *Calotis glabrescens* and *Vincetoxicum forsteri* within 5 km of the project site, particular attention was paid for these species during site walkovers and specific vegetation assessments however none were recorded within the project footprint or surrounds. In addition, disturbance to the ground layer, in particular continued heavy grazing by goat, has significantly modified the substrate and degraded areas of the land therefore the land is unlikely to support threatened species in the current state.

Table 3: Native Flora Species Recorded

Scientific Name	Common Name
<i>Acacia fimbriata</i>	Brisbane Wattle
<i>Acacia melanoxylon</i>	Australian Blackwood
<i>Acacia salicina</i>	Sally Wattle
<i>Amyema bifurcata</i>	Bloodwood Mistletoe
<i>Aristida caput-medusae</i>	Many-headed Wiregrass
<i>Aristida latifolia</i>	Feathertop Wiregrass
<i>Austrostipa rudis subsp. nervosa</i>	Veined Spear-grass
<i>Brachyscome multifida</i>	Rock Daisy
<i>Callitris glaucophylla</i>	White Cypress
<i>Centella asiatica</i>	Indian Pennywort
<i>Cheilanthes distans</i>	Bristle Cloak Fern
<i>Chloris truncata</i>	Australian Windmill Grass
<i>Chrysocephalum apiculatum</i>	Yellow Buttons
<i>Convolvulus angustissimus</i>	Australian Bindweed
<i>Cryptandra armata</i>	Cryptandra
<i>Cyanthillium cinereum</i>	Vernonia
<i>Cymbopogon refractus</i>	Barbed Wire Grass
<i>Desmodium rhytidophyllum</i>	Hairy Trefoil
<i>Dianella caerulea</i>	Blue Flax Lily
<i>Dianella longifolia</i>	Pale Flax-lily
<i>Dodonaea triquetra</i>	Common Hop Bush

Scientific Name	Common Name
<i>Einadia trigonos</i>	Fishweed
<i>Epacris impressa</i>	Common Heath
<i>Eragrostis brownii</i>	Brown's Lovegrass
<i>Eucalyptus albens</i>	White Box
<i>Eucalyptus dealbata</i>	Tumbledown Red Gum
<i>Eucalyptus crebra</i>	Narrow-leaved Ironbark
<i>Eucalyptus tereticornis</i>	Forest Red Gum
<i>Euchiton sphaericus</i>	Star Cudweed
<i>Fimbristylis nutans</i>	A Fringe Rush
<i>Geijera parviflora</i>	Wilga
<i>Glycine clandestina</i>	Twining Glycine
<i>Goodenia rotundifolia</i>	Star Goodenia
<i>Heteropogon contortus</i>	Black Speargrass
<i>Hovea lanceolata</i>	Lance Leaf Hovea
<i>Indigofera hirsuta</i>	Hairy Indigo
<i>Isotoma axillaris</i>	Rock Isotome
<i>Jacksonia scoparia</i>	Dogwood
<i>Juncus usitatus</i>	Common Rush
<i>Leptospermum polygalifolium</i>	Wild May
<i>Lobelia purpurascens</i>	White Root
<i>Lomandra longifolia</i>	Long-leaved Matrush
<i>Lomandra multiflora</i>	Many Flowered Mat Rush
<i>Notelaea microcarpa</i>	Small-fruited Mock Olive
<i>Olearia elliptica</i>	Sticky Daisy Bush
<i>Opercularia hispida</i>	Hairy Stinkweed
<i>Persoonia adenantha</i>	Persoonia
<i>Pimelea linifolia subsp. linifolia</i>	Rice Flower
<i>Pomax umbellata</i>	Pomax
<i>Pterocaulon redolens</i>	Apple Bush
<i>Pultenaea spinosa</i>	Spiny Pea Bush
<i>Sida atherophora</i>	Buttercup Sida
<i>Solanum amblymerum</i>	Dunal

Scientific Name	Common Name
<i>Solanum ellipticum</i>	Bush Potato
<i>Sphaeromorphaea australis</i>	Spreading Nut-heads
<i>Sporobolus creber</i>	Slender Rats Tail Grass
<i>Typha domingensis</i>	Narrow Leaf Cumbungi
<i>Wahlenbergia gracilis</i>	Small Bluebell

Table 4: Introduced Flora Species Recorded

Scientific Name	Common Name
<i>Ageratum houstonianum</i>	Blue Billy Goat Weed
<i>Argemone mexicana</i>	Mexican Poppy
<i>Asclepias curassavica</i>	Red-headed Cotton Bush
<i>Chloris gayana</i>	Rhodes Grass
<i>Conyza sumatrensis</i>	Tall Fleabane
<i>Cynodon dactylon</i>	Green Couch
<i>Doellingeria infirma</i>	Cornel-leaf Whitetop
<i>Galinsoga quadriradiata</i>	Shaggy Soldier
<i>Gamochaeta pensylvanica</i>	Pennsylvania Cudweed
<i>Heliotropium amplexicaule</i>	Blue Heliotrope
<i>Hypochaeris radicata</i>	Flatweed
<i>Melinis repens</i>	Red Natal Grass
<i>Onopordum acanthium</i>	Scotch Thistle
<i>Opuntia stricta</i>	Common Pest Pear (R)
<i>Opuntia tomentosa</i>	Velvet Tree Pear (R)
<i>Sida rhombifolia</i>	Common Sida
<i>Taraxacum officinale</i>	Common Dandelion
<i>Trifolium repens</i>	White Clover
<i>Urochloa decumbens</i>	Signal Grass
<i>Verbena bonariensis</i>	Purple-top Verbena
<i>Vicia sativa</i>	Common Vetch
<i>Vigna vexillata</i>	Wild Cowpea
<i>Xanthium occidentale</i>	Noogoora Burr

(R) – Restricted Invasive under the *Biosecurity Act 2014*

3.2.6 Fauna Observations

Fauna assessments were conducted across the site to identify and describe on-ground habitat features (e.g. habitat trees, fallen logs, termite mounds, roosting sites etc.), signs of fauna activity (e.g. scats, tracks, scratch marks on trees, nests etc.) and observations of species present within the area. Consideration was also given to the ecological significance of the site in the context of the local area and the broader region.

The following fauna observations were recorded throughout the 2024 survey period:

- The majority of the project area lacks significant habitat value with the majority of the 13.81 ha impact containing modified cleared open paddock with this community comprising 12.52 ha of the impact and the remaining 1.29 ha containing disturbed non-remnant canopy vegetation.
- A total of twenty-one (21) fauna species were recorded on or adjacent the site, including two (2) introduced species (refer **Table 5**). The majority of fauna observed throughout the survey were generalist avi-fauna, reflecting the general lack of habitat values present. No fauna species listed under Commonwealth legislation or protected under the NCA were observed within the proposed project footprint or adjacent vegetation.
- Several pest species have been identified across the wider area between 2020 and 2024 (refer **Table 6**). Wild Dog and Feral Cat in particular are listed as key threatening processes under the EPBC Act to several listed threatened species, including Koala, Grey-headed Flying Fox and Greater Glider.

The following fauna observations were recorded within the general vicinity of the project during 2018 – 2020 surveys for the MacIntyre Wind Farm project:

- Previous surveys conducted across the project lot and surrounds during 2018 through to 2020 for a separate development identified twenty-three (23) reptile species, twenty-nine (29) mammal species, ten (10) amphibian species and one-hundred and forty-one (141) bird species.
- The separate 2019 – 2020 project had a larger footprint and encompassed a much more significant area of vegetation than the impact area for the proposed BESS project, hence a larger area was surveyed and a far greater number of species recorded. It is however noted that the majority of the species observed during these 2020 surveys were common and not conservation significant species. This is with exception to three (3) observations of Koala, all of which were sighted in the north of Lot 15 adjacent Durikai State Forest. All of these records are over 2 km from the proposed BESS project area, with vegetation in between fragmented by mining activities, power easements and historically cleared areas.

Table 5: Fauna species list observed on site during 2024 surveys

Scientific Name	Common Name	NCA Conservation Status
Birds		
<i>Anthus novaeseelandiae</i>	Australasian Pipit	Least Concern
<i>Corvus orru</i>	Torresian Crow	Least Concern

Scientific Name	Common Name	NCA Conservation Status
<i>Cracticus nigrogularis</i>	Pied Butcherbird	Least Concern
<i>Dendrocygna eytoni</i>	Plumed Whistling-Duck	Least Concern
<i>Entomyzon cyanotis</i>	Blue-faced Honeyeater	Least Concern
<i>Egretta novaehollandiae</i>	White-faced Heron	Least Concern
<i>Grallina cyanoleuca</i>	Magpie-lark	Least Concern
<i>Gymnorhina tibicen</i>	Australian Magpie	Least Concern
<i>Manorina melanocephala</i>	Noisy Miner	Least Concern
<i>Philemon corniculatus</i>	Noisy Friarbird	Least Concern
<i>Rhipidura leucophrys</i>	Willie Wagtail	Least Concern
<i>Smicrornis brevirostris</i>	Weebill	Least Concern
<i>Strepera graculina</i>	Pied Currawong	Least Concern
<i>Vanellus miles</i>	Masked Lapwing	Least Concern
Mammals		
<i>Canis lupus familiaris</i>	Dog (scat)	N/A
<i>Capra aegagrus hircus</i>	Goat	N/A
<i>Macropus giganteus</i>	Eastern Grey Kangaroo	Least Concern
<i>Macropus rufogriseus</i>	Red-necked Wallaby	Least Concern
<i>Wallabia bicolor</i>	Swamp Wallaby	Least Concern
Reptiles		
<i>Lampropholis delicata</i>	Grass Skink	Least Concern
<i>Varanus varius</i>	Lace Monitor	Least Concern

Table 6: Pest species known to occur within the project area.

Scientific Name	Common Name	Taxa	Recorded
<i>Canis lupus familiaris</i>	Wild Dog	Mammal	2020, 2022, 2023, 2024
<i>Cervus elaphus</i>	Red Deer	Mammal	2020
<i>Dama dama</i>	Fallow Deer	Mammal	2020
<i>Felis catus</i>	Feral Cat	Mammal	2020, 2022, 2023
<i>Oryctolagus cuniculus</i>	European Rabbit	Mammal	2020, 2022, 2023
<i>Sus scrofa</i>	Feral Pig	Mammal	2020, 2022, 2023

3.2.7 Threatened fauna species

The EPBC Act PMST lists thirty-one (31) fauna listed as Threatened under the EPBC Act with the potential to occur within 5 km of the site (refer **Appendix B**). A Wildlife Online Search listed two (2) protected fauna species

as occurring within 5 km of the site including *Stagonopleura guttata* (Diamond Firetail) and *Phascolarctos cinereus* (Koala) (refer **Appendix C**).

Assessments have identified that the flora and fauna species listed as threatened under the EPBC Act and NCA were considered low or unlikely to occur within the proposed project footprint. This was determined due to the proposed BESS infrastructure occurring in largely cleared space surrounded by similar land uses, including the MISS, over-head transmission line, and mining activities. Therefore, habitat values to support threatened species are largely limited within the proposed impact area due to the lack of canopy trees. This is with exception to 1.29 ha of non-remnant canopy vegetation proposed for clearing at the edges of the proposed access infrastructure and adjacent the existing MISS. This vegetation was assessed and found to be largely immature, characteristic of historical clearing, and to contain edge effects as a result of surrounding land uses. The lack of habitat value is supported by mapping overlays, with the project area largely unconstrained by State and Local Government overlays and legislative provisions. Under the VMA the proposed project area is mapped with Category X (non-remnant) vegetation, with the broader landscape containing patches of Category B (remnant) vegetation (locked in under PMAV 2017/006981). The majority of mapped remnant vegetation occur as fragmented patches, with the most intact areas to the north of the lot in association with Durikai State Forest.

The proposed project will occur in largely cleared open space with limited potential habitat and fauna movement opportunities. The vegetation associated with Durikai State Forest is much more likely to support threatened species due to the limited disturbance and overall species diversity. It is not considered a high likelihood that species would enter the site due to avoidance behaviour of the area resulting from the historic land uses of the site, immature vegetation values and current overall human presence.

No EPBC Act or NCA listed fauna species were recorded within the project area as part of contemporary or previous field survey efforts, nor are they considered likely to occur within the project impact area due to lack of suitable habitat and surrounding highly modified environments.

4. Development Impact Assessment

4.1. Proposed Development

The proposed development is for the development of a battery energy storage system (BESS) approximately 400MW in capacity. A maximum development footprint of 13.81 hectares has been identified for the project, the majority of which (12.52 ha) is within cleared open paddock space (refer **Plan 3**). The specific layout of the BESS and associated infrastructure is subject to ongoing detailed design investigation and development. Core features of the site layout include:

- 400MW battery energy storage system;
- Perimeter fencing (approximately 1.8 m high);
- One (1) construction access/egress points;
- Temporary laydown area;
- Operation and maintenance building/compound;
- Substation;
- Underground medium voltage reticulation cabling between BESS and substation; and
- Overhead cable between substation and MISS (approximately 54m, with no transmission towers required).

The project has been designed to avoid direct impact to regulated vegetation under the VMA. Subsequently, all proposed impacts will occur within Category X (non-remnant) which is not regulated under the VMA and was identified by contemporary and previous field surveys to contain limited habitat features. On-ground observations of the non-remnant canopy vegetation found these areas to contain high levels of disturbance; characterized immature (≤ 200 mm DBH) vegetation with limited habitat features such as hollow bearing trees; a result of historical clearing and on-going land uses surrounding this vegetation.

Therefore, although the 1.29 ha of canopy vegetation proposed for impact contains Eucalypt species and native vegetation which may provide foraging habitat for fauna, the disturbance and surrounding land uses have resulted in much of the edge of vegetation containing lower value habitat attributes. In addition, project design has considered surrounding areas of higher value, including highly connected non-remnant vegetation and remnant polygons, and avoided these entirely. It is considered unlikely that this non-remnant vegetation would support threatened species, such as Koala and GHFF. This is with consideration to records of threatened species in the local area, which largely occur within the intact vegetation associated with Durikai State Forest to the north and east. The proposed project is separated from these records by barriers including Carbean Road, cleared areas, power easements and mining activities. Although not impossible for threatened species to traverse the project area it is unlikely species would enter the largely cleared project area, particularly given the surrounding current land uses and known avoidance behaviour by fauna and the availability of connected intact remnant vegetation within Durikai State Forest. This is supported by field surveys finding no evidence of listed threatened within the vicinity of the project area, despite targeted searches.

It is not anticipated that connectivity will be impacted by the project as vegetation proposed for removal is either already disconnected or on the edge of existing vegetation patches, therefore no fragmentation is intended to occur as a result of the project. As per *State Code 25: Development in South East Queensland koala habitat Areas*, Koala habitat areas which are less than 200 m apart are considered highly connected. The cleared areas of the site have resulted in much of the vegetation from east to west being over 200 m from each other, therefore can be considered highly disconnected. Connectivity will be retained through the avoidance of intact vegetation patches to the south, east and west.

The project area is surrounded by several DAF mapped waterways for waterway barrier works (WWBWs) which are also mapped as VMA drainage features / watercourses. The BESS project does not propose to interfere with any of the mapped waterways on-site. The nearest to the development footprint is a moderate-risk DAF waterway / stream order 2 watercourse present to the west of the project area. This waterway is mapped as traversing north of the project area from where mining lease land, through scattered vegetation into non-remnant vegetation before joining a high-risk DAF WWBW / VMA stream order 3 watercourse in the south.

The waterway itself originates from sediment dams associated with mining activity and meanders through to a *high-risk* DAF WWBWs downstream. Field surveys have noted that the waterway is more so reflective of a low-lying drainage feature between gradually sloping hills, lacking defined banks. Pooling water was absent with flow anticipated to be ephemeral during times of heavy rainfall. In addition, approximately 140 m upstream of the intersection between the *moderate-risk* and *high-risk* waterways a 3-tiered rocky “waterfall” is present. This vertical structure is approximately 5 m high and considered a major barrier to fish passage upstream. Therefore, north of this structure is considered not a waterway for fish passage under the DAF definition of a waterway.

Regardless, project design has proposed the avoidance of the waterway, leaving the mapped flow path to exist *in-situ*. Should any crossings or infrastructure be proposed through the mapped channel, these will adhere to Accepted Development Requirements (ADR) otherwise referral to DAF for assessment will occur.

4.2. Avoidance and Mitigation Measures

Prior to selecting the project site, a feasibility analysis was undertaken across three potential broad project sites based on engineering and grid connection requirements. Additional studies resulted in six (6) proposed locations and potential layouts for the project. An Ecological options analysis was conducted to determine the optimal location and layout resulting in the least impact to ecological values based on desktop searches and reviews. The current location was selected as it was the least constrained and provided the most direct connection to the existing MISS, further reducing potential impacts from connection options. Additionally, the location for the project was chosen due to the areas relatively flat topography which limits earthworks required, as well as its close proximity to similar land uses which have directly and indirectly impacted values within the proposed project area.

As well as consideration to the location of the project, the layout has undergone extensive optimisation through iterative revisions guided by expert ecological advice, aimed at minimising impacts to potential ecological values. This included adjusting the size and orientation of the BESS in order to pull back from

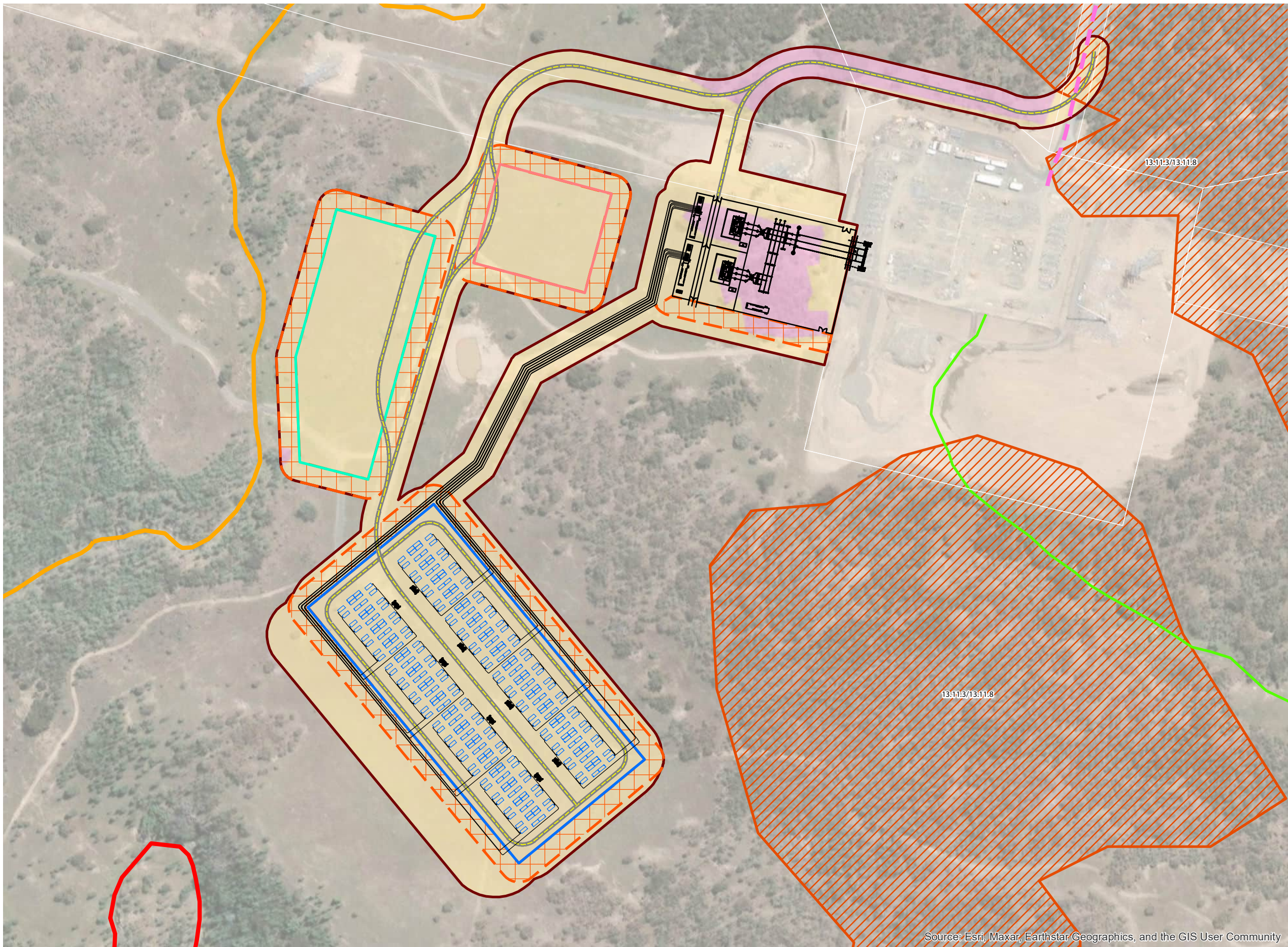
impacting Category B (remnant) vegetation within the east. In addition, the proposed substation, O&M and compound location underwent several revisions with the final location chosen as a way of combining and reducing impact by locating the O&M and compound together and locating the substation adjacent the adjacent to the existing MISS, eliminating the need for transmission towers to connect to the grid network. Similarly, the proposed access track was considered in five (5) locations with constraints such as the existing MISS, over-head transmission line, and Category B (remnant) vegetation taken into account.

All access track options which were considered attempted to utilize areas already containing clearing or existing tracks. One such option proposed access via an unsealed track which traverses between the mining lease area to the north and patch of vegetation to the south. However, given the presence of a low-risk waterway for waterway barrier works (WWBW) to the east and necessary upgrades to this unsealed road requiring a larger area of vegetation clearing it was considered a less favourable option.

Notably one design proposed an access option which involved the creation of a temporary access track outside of the Powerlink MISS lot, which would be utilized for construction purposes only with the area rehabilitated post construction. The existing track in the MISS Lot would then be utilized during the operational period of the project, thus ultimately minimising permanent environmental impact via rehabilitation and utilizing current access tracks entirely. However, Powerlink requested that Acciona avoid utilizing the existing track located within the MISS Lot for any use, as such use may conflict with their activities. Powerlink was however agreeable to Acciona creating and utilizing a newly created track outside of the MISS Lot as a permanent feature, and thus the finalised access design was settled on. Although this proposed track will result in some vegetation removal, it has been considerably designed with ecological guidance to avoid any impact to Category B (remnant) vegetation and placed in an area directly adjacent a currently cleared carpark. Vegetation within this area is scattered and immature, with ground surveys identifying disturbance characteristics throughout as a result of the adjacent Powerlink activities.

As a result of the optimisation of the project layout, the large majority of the impacts will occur in open paddock with only 1.29 ha of canopy vegetation being impacted, which is unlikely to constitute critical habitat to support threatened species due to its size and location. It is considered unlikely that native fauna would rely on the non-remnant vegetation proposed for removal as it is considered unlikely this vegetation would provide significant habitat for native fauna, when surrounding areas provide an abundance of connected and remnant vegetation. The project area lacks significant habitat features such as preferred foraging tree species and is, in its current state, indirectly impacted by surrounding land uses leading to increased avoidance behaviour. Areas adjacent to existing infrastructure and disturbance have been utilized to the greatest extent possible to provide functional and efficient BESS capacity and supporting infrastructure. The construction of the project will be supported by the supervision of appropriately qualified fauna spotter catchers and vegetation clearing and fauna management plans. Therefore, the project is not anticipated to have significant residual impacts to environmental matters.

03. Impact Assessment



Notes:
This plan is not suitable for any other purpose. The information on this plan is not suitable for any other purpose. Property dimensions, areas, numbers of lots and contours and other physical features shown have been compiled from existing information and may not have been verified by field survey. These may need verification if the development application is approved and development proceeds, and may change when a full survey is undertaken or in order to comply with development approval conditions. No reliance should be placed on the information on this plan for detailed design or for any financial dealings involving the land. Saunders Havill Group therefore disclaims any liability for any loss or damage whatsoever or howsoever incurred, arising from any party using or relying upon this plan for any purpose other than as a document prepared for the sole purpose of accompanying a development application and which may be subject to alteration beyond the control of the Saunders Havill Group. Unless a development approval states otherwise, this is not an approved plan.

Layer Sources
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Updated data available at
<http://qldspatial.information.qld.gov.au/catalogue/>
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- Legend
- Qld DCDB
 - Waterways - Risk of Impact**
 - 1 - Low
 - 2 - Moderate
 - 3 - High
 - Vegetation Management Regional Ecosystems**
 - Category A or B area containing of concern regional ecosystems
 - Existing Access Track
 - Disturbance Footprint
 - BESS bench
 - Temporary Laydown Area
 - O.M. facility & laydown compound
 - KABF substation
 - Access road
 - Powerline
 - Bushfire APZ
 - Impact Assessment**
 - Modified Paddock Area [12.52 ha]
 - Non-remnant Vegetation [1.29 ha]

Issue	Date	Description	Drawn	Checked
C	10/10/2024	Updated layout	TC	NT
D	2/12/2024	Updated layout	LS	NT



5. Conclusions

The Environmental Management Division of Saunders Havill Group (SHG) was engaged by Acciona Energia (the Applicant) to prepare this Ecological Technical Memo to provide advice with respect to environmental matters prescribed within the adopted *Goondiwindi Region Planning Scheme 2020*. The proposed project is for a Battery Energy Storage System (BESS) and associated access infrastructure within a portion of Lot 15 on SP332758, located at Carbean Road, Karara, Queensland, 4352 (refer **Appendix A** for proposed project layout). The proposed project is currently mapped within a Rural Zone under the *Goondiwindi Region Planning Scheme* with the proposed project not aligning with this zoning, however the site is not within an Important Agricultural Area as defined by the Economic Development Strategic Framework. This memo is intended to support a Material Change of Use (MCU) application to Goondiwindi Region Council (GRC). This report provides a contemporary review of the ecological values across the site, identified through desktop analysis and field survey, in accordance with Commonwealth, State and Local Government Legislation.

The project lot is currently utilized by Powerlink for the MISS and contains the over-head transmission line which connects the MacIntyre Wind Farm to Powerlink's transmission network. In addition, an area within the north of the project lot is leased for mining activities. The remaining areas of the lot are utilized for livestock grazing, inclusive of cattle and goat, and contain a matrix of regrowth bushland and cleared open space. The vegetation characteristics reflect the current grazing activities and previous broadscale clearing that occurred on-site during the 1980's. As a result of the historical and on-going land uses, State and Local environmental overlays are limited across the project lot. The proposed BESS is located adjacent to the MISS and has utilized as much currently cleared and disturbed area as possible in order to avoid disturbance to surrounding vegetation and areas of higher environmental value.

The layout has undergone extensive optimisation through iterative revisions guided by expert ecological advice, aimed at minimising impacts to potential ecological values. Further, prior to selecting the site, a feasibility analysis was conducted on six potential locations to determine the optimal choice, ultimately leading to the proposed location resulting in the proposal of least impact to potential ecological values.

Resultantly the impact area of 13.81 ha contains 12.52 ha of cleared open paddock with only scattered small trees present. The remaining 1.29 hectares of the development footprint impacts non-remnant canopy vegetation patches which are on the very edge of larger areas or are fragmented and highly disturbed due to their location adjacent the MISS and over-head transmission line. Therefore, the project is not anticipated to fragment existing habitats nor significantly reduce the availability of high-value foraging and breeding vegetation for fauna.

The project area is largely unconstrained under State and Local Government overlays and legislative provisions:

- Under the *Vegetation Management Act 1999* the proposed project area is mapped with Category X (non-remnant) vegetation, with the broader landscape containing patches of Category B (remnant) vegetation (PMAV 2017/006981). The project footprint has considered the remnant vegetation and avoided clearing of this vegetation. All proposed impacts will occur within Category X (non-remnant)

vegetation which is not regulated under the VMA. Therefore, a response to *State Code 16* is not required.

- Under the *Goondiwindi Region Planning Scheme* natural environment overlay, areas of regulated vegetation are mapped within the wider lot however the project area itself avoids impact to these areas.
- The entirety of the development footprint is within Category X (non-remnant) vegetation with 12.52 ha containing cleared open paddock and 1.29 ha containing non-remnant canopy vegetation. It is understood this vegetation will be cleared to deliver the project, however field surveys found that the vegetation is largely immature (< 200 mm DBH) and contains limited habitat features to support fauna. As mentioned above, non-remnant vegetation is not regulated by the VMA.
- No species listed under the *Nature Conservation Act 1992* (NCA) or EPBC Act were identified on-site nor were areas of critical habitat to support threatened species identified to occur on-site or within the surrounding area.
- All fauna species observed were considered to be common fauna. The limited diversity of species recorded is likely due to the lack of habitat value on and surrounding the project area and high likelihood of avoidance behaviour from species due to the current surrounding land-uses.
- No significant impact to MNES is anticipated to occur as a result of the proposed project. Further and more detailed assessments of these matters are presented in a separate MNES self-assessment report.
- Project design intends to avoid impact to mapped waterways on-site, therefore referral to DAF nor a response to *State code 18: Constructing or raising waterway barrier works in fish habitats* is not required.
- The entire lot is not within a Koala Priority Area (KPA) and no Koala Habitat Areas (KHA) are mapped within the site. Therefore, referral to State with a response to *State Code 25* is not required

6. Appendices

Appendix A

Proposed Project Layout

Appendix B

Environmental Searches Maps

Appendix C

EPBC Act Protected Matters Search Tool Results

Appendix D

NCA Wildlife Online Search Results

Appendix E

Response to 8.2.1 Biodiversity Areas Overlay Code - Goondiwindi Regional Council

Appendix F

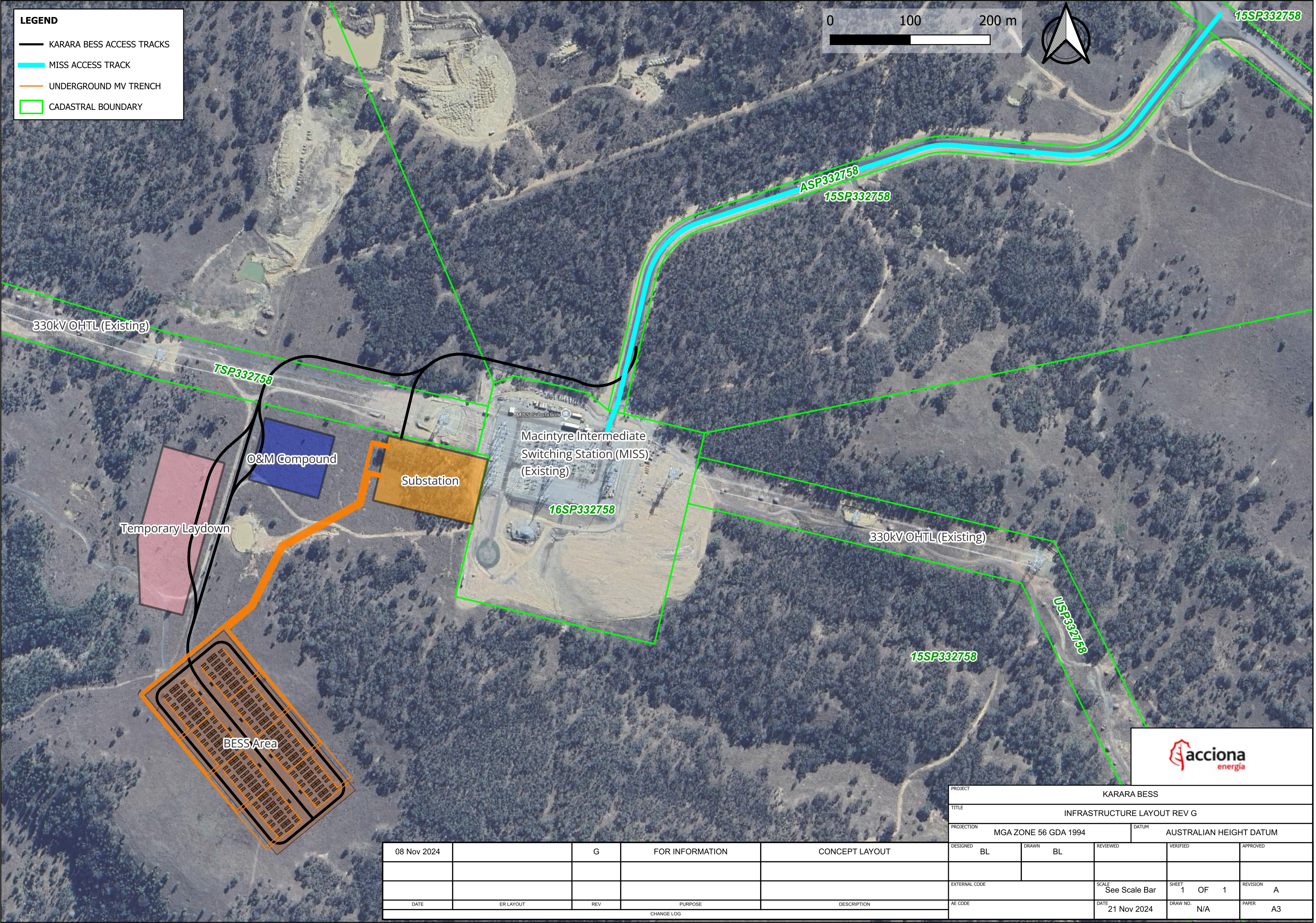
SAT Survey Results

Appendix A

Proposed Project Layout

LEGEND

- KARARA BESS ACCESS TRACKS
- MISS ACCESS TRACK
- UNDERGROUND MV TRENCH
- CADASTRAL BOUNDARY



08 Nov 2024		G	FOR INFORMATION	CONCEPT LAYOUT
DATE	ER LAYOUT	REV	PURPOSE	DESCRIPTION
CHANGE LOG				

PROJECT					KARARA BESS				
TITLE					INFRASTRUCTURE LAYOUT REV G				
PROJECTION			MGA ZONE 56 GDA 1994		DATUM		AUSTRALIAN HEIGHT DATUM		
DESIGNED	BL	DRAWN	BL	REVIEWED	VERIFIED	APPROVED			
EXTERNAL CODE			SCALE		SHEET		OF		REVISION
AE CODE			See Scale Bar		1		1		A
			DATE		DRAW NO.		PAPER		
			21 Nov 2024		N/A		A3		

Appendix B

Environmental Searches Maps



Environmental searches

Carbean Road, Karara,
Queensland 4352
acciona
1 February 2024

E11425

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Property attributes		1 February 2024
Address	Carbean Road, Karara, Queensland 4352	
Lot/plan(s)	Lot 15 on B34379	
Area (ha)	2094.54	
Local government area	Goondiwindi Regional Council	

1. Federal Matters of National Environmental Significance

A Protected Matters Report was generated from the environment.gov.au website and returned the following results. These matters may occur within a 5 km radius of the site and are protected under the *Environment Protection and Biodiversity Conservation Act 1999*.

World Heritage Properties:	None
National Heritage Places:	None
Wetlands of International Importance:	4
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	None
Listed Threatened Ecological Communities:	3

Community	Status	RE Mapped
Natural grassland on basalt and fine-textured alluvial plains of northern New South Wales and southern Queensland	Critically Endangered	No
Weeping Myall Woodlands	Endangered	No
White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland	Critically Endangered	Yes – 13.11.3 & 13.11.8
Listed Threatened Species:	44	
Listed Migratory Species:	12	

2. State matters

2.1 Nature Conservation Act 1992 and subordinate legislation

Protected Plants Flora Survey Trigger Map Partially within high-risk area

2.2 Vegetation Management Act 1999 and subordinate legislation

Regulated Vegetation Management Map and Vegetation Management Supporting Map

Regional ecosystem	VMA Status	Category	Area (ha)
13.11.3	Of Concern	B	341.50
13.11.5	Least Concern	B	134.05
13.11.8	Of Concern	B	17.97
Non-remnant	None	X	1,601.02

Essential Habitat *Phascolarctos cinereus* (Koala)

Wetland/s Not present

Bioregion Non-coastal bioregions and sub-regions

2.3 Koala Habitat Mapping

Koala Priority Area (KPA) Not within KPA

Koala Habitat Area Koala Habitat Area not present

2.4 State Planning Policy Interactive Mapping System (selected environmental matters)

SPP — Biodiversity	MSES – Wildlife habitat (endangered or vulnerable) MSES – Regulated vegetation (category B) MSES – Regulated vegetation (essential habitat) MSES – Regulated vegetation (intersecting a watercourse)
--------------------	---

SPP — Coastal Environment **Error! Reference source not found.** Not within coastal management district

SPP — Water Quality Does not apply

SPP — Natural Hazards Risk and Resilience
Flood hazard area - Local Government flood mapping area
Bushfire prone area

2.5 Development Assessment Mapping System

DAMS — Coastal Protection Not within coastal protection zone

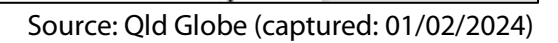
DAMS — Fish Habitat Areas
Queensland waterways for waterway barrier works

- 1 – Low
- 2 – Moderate

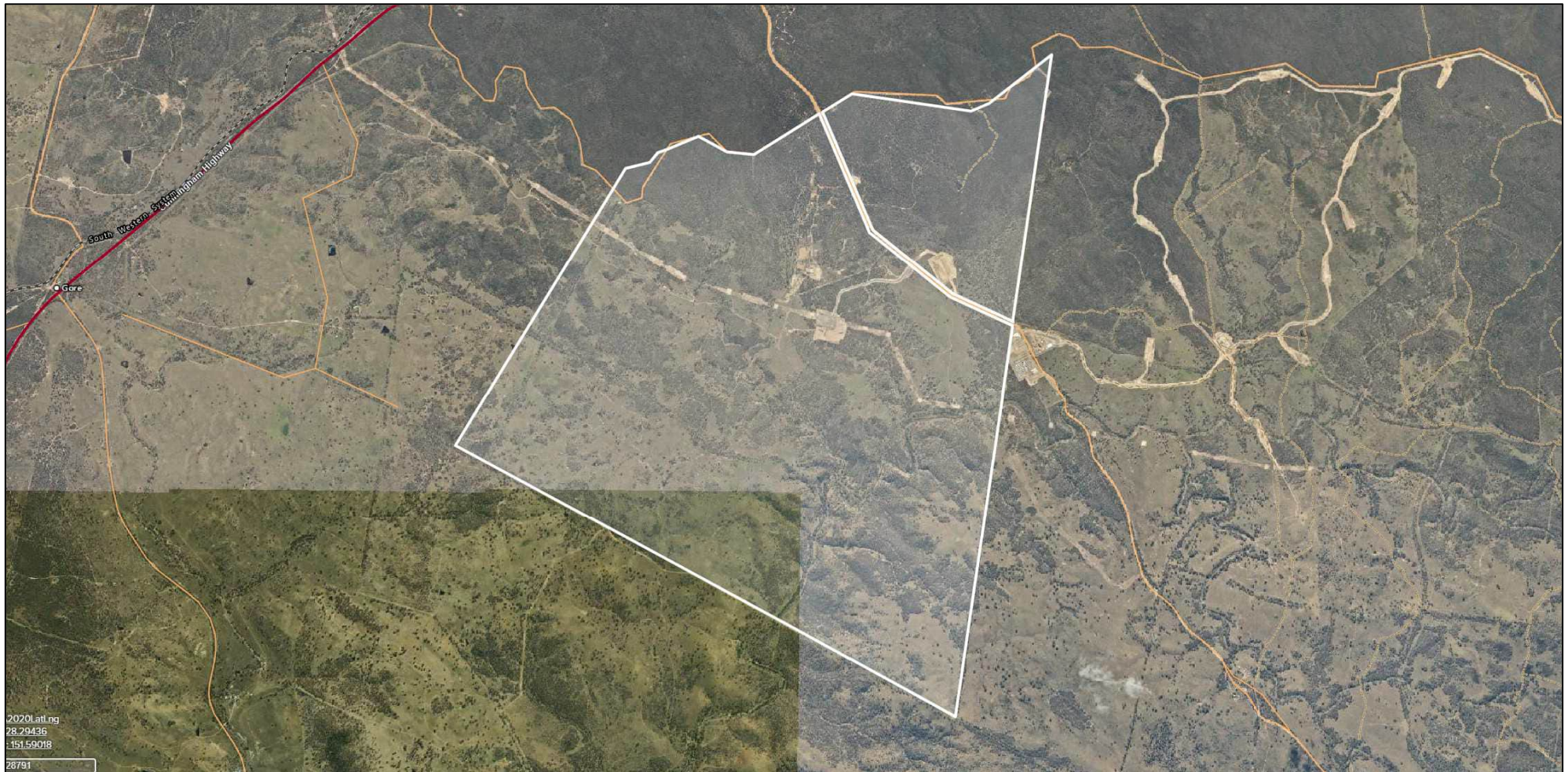
- 3 – High
- 4 – Major

3. Local matters — Goondiwindi Regional Council

Zoning	Rural
Strategic Framework – Natural Environment	MSES – Regulated Vegetation
Overlay Code - Biodiversity	Regulated Vegetation (as defined in the SPP)
Overlay Code – Bushfire	Bushfire Hazard (as defined in the SPP)
Overlay Code – Flood Hazard	Does not apply
Overlay Code – Heritage	Does not apply
Overlay Code – Natural Resources	Does not apply

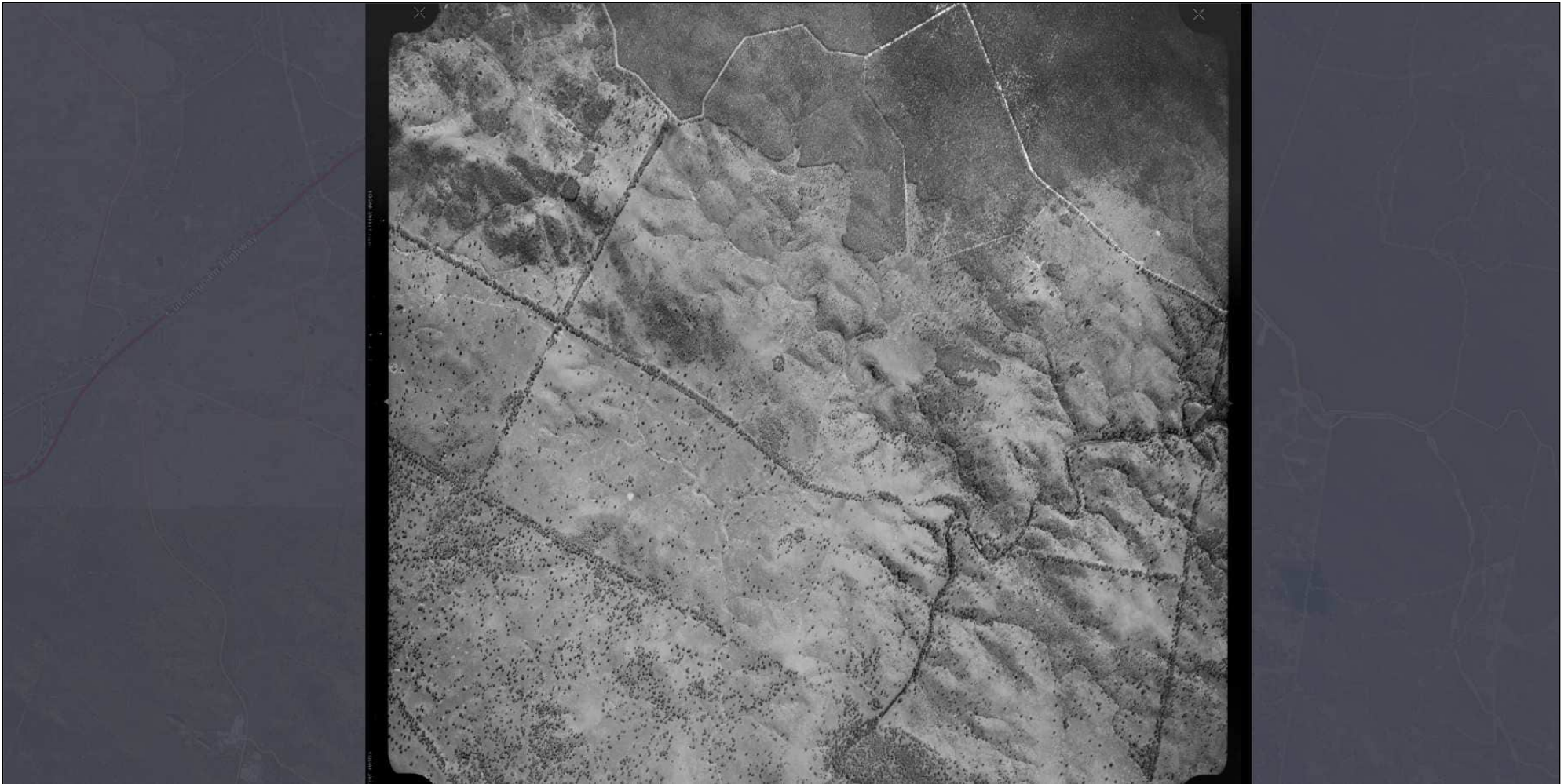


Map 2 — Aerial image (current)



Source: Qld Globe (captured: 01/02/2024)

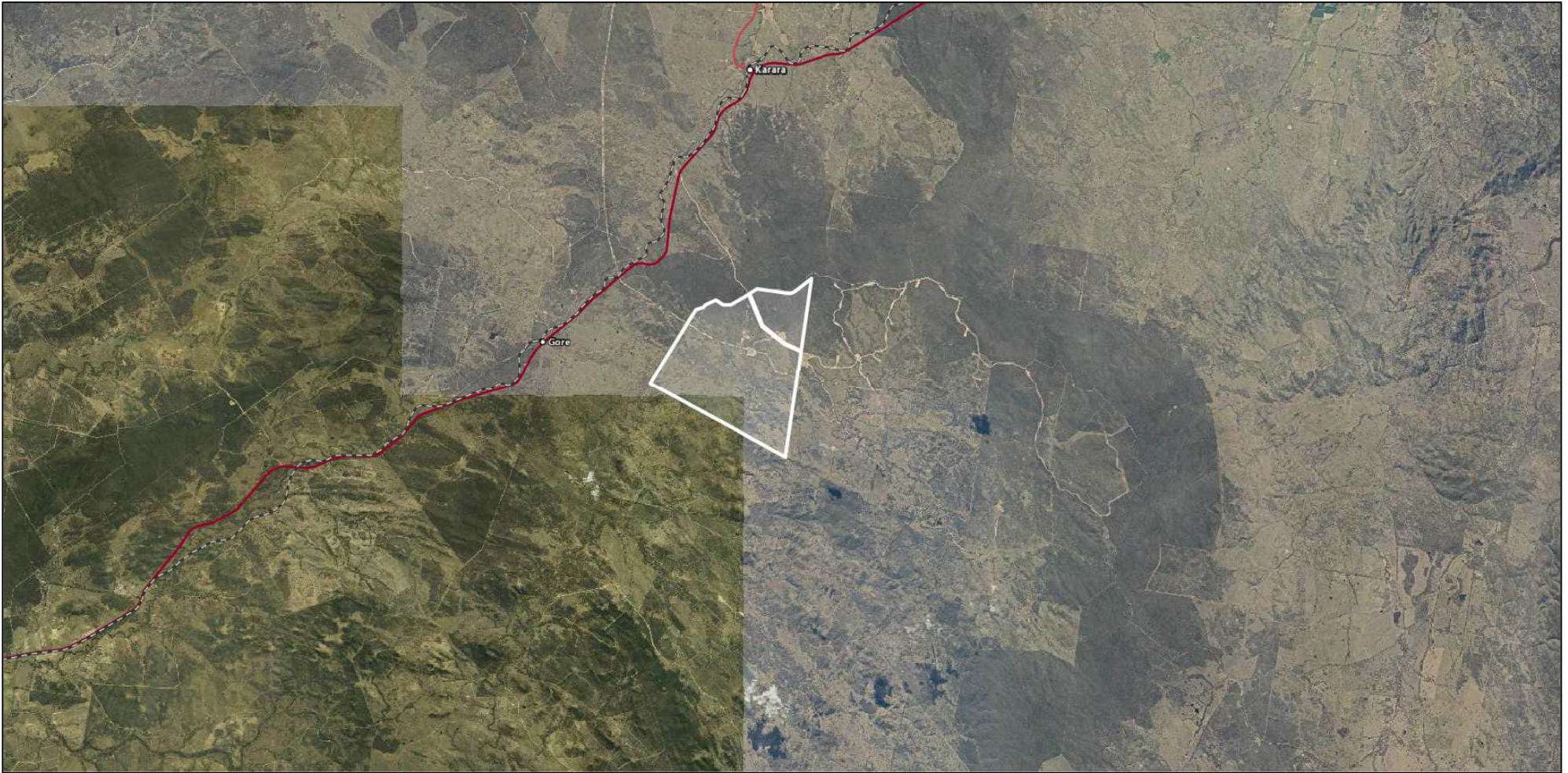
Map 3 — Aerial image (historical)



Source: Qld Globe (captured: 23/05/1978)

■ Environmental searches

Map 4 — Locality



Source: Qld Globe (captured: 01/02/2024)

Map 5 — Elevation Contours



Source: Qld Globe (captured: 01/02/2023)

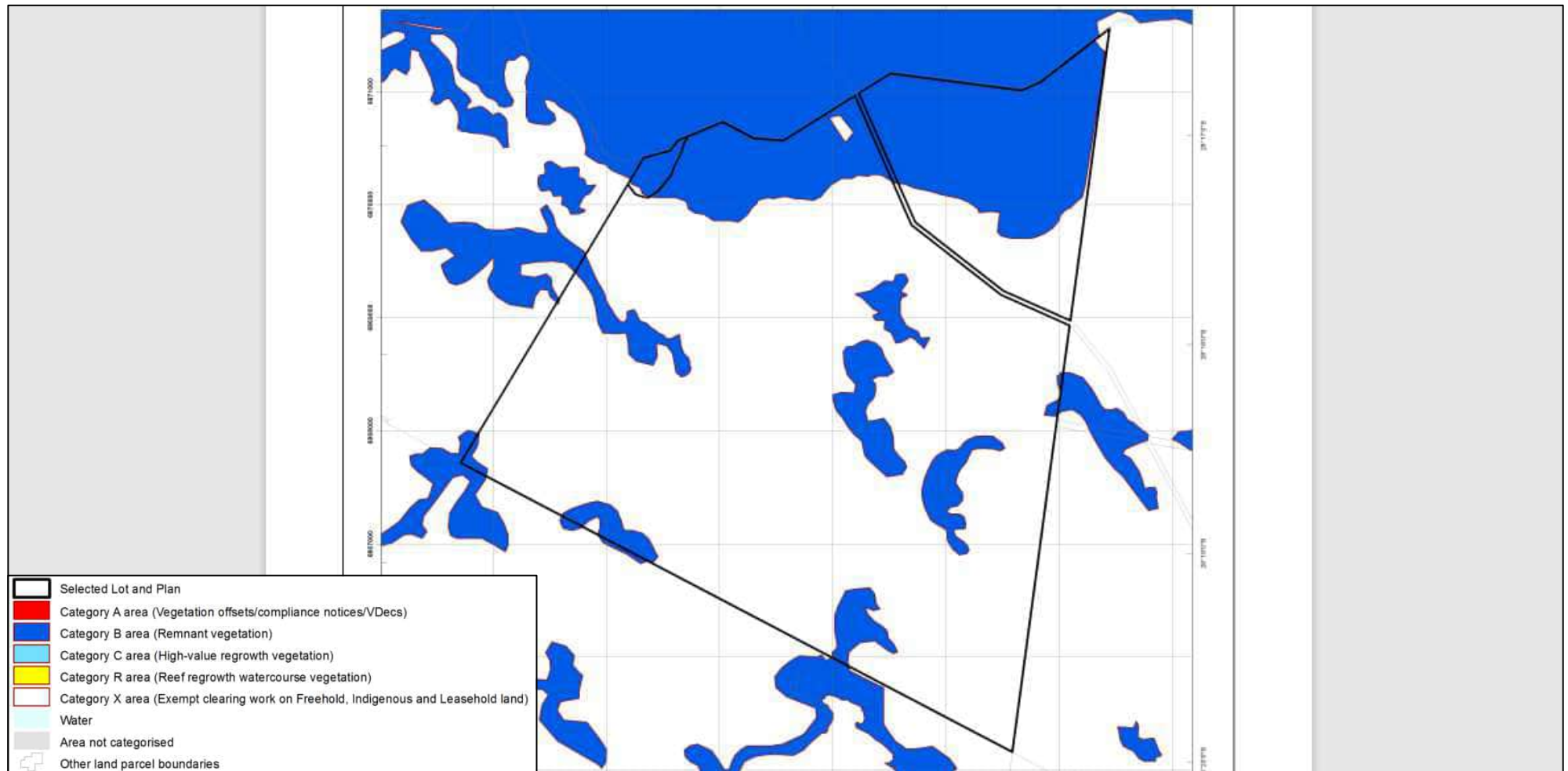
State matters

Map 6 — Protected Plants Flora Survey Trigger Map



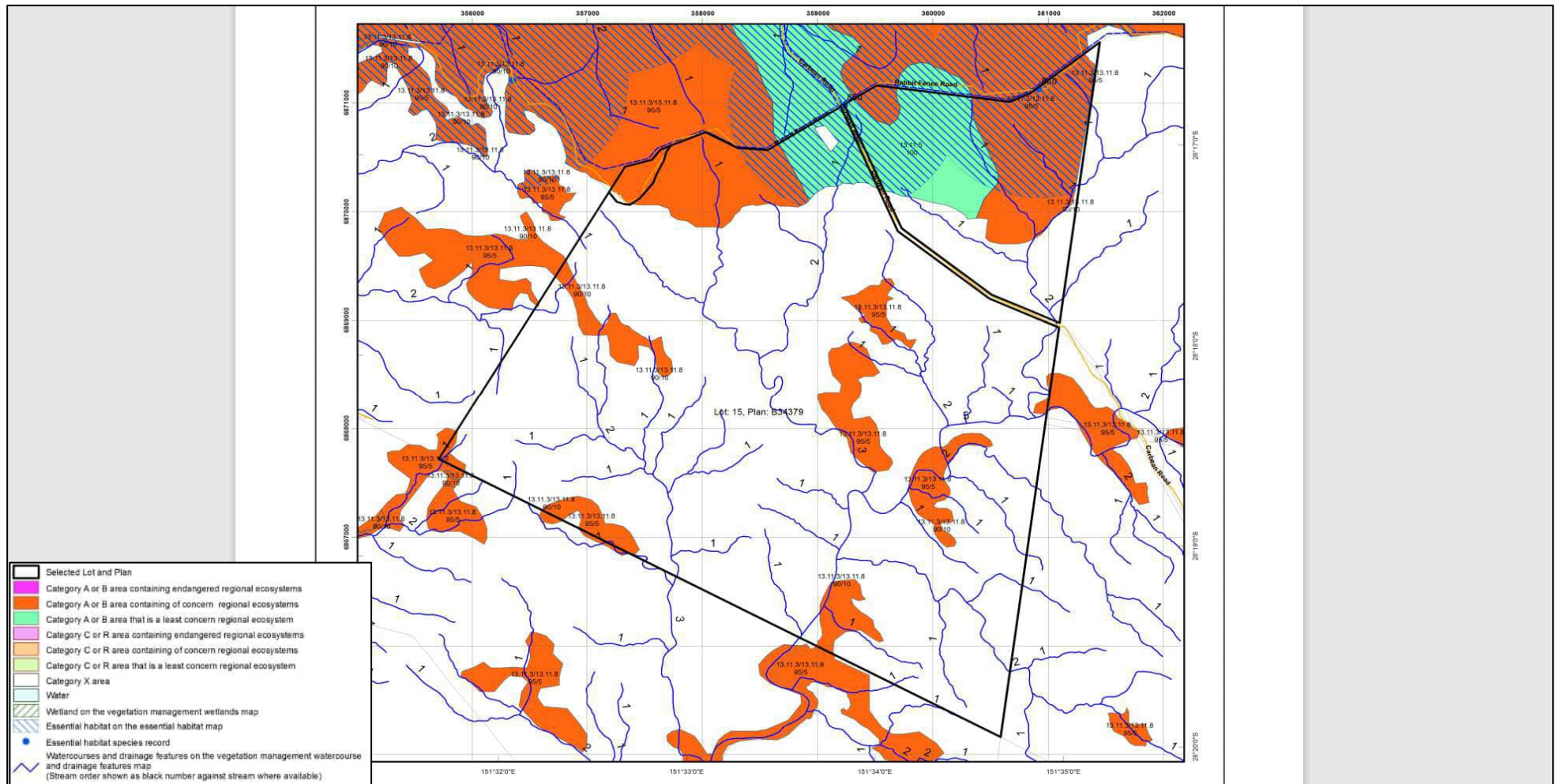
Source: Queensland Government (Department of Environment and Science) 2023 (captured: 01/02/2024)

Map 7 — Regulated Vegetation Management Map



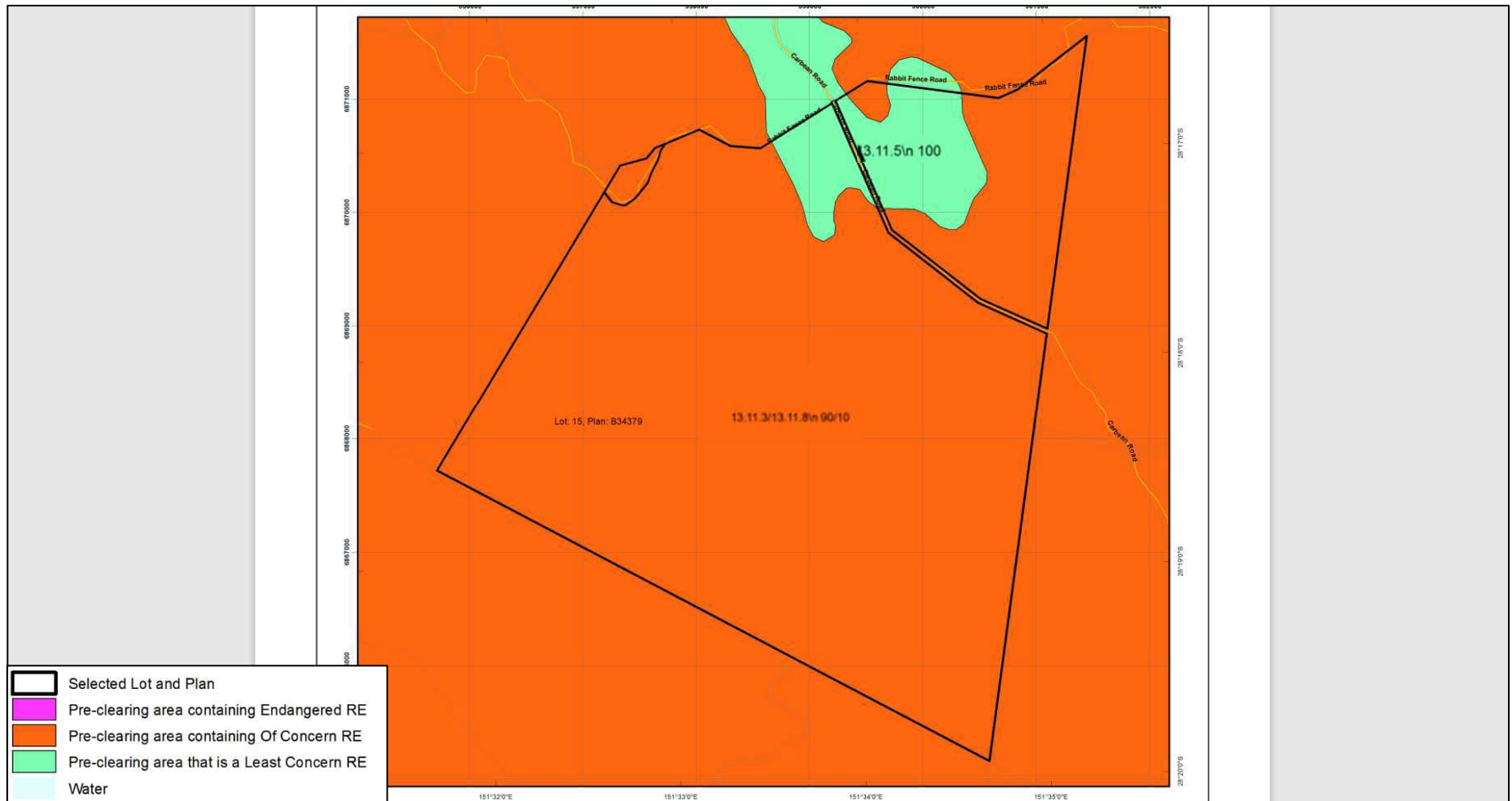
Source: Queensland Government (Department of Environment and Science) 2023 (captured: 01/02/2024)

Map 8a — Vegetation Management Supporting Map



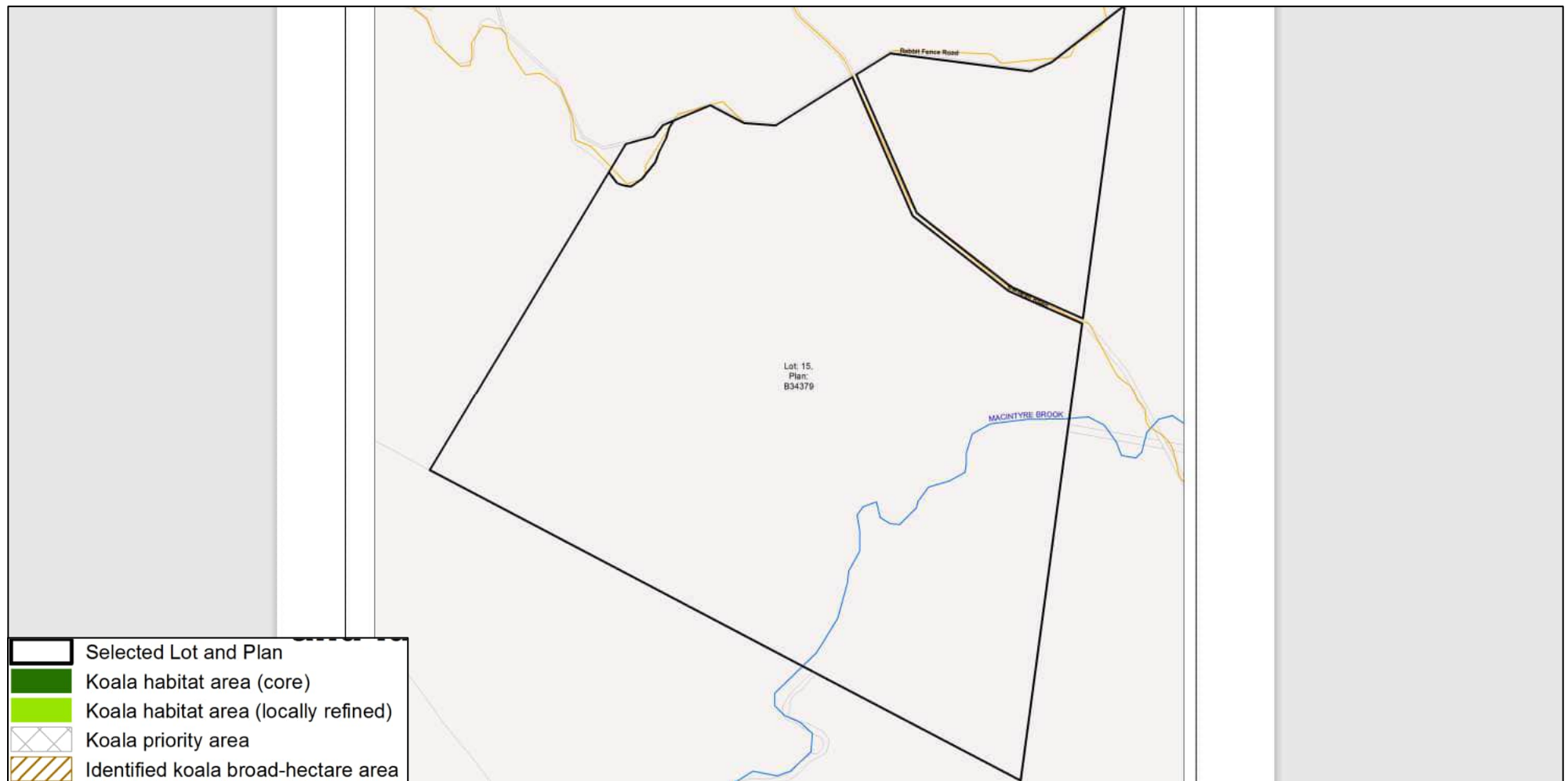
Source: Queensland Government (Department of Environment and Science) 2023 (captured: 01/02/2024)

Map 9 — Preclear Regional Ecosystems



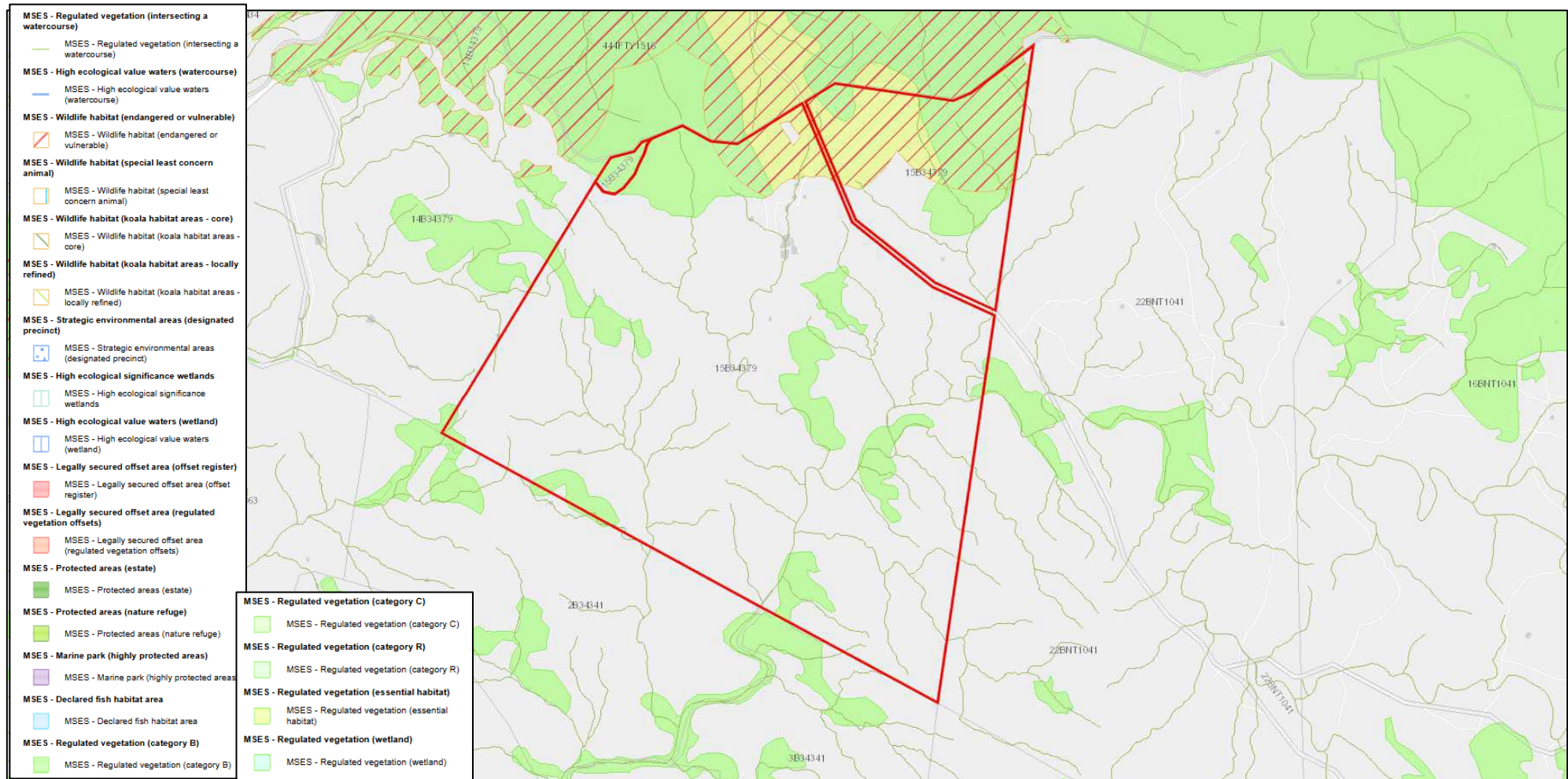
Source: Queensland Government (Department of Environment and Science) 2022(captured: 01/02/2024)

Map 10 — Koala Priority Areas and Koala Habitat Areas



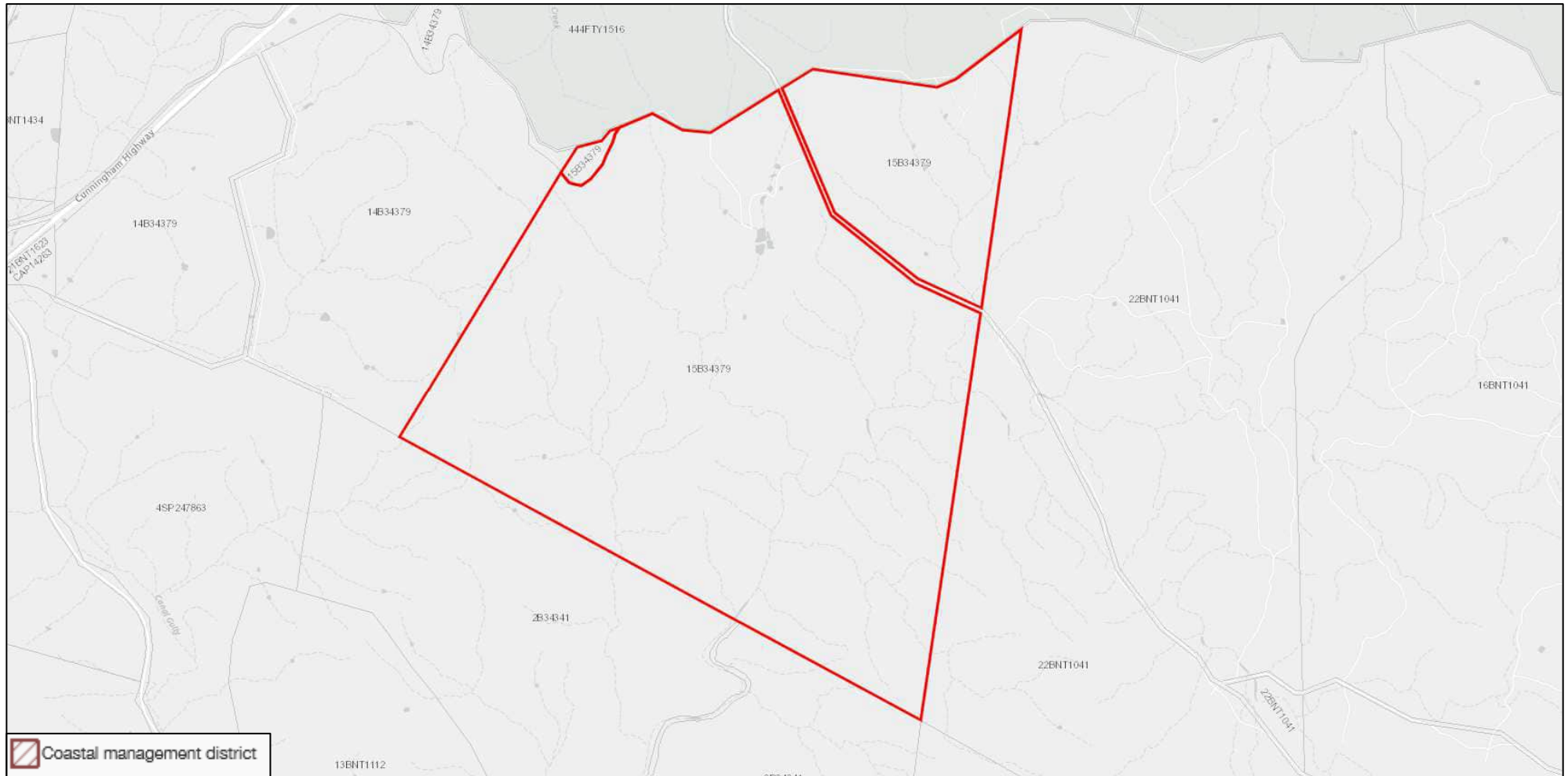
Source: Queensland Government (Department of Environment and Science) 2023 (captured: 01/02/2024)

Map 11 — SPP — Biodiversity



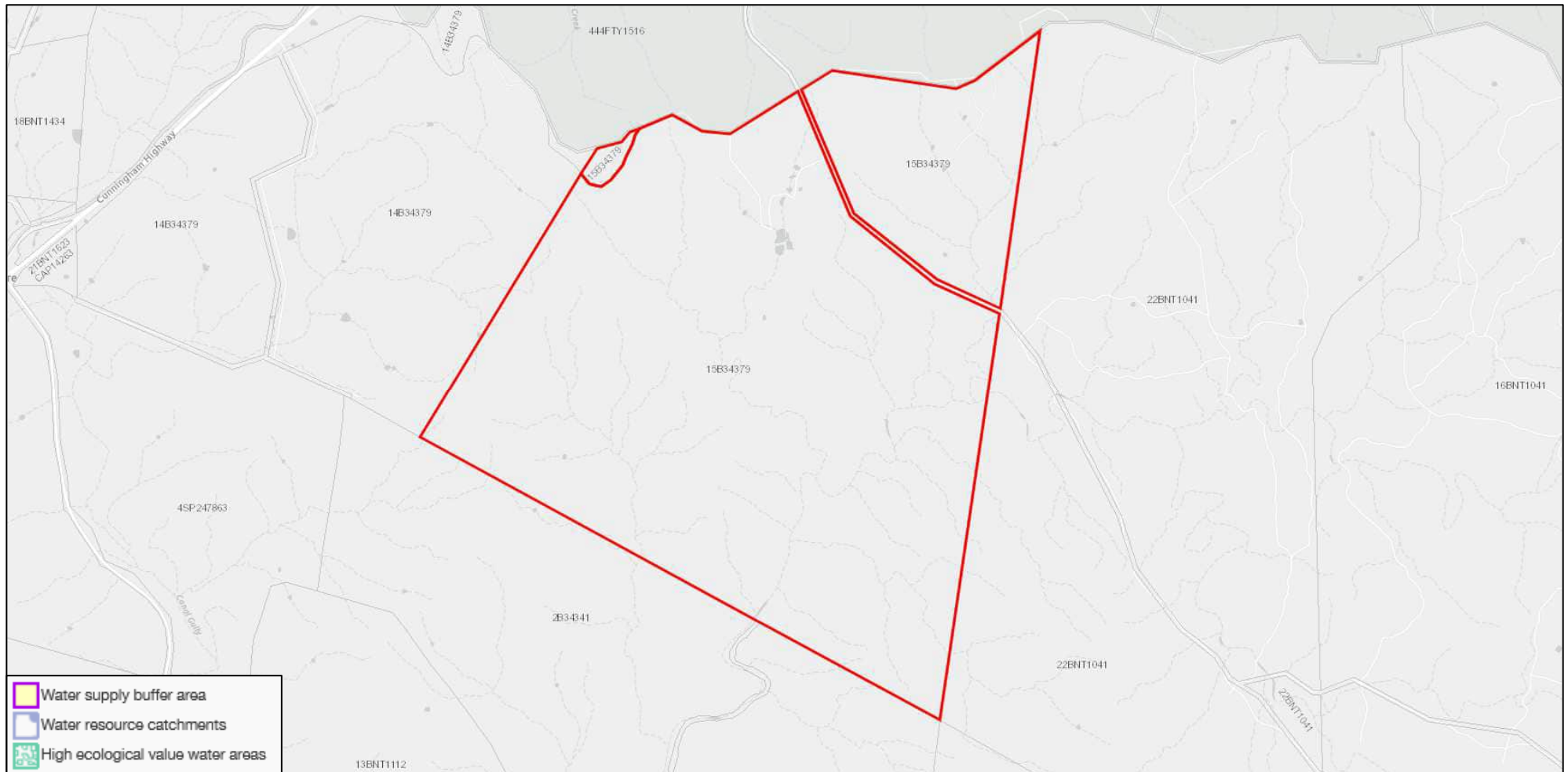
Source: Queensland Government (Department of State Development, Manufacturing, Infrastructure, and Planning) 2023
(captured: 01/02/2024)

Map 12 – SPP – Coastal Environment



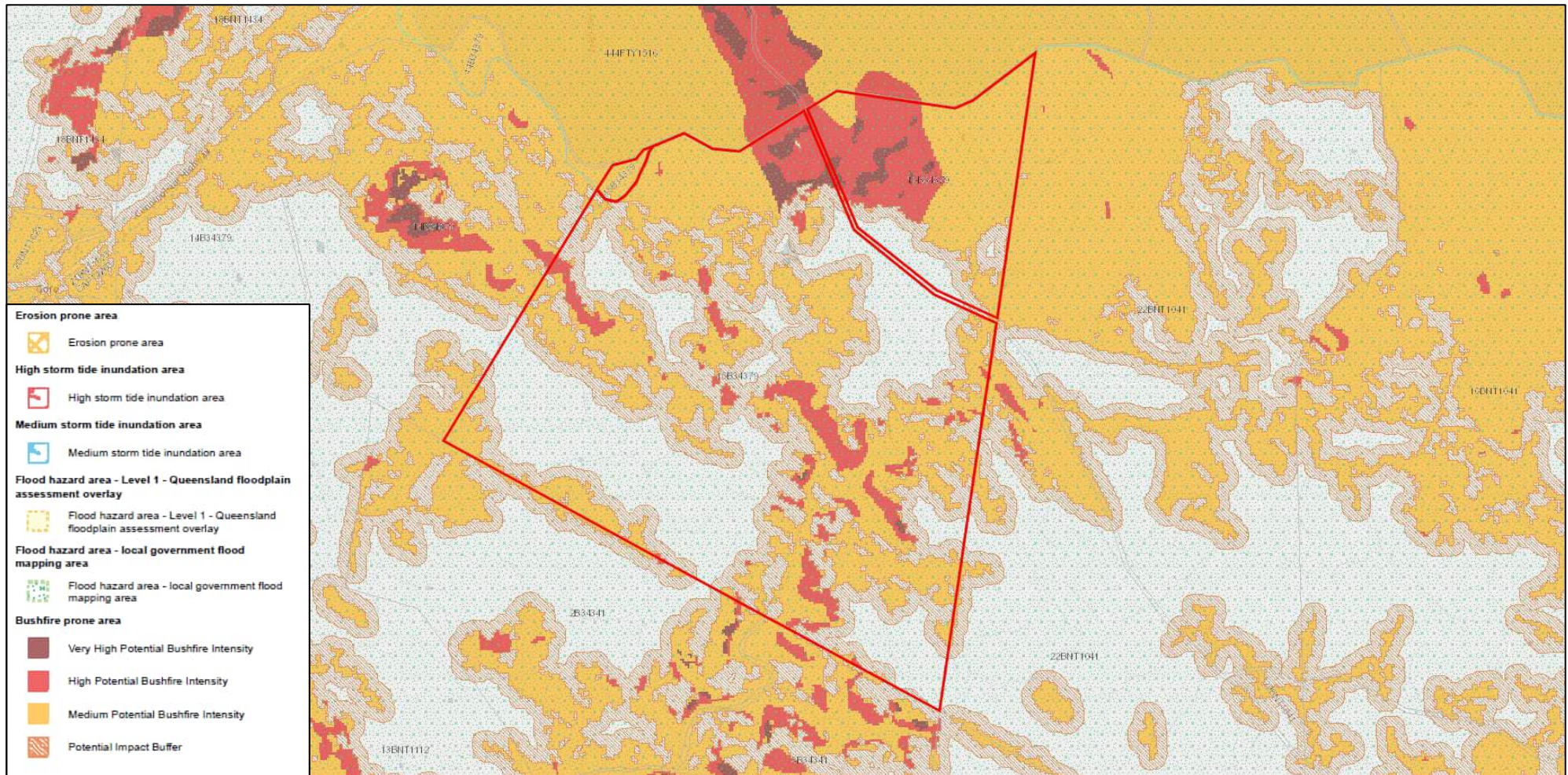
Source: Queensland Government (Department of State Development, Manufacturing, Infrastructure, and Planning) 2023 (captured: 01/02/2024)

Map 13 — SPP — Water Quality



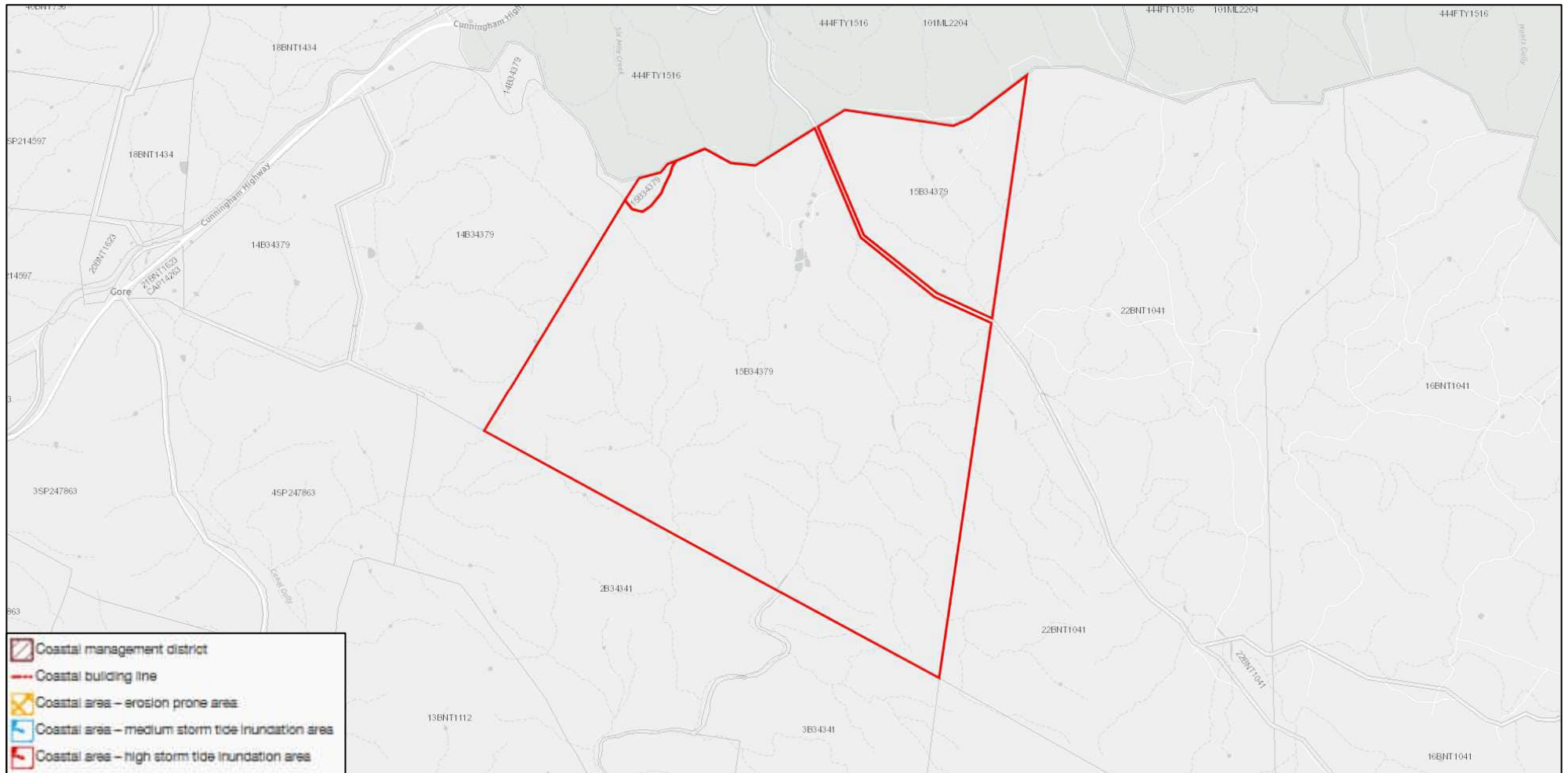
Source: Queensland Government (Department of State Development, Manufacturing, Infrastructure, and Planning) 2023 (captured: 01/02/2024)

Map 14 — SPP — Natural Hazards Risk and Resilience



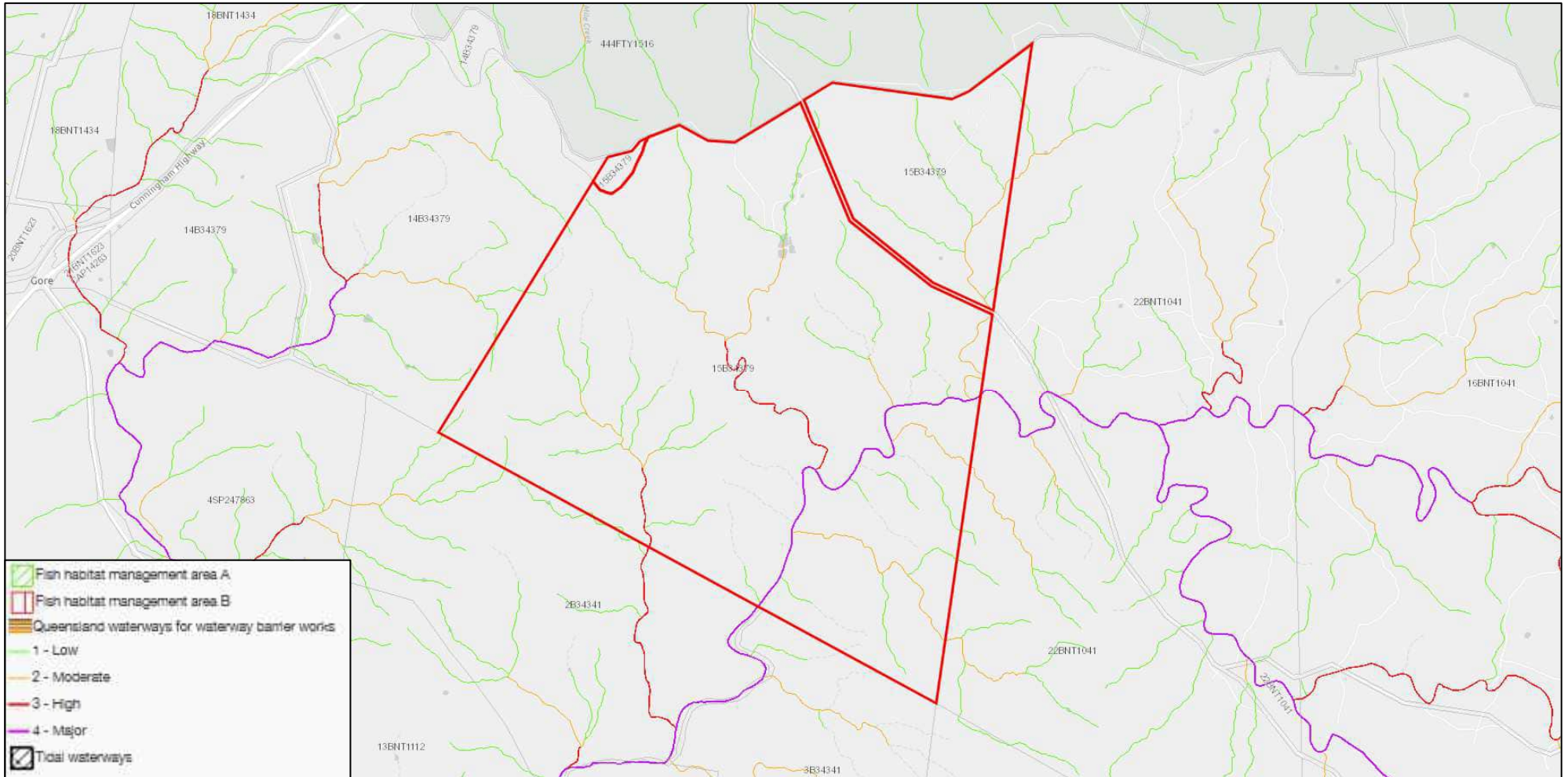
Source: Queensland Government (Department of State Development, Manufacturing, Infrastructure, and Planning) 2023 (captured: 01/02/2024)

Map 15 — DAMS — Coastal Protection



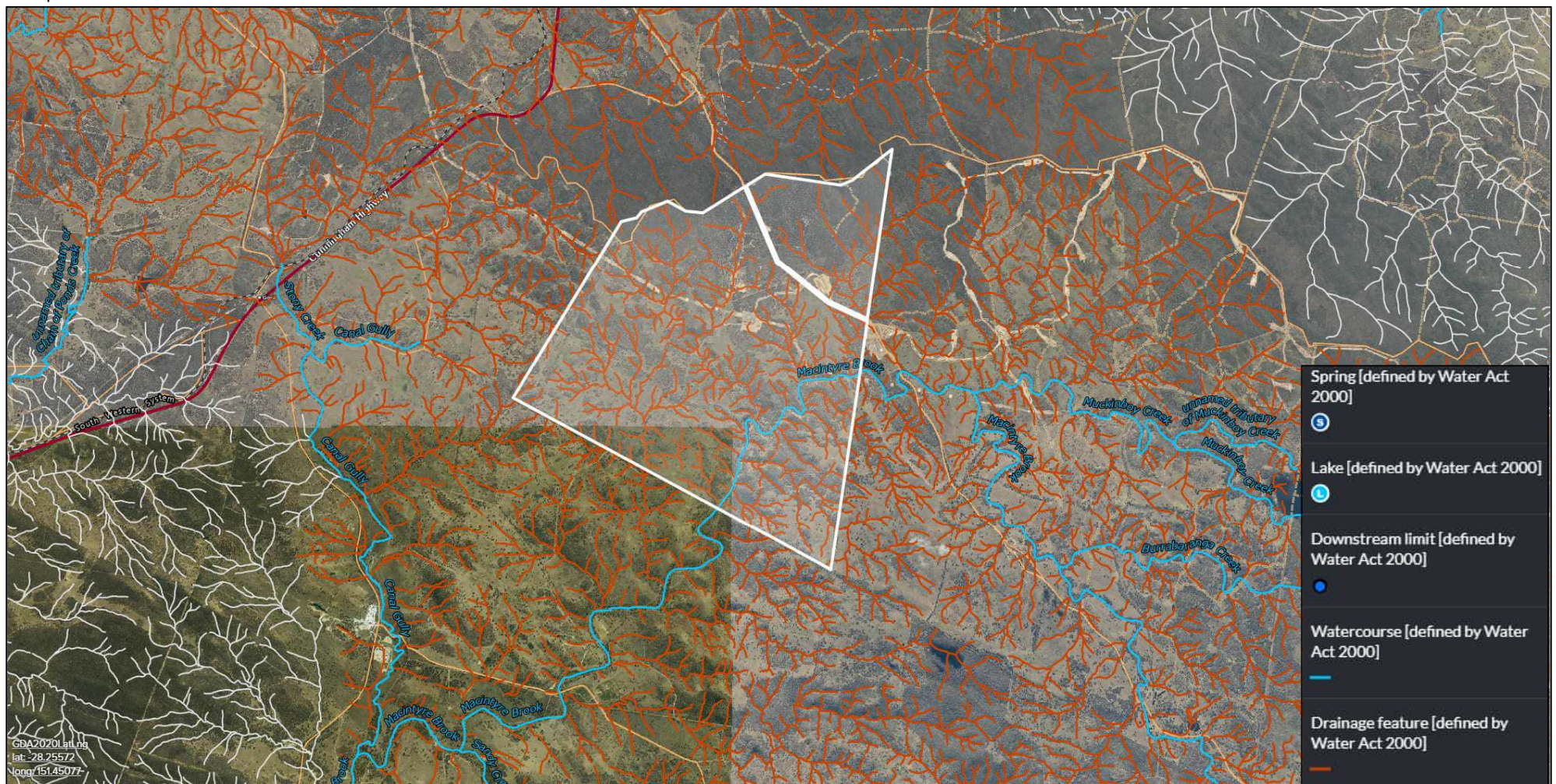
Source: Queensland Government (Department of State Development, Manufacturing, Infrastructure, and Planning) 2023 (captured: 01/02/2024)

Map 16 — DAMS — Fish Habitat Areas



Source: Queensland Government (Department of State Development, Manufacturing, Infrastructure, and Planning) 2023 (captured: 01/02/2024)

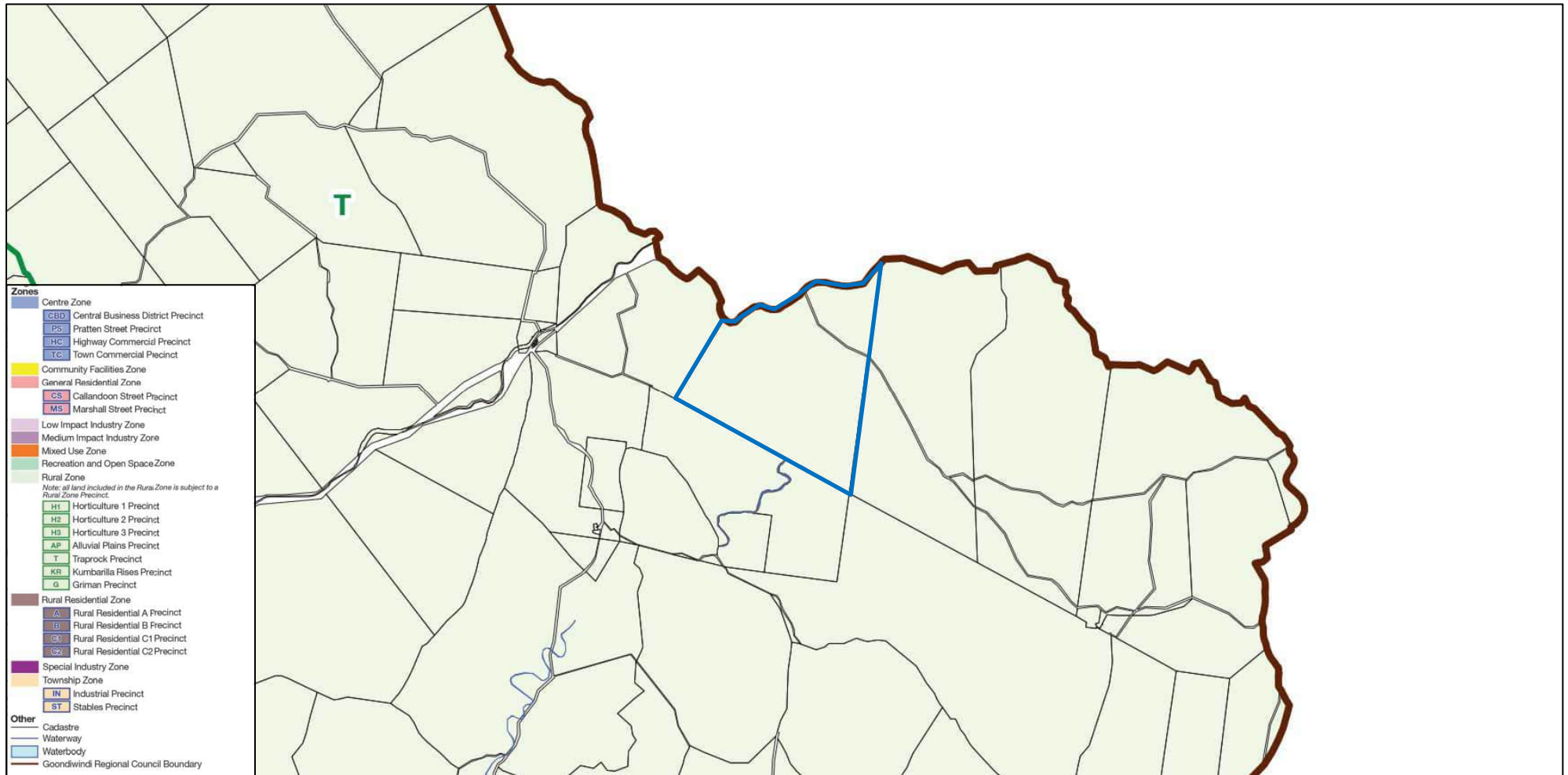
Map 17 — Water Act 2000 – Watercourse Identification



Source: Qld Globe (captured: 01/02/2024)

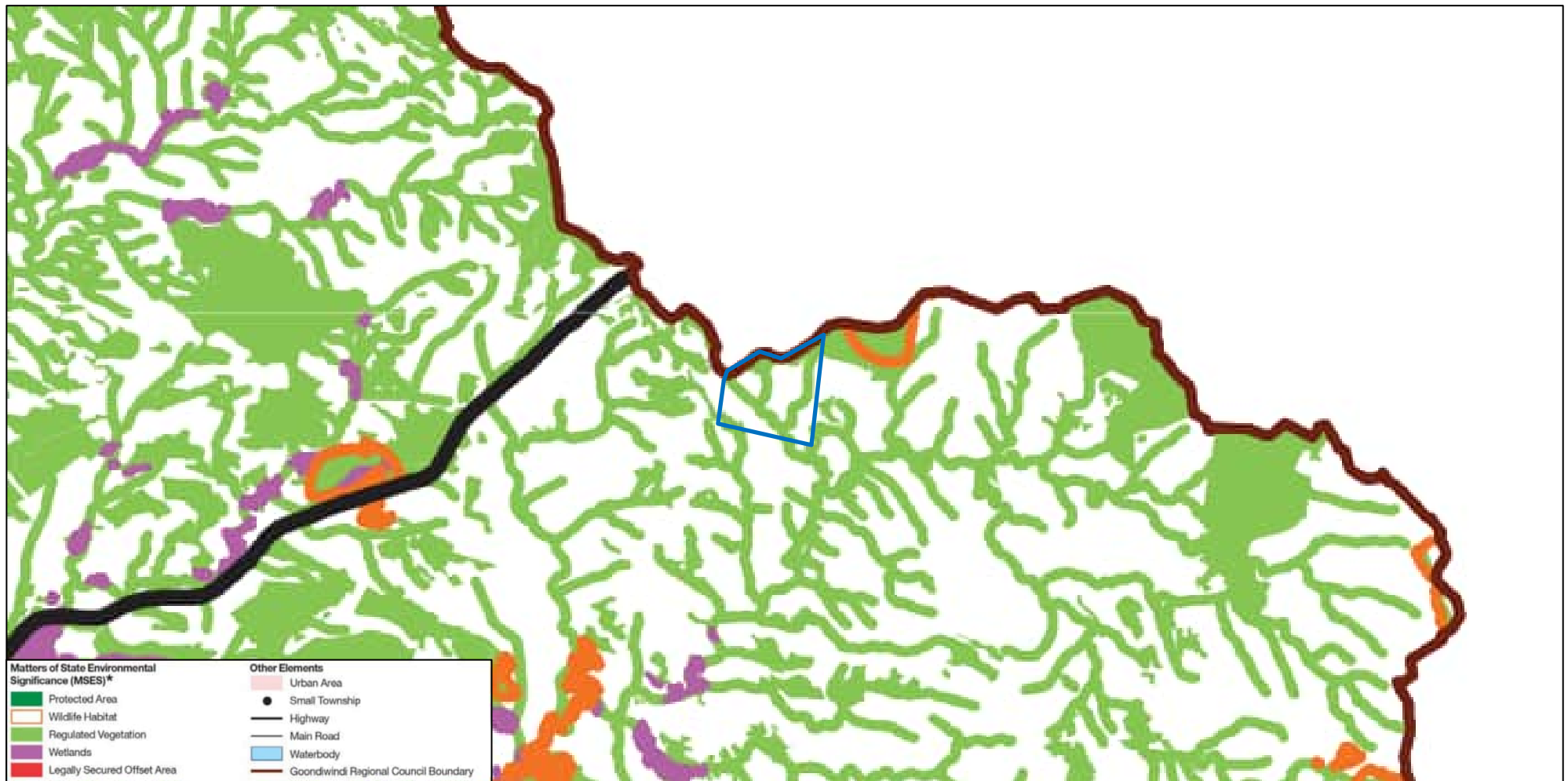
Local matters — Goondiwindi Regional Council Planning Scheme 2020

Map 18 – Zoning



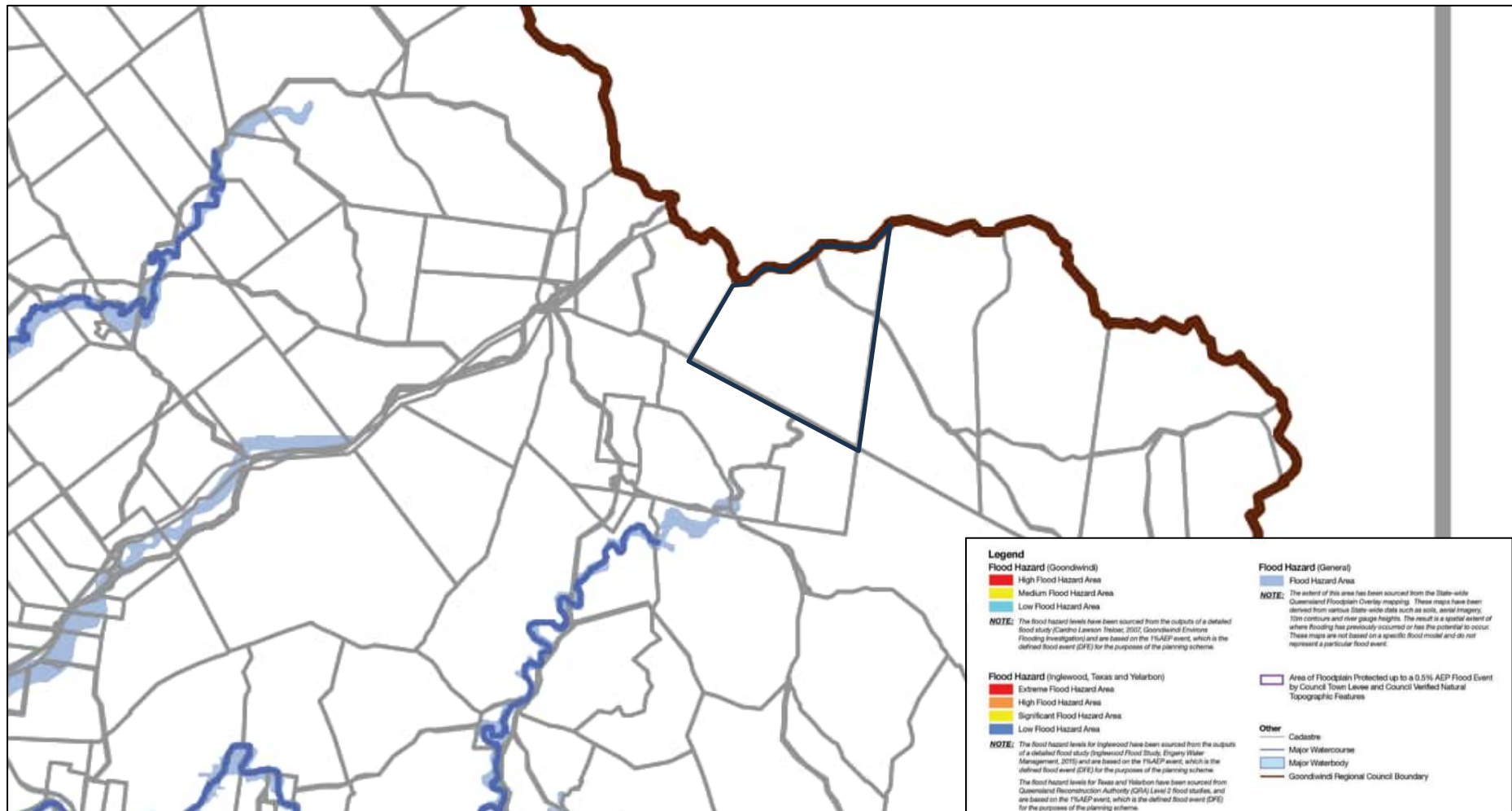
Source: Goondiwindi Regional Council Planning Scheme 2020 (Captured: 01/02/2018)

Map 19 – Strategic Framework – Natural Environment



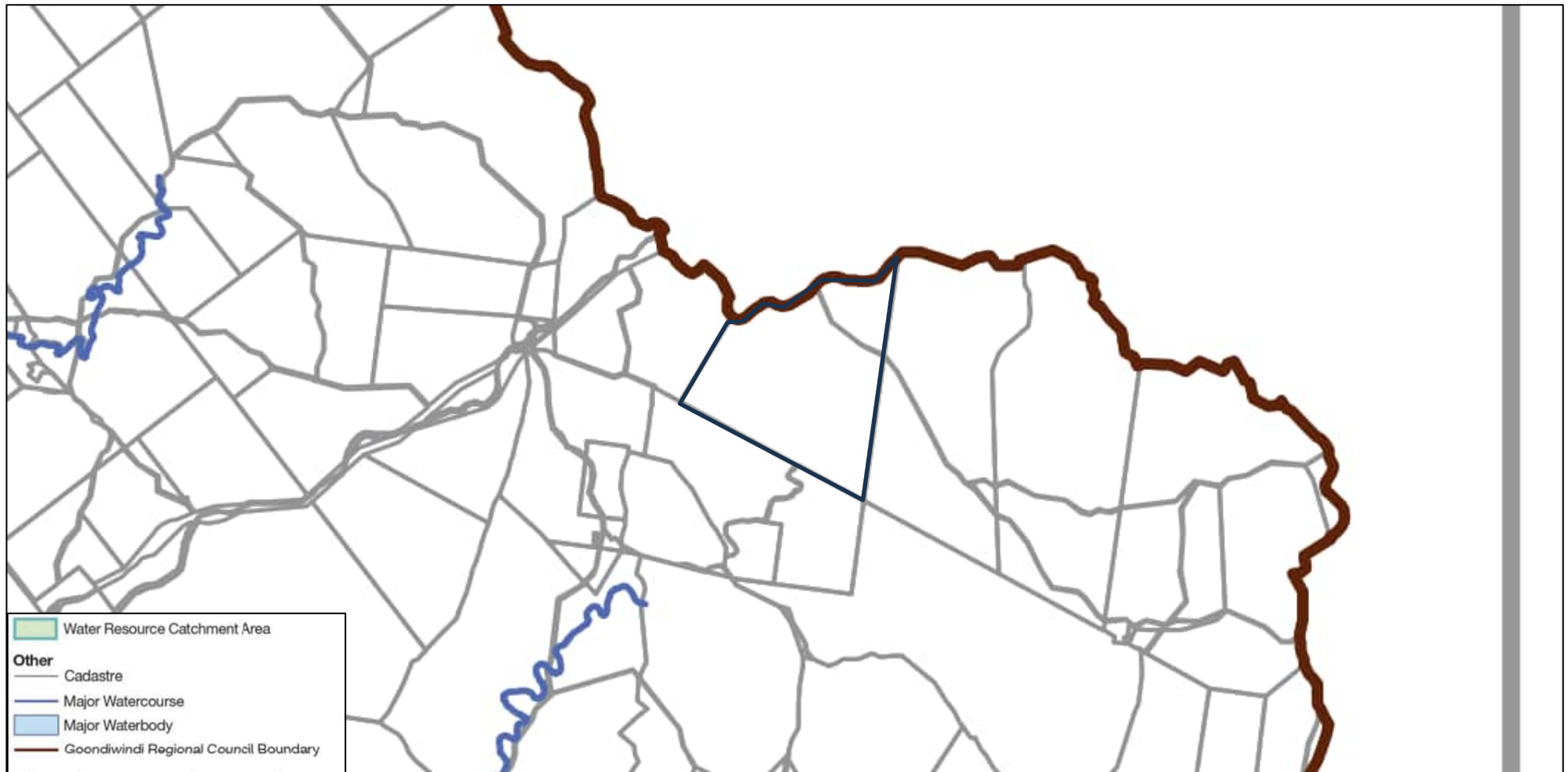
Source: Scenic Rim Planning Scheme 2020 (Captured: 01/02/2024)

Map 20 – Overlay – Flood Hazard



Source: Scenic Rim Planning Scheme 2020 (Captured: 01/02/2024)

Map 21 – Overlay – Natural Resources



Source: Scenic Rim Planning Scheme 2020 (Captured: 01/02/2024)

Appendix C

EPBC Act Protected Matters Search Tool 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: 21-Nov-2024

[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:	None
National Heritage Places:	None
Wetlands of International Importance (Ramsar	4
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	None
Listed Threatened Ecological Communities:	3
Listed Threatened Species:	44
Listed Migratory Species:	9

Other Matters Protected by the EPBC Act

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

The EPBC Act protects the environment on Commonwealth land, the environment from the actions taken on Commonwealth land, and the environment from actions taken by Commonwealth agencies. As heritage values of a place are part of the 'environment', these aspects of the EPBC Act protect the Commonwealth Heritage values of a Commonwealth Heritage place. Information on the new heritage laws can be found at <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:	None
Commonwealth Heritage Places:	None
Listed Marine Species:	19
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:	None
Regional Forest Agreements:	None
Nationally Important Wetlands:	None
EPBC Act Referrals:	5
Key Ecological Features (Marine):	None
Biologically Important Areas:	None
Bioregional Assessments:	None
Geological and Bioregional Assessments:	None

Details

Matters of National Environmental Significance

Wetlands of International Importance (Ramsar Wetlands)		[Resource Information]
Ramsar Site Name	Proximity	Buffer Status
Banrock station wetland complex	1200 - 1300km upstream from Ramsar site	In feature area
Narran lake nature reserve	400 - 500km upstream from Ramsar site	In buffer area only
Riverland	1100 - 1200km upstream from Ramsar site	In feature area
The coorong, and lakes alexandrina and albert wetland	1300 - 1400km upstream from Ramsar site	In feature area

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
Natural grasslands on basalt and fine-textured alluvial plains of northern New South Wales and southern Queensland	Critically Endangered	Community may occur within area	In feature area
Weeping Myall Woodlands	Endangered	Community may occur within area	In feature area
White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland	Critically Endangered	Community likely to occur within area	In feature area

Listed Threatened Species			[<u>Resource Information</u>]
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			

Scientific Name	Threatened Category	Presence Text	Buffer Status
Anthochaera phrygia Regent Honeyeater [82338]	Critically Endangered	Species or species habitat known to occur within area	In feature area
Aphelocephala leucopsis Southern Whiteface [529]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Calidris acuminata Sharp-tailed Sandpiper [874]	Vulnerable	Species or species habitat may occur within area	In feature area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area	In feature area
Calyptorhynchus lathami lathami South-eastern Glossy Black-Cockatoo [67036]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Climacteris picumnus victoriae Brown Treecreeper (south-eastern) [67062]	Vulnerable	Species or species habitat may occur within area	In feature area
Erythroriorchis radiatus Red Goshawk [942]	Endangered	Species or species habitat may occur within area	In feature area
Falco hypoleucos Grey Falcon [929]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Geophaps scripta scripta Squatter Pigeon (southern) [64440]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Grantiella picta Painted Honeyeater [470]	Vulnerable	Species or species habitat likely to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area	In feature area
Lathamus discolor Swift Parrot [744]	Critically Endangered	Species or species habitat likely to occur within area	In feature area
Neophema chrysostoma Blue-winged Parrot [726]	Vulnerable	Species or species habitat may occur within area	In feature area
Rostratula australis Australian Painted Snipe [77037]	Endangered	Species or species habitat may occur within area	In feature area
Stagonopleura guttata Diamond Firetail [59398]	Vulnerable	Species or species habitat known to occur within area	In feature area
FISH			
Maccullochella peelii Murray Cod [66633]	Vulnerable	Species or species habitat may occur within area	In feature area
MAMMAL			
Chalinolobus dwyeri Large-eared Pied Bat, Large Pied Bat [183]	Endangered	Species or species habitat may occur within area	In feature area
Dasyurus maculatus maculatus (SE mainland population) Spot-tailed Quoll, Spotted-tail Quoll, Tiger Quoll (southeastern mainland population) [75184]	Endangered	Species or species habitat likely to occur within area	In feature area
Nyctophilus corbeni Corben's Long-eared Bat, South-eastern Long-eared Bat [83395]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Petauroides volans Greater Glider (southern and central) [254]	Endangered	Species or species habitat likely to occur within area	In feature area
Petaurus australis australis Yellow-bellied Glider (south-eastern) [87600]	Vulnerable	Species or species habitat may occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Petrogale penicillata Brush-tailed Rock-wallaby [225]	Vulnerable	Species or species habitat may 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 known to occur within area	In feature area
Pseudomys novaehollandiae New Holland Mouse, Pookila [96]	Vulnerable	Species or species habitat may occur within area	In feature area
Pteropus poliocephalus Grey-headed Flying-fox [186]	Vulnerable	Foraging, feeding or related behaviour may occur within area	In feature area
PLANT			
Arthraxon hispidus Hairy-joint Grass [9338]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Cadellia pentastylis Ooline [9828]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Callistemon pungens [55581]	Vulnerable	Species or species habitat may occur within area	In feature area
Dichanthium setosum bluegrass [14159]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Eucalyptus nicholii Narrow-leaved Peppermint, Narrow-leaved Black Peppermint [20992]	Vulnerable	Species or species habitat may occur within area	In feature area
Lepidium monoplacoides Winged Pepper-cress [9190]	Endangered	Species or species habitat may occur within area	In buffer area only
Lepidium peregrinum Wandering Pepper-cress [14035]	Endangered	Species or species habitat may occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Leuzea australis listed as Rhaponticum australe Austral Cornflower, Native Thistle [9363]	Vulnerable	Species or species habitat may occur within area	In feature area
Macrozamia conferta [64582]	Vulnerable	Species or species habitat known to occur within area	In feature area
Picris evae Hawkweed [10839]	Vulnerable	Species or species habitat may occur within area	In feature area
Thesium australe Austral Toadflax, Toadflax [15202]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Vincetoxicum forsteri listed as Tylophora linearis [92384]	Endangered	Species or species habitat may occur within area	In feature area
REPTILE			
Anomalopus mackayi Five-clawed Worm-skink, Long-legged Worm-skink [25934]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Delma torquata Adorned Delma, Collared Delma [1656]	Vulnerable	Species or species habitat may occur within area	In feature area
Egernia rugosa Yakka Skink [1420]	Vulnerable	Species or species habitat may occur within area	In feature area
Furina dunmalli Dunmall's Snake [59254]	Vulnerable	Species or species habitat may occur within area	In feature area
Hemiaspis damelii Grey Snake [1179]	Endangered	Species or species habitat may occur within area	In feature area
Uvidicolus sphyrurus Border Thick-tailed Gecko, Granite Belt Thick-tailed Gecko [84578]	Vulnerable	Species or species habitat may occur within area	In feature area
Listed Migratory Species		[Resource Information]	

Scientific Name	Threatened Category	Presence Text	Buffer Status
Migratory Marine Birds			
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area	In feature area
Migratory Terrestrial Species			
Cuculus optatus Oriental Cuckoo, Horsfield's Cuckoo [86651]		Species or species habitat may 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
Motacilla flava Yellow Wagtail [644]		Species or species habitat may occur within area	In feature area
Migratory Wetlands Species			
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat may occur within area	In feature area
Calidris acuminata Sharp-tailed Sandpiper [874]	Vulnerable	Species or species habitat may occur within area	In feature area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area	In feature area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area	In feature area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]	Vulnerable	Species or species habitat likely to occur within area	In feature area

Other Matters Protected by the EPBC Act

Listed Marine Species		[Resource Information]	
Scientific Name	Threatened Category	Presence Text	Buffer Status
Bird			
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat may occur within area	In feature area
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area overfly marine area	In feature area
Bubulcus ibis as Ardea ibis Cattle Egret [66521]		Species or species habitat may occur within area overfly marine area	In feature area
Calidris acuminata Sharp-tailed Sandpiper [874]	Vulnerable	Species or species habitat may occur within area	In feature area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area overfly marine area	In feature area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area overfly marine area	In feature area
Chalcites osculans as Chrysococcyx osculans Black-eared Cuckoo [83425]		Species or species habitat known to occur within area overfly marine area	In feature area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]	Vulnerable	Species or species habitat likely to occur within area overfly marine area	In feature area
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Species or species habitat may occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area overfly marine area	In feature area
Lathamus discolor Swift Parrot [744]	Critically Endangered	Species or species habitat likely to occur within area overfly marine 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 may occur within area overfly marine area	In feature area
Motacilla flava Yellow Wagtail [644]		Species or species habitat may 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
Neophema chrysostoma Blue-winged Parrot [726]	Vulnerable	Species or species habitat may occur within area overfly marine area	In feature area
Pterodroma cervicalis White-necked Petrel [59642]		Species or species habitat may occur within area	In feature area
Rhipidura rufifrons Rufous Fantail [592]		Species or species habitat likely 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 may occur within area overfly marine area	In feature area

Extra Information

EPBC Act Referrals				[Resource Information]
Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Herries Range Wind Farm	2024/09906		Assessment	In feature area
MacIntyre Wind Farm Project	2020/8756		Post-Approval	In feature area
Controlled action				
Karara Wind Farm Project, QLD	2020/8755	Controlled Action	Post-Approval	In feature area
Overhead Transmission Line ??? MacIntyre Wind Energy Precinct	2020/8759	Controlled Action	Post-Approval	In feature area
Not controlled action				
Improving rabbit biocontrol: releasing another strain of RHDV, sthrn two thirds of Australia	2015/7522	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 is 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 on the contents of this report.

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 point locations and environmental data layers.

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 when time permits.

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 breeding sites; and
- 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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Appendix D

NCA Wildlife Online Search Results



Queensland Government

WildNet species list

Search Criteria: Species List for a Specified Point
Species: All
Type: Native
Queensland status: Rare and threatened species
Records: Confirmed
Date: Since 1980
Latitude: -28.2994
Longitude: 151.5639
Distance: 5
Email: nicoletomlinson@saundershavill.com
Date submitted: Thursday 21 Nov 2024 07:12:05
Date extracted: Thursday 21 Nov 2024 07:20:02

The number of records retrieved = 5

Disclaimer

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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	birds	Estrildidae	<i>Stagonopleura guttata</i>	diamond firetail		V	V	4
animals	mammals	Phascolarctidae	<i>Phascolarctos cinereus</i>	koala		E	E	2
plants	land plants	Apocynaceae	<i>Vincetoxicum forsteri</i>			E	E	5/5
plants	land plants	Asteraceae	<i>Calotis glabrescens</i>			CR		2/2
plants	land plants	Zamiaceae	<i>Macrozamia conferta</i>			V	V	1/1

CODES

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

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

The codes are Extinct (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.

Appendix E

Response to 8.2.1 Biodiversity Areas
Overlay Code
Goondiwindi Regional Council

Performance outcomes	Acceptable outcomes	Response
Management of impacts on matters of State environmental significance (MSES)		
PO1 Development is designed and constructed to avoid significant adverse impacts on areas of environmental significance.	AO1 The development site does not contain any matters of environmental significance. OR The design, layout and operation of development minimises adverse impacts on areas of environmental significance by: a) focusing development in cleared areas to protect existing habitat; b) utilising urban design to consolidate density and preserve existing habitat and native vegetation; c) aligning new property boundaries to maintain ecologically important areas; d) ensuring that alterations to natural landforms, hydrology and drainage patterns on the development site do not negatively affect ecologically important areas; e) ensuring that significant fauna habitat are protected in their environmental context; and f) incorporating measures that allow for the safe movement of fauna through the site. Editor's note—a report certified by an appropriately qualified person may be required to demonstrate:	AO1 – COMPLIES The development site does not contain any mapped matters of environmental significance. Previous and contemporary field surveys informed project design in avoiding ecological values, as discussed in Section 3 of this EAR. The project occurs entirely within Category X (non-remnant) vegetation with only 1.29 ha containing canopy vegetation. This vegetation is present on the edge of larger patches of non-remnant vegetation and largely fragmented by existing land uses. Consequently, this vegetation is already indirectly impacted and exposed to edge effects. As a result, it holds the least ecological value in comparison to surrounding areas and the wider region. No EPBC Act or NCA listed fauna species were recorded within the project area as part of contemporary or previous field survey efforts, nor are they considered likely to occur within the project impact area due to lack of suitable habitat and surrounding highly modified environments.

Performance outcomes	Acceptable outcomes	Response
	a) that the development will not result in significant impacts on relevant environmental values; b) that the development site does not contain any matters of environmental significance, or that the extent of the area of environmental significance is different to that mapped; c) how the proposed development mitigates impacts, including on water quality, hydrology and biological processes.	
	AO1.2 For residual adverse impacts, an environmental offset is provided that is consistent with the <i>Environmental Offsets Act 2014</i>.	AO1.2 – COMPLIES Project design avoids residual adverse impacts. The project is located within an already largely cleared space surrounded by existing infrastructure and anthropogenic land uses and proposes to only impact highly fragmented and already disturbed non-remnant vegetation. Therefore, there is not anticipated to be a significant residual impact on threatened species as a result of the project. This has been further discussed surrounding specific species in Section 3.2.7 of this report.
PO2 An adequate buffer to areas of environmental significance is provided and maintained.	A02 A buffer for an area of environmental significance is applied and maintained, the width of which is supported by an evaluation of the environmental values, including the function and threats to matters of environmental significance.	AO2.1 – COMPLIES No state or local environmental constraints are proposed for impact under the proposal. The proposed project is not proposed within a mapped area of regulated vegetation as per the <i>Goondiwindi Regional Council Planning Scheme</i> strategic framework natural environment overlay. All vegetation proposed for impact is Category X (non-remnant) vegetation which is not regulated under the <i>Vegetation Management Act 1999</i>.

Performance outcomes	Acceptable outcomes	Response
		The adjacent areas of Category B (remnant) vegetation are not proposed for impact. This remnant vegetation is mapped as containing 'of concern' composite RE 13.11.3/13.11.8, with on ground surveys finding it to correspond more so with RE 13.11.3, which is a 'least concern' regional ecosystem. No specific buffer areas are outlined under the VMA in relation to 'of concern' or 'least concern' regulated vegetation. Regardless, the project impact area remains outside of this mapping with the infrastructure remaining over 50 m from the mapped regulated vegetation in all cases.
Protection and buffering of wetlands and watercourses		
PO3 The design, layout and operation of development minimises adverse impacts on MSES by:	AO3.1 A buffer is provided and maintained to a wetland which has a minimum width of:	AO3.1– DOES NOT APPLY No local wetlands or wetlands of national significance are mapped within or adjacent the project area.
a) providing and maintaining adequate vegetated buffers and setbacks to wetlands and watercourses to assist in the maintenance of water quality, existing hydrological processes and ecological functioning; and	a) 50 metres where the area is located within an urban area or land included in the Rural residential zone; and	
b) maintaining an appropriate extent of public access to watercourses and minimises edge effects.	b) 200 metres where the area is located outside an urban area or land included in the Rural residential zone.	
	AO3.2 Development in an urban or rural residential area is setback a minimum of 50m from a waterway on or adjacent to the site.	AO3.2 – COMPLIES The project area is surrounded by several DAF mapped waterways for waterway barrier works (WWBWs) which are also mapped as VMA drainage features / watercourses. The BESS project does not propose to interfere with any of the mapped waterways on-site. The nearest to the development footprint is a moderate-risk DAF waterway / stream order 2 watercourse present to the west of the project area. This waterway is mapped as traversing north of the project area from where mining lease land, through scattered vegetation into non-
	OR	

Performance outcomes	Acceptable outcomes	Response
	Development not in an urban or rural residential area is setback a minimum of 100m from a waterway on or adjacent to the site. Note—The above setback distances are to be measured from the top of the high bank of the watercourse.	remnant vegetation before joining a high-risk DAF WWBW / VMA stream order 3 watercourse in the south. The waterway itself originates from sediment dams associated with mining activity and meanders through to a high-risk DAF WWBWs downstream. Field surveys have noted that the waterway is more so reflective of a low-lying drainage feature between gradually sloping hills, lacking defined banks. Pooling water was absent with flow anticipated to be ephemeral during times of heavy rainfall. In addition, approximately 140 m upstream of the intersection between the moderate-risk and high-risk waterways a 3-tiered rocky “waterfall” is present. This vertical structure is approximately 5 m high and considered a major barrier to fish passage upstream. Therefore, north of this structure is considered not a waterway for fish passage under the DAF definition of a waterway. Regardless, project design has proposed the avoidance of the waterway, leaving the mapped flow path to exist <i>in-situ</i>. Should any crossings or infrastructure be proposed through the mapped channel, these will adhere to Accepted Development Requirements (ADR) otherwise referral to DAF for assessment will occur.
	A03.3 Cleared, degraded or disturbed watercourses and watercourse buffers within the development site are rehabilitated in accordance with an approved rehabilitation plan.	A03.1– DOES NOT APPLY The development does not propose to interfere with surrounding mapped DAF waterways and VMA watercourses.
	A03.4 Reconfiguring a lot adjacent to a watercourse provides that:-	A03.4– DOES NOT APPLY The development does not propose to create new lots.

Performance outcomes	Acceptable outcomes	Response
	a) no new lots directly back onto the riparian area; b) any new roads are located between the watercourse buffer and proposed lots.	

Appendix F

SAT Survey Results

Spot Assessment Technique (SAT)				
Date:	21/02/2024	Site: 11954 - remnant	SAT ID: 1	
Tree No.	Scientific Name	Common Name	DBH	Scats
1	<i>Eucalyptus albens</i>	White Box	200	N
2	<i>Eucalyptus albens</i>	White Box	100	N
3	<i>Eucalyptus dealbata</i>	Tumbledown Red Gum	130	N
4	<i>Eucalyptus albens</i>	White Box	120	N
5	<i>Eucalyptus albens</i>	White Box	100	N
6	<i>Eucalyptus albens</i>	White Box	140	N
7	<i>Eucalyptus albens</i>	White Box	110	N
8	<i>Eucalyptus albens</i>	White Box	170	N
9	<i>Eucalyptus albens</i>	White Box	160	N
10	<i>Eucalyptus albens</i>	White Box	150	N
11	<i>Eucalyptus dealbata</i>	Tumbledown Red Gum	110	N
12	<i>Eucalyptus albens</i>	White Box	150	N
13	<i>Eucalyptus albens</i>	White Box	190	N
14	<i>Eucalyptus albens</i>	White Box	160	N
15	<i>Eucalyptus albens</i>	White Box	120	N
16	<i>Eucalyptus albens</i>	White Box	150	N
17	<i>Eucalyptus albens</i>	White Box	120	N
18	<i>Eucalyptus dealbata</i>	Tumbledown Red Gum	100	N
19	<i>Eucalyptus albens</i>	White Box	110	N
20	<i>Eucalyptus albens</i>	White Box	130	N
21	<i>Eucalyptus albens</i>	White Box	100	N
22	<i>Eucalyptus albens</i>	White Box	150	N
23	<i>Eucalyptus dealbata</i>	Tumbledown Red Gum	120	N
24	<i>Eucalyptus albens</i>	White Box	110	N
25	<i>Eucalyptus albens</i>	White Box	110	N
26	<i>Eucalyptus dealbata</i>	Tumbledown Red Gum	100	N
27	<i>Eucalyptus dealbata</i>	Tumbledown Red Gum	100	N
28	<i>Eucalyptus dealbata</i>	Tumbledown Red Gum	130	N
29	<i>Eucalyptus albens</i>	White Box	120	N
30	<i>Eucalyptus albens</i>	White Box	110	N
Total Scats			0	
Percentage			0.00	
East Coast (med-high) Activity Category			Low	

Spot Assessment Technique (SAT)				
Date:	21/02/2024	Site: 11954 - Non-remnant vegetation east of project area	SAT ID: 2	
Tree No.	Scientific Name	Common Name	DBH	Scats
1	<i>Eucalyptus dealbata</i>	Tumbledown Red Gum	190	N
2	<i>Eucalyptus dealbata</i>	Tumbledown Red Gum	150	N
3	<i>Eucalyptus dealbata</i>	Tumbledown Red Gum	110	N
4	<i>Eucalyptus dealbata</i>	Tumbledown Red Gum	100	N
5	<i>Eucalyptus dealbata</i>	Tumbledown Red Gum	330	N
6	<i>Eucalyptus dealbata</i>	Tumbledown Red Gum	170	N
7	<i>Eucalyptus dealbata</i>	Tumbledown Red Gum	100	N
8	<i>Eucalyptus dealbata</i>	Tumbledown Red Gum	120	N
9	<i>Eucalyptus dealbata</i>	Tumbledown Red Gum	100	N
10	<i>Eucalyptus dealbata</i>	Tumbledown Red Gum	260	N
11	<i>Callitris glaucophylla</i>	White Cypress	140	N
12	<i>Eucalyptus dealbata</i>	Tumbledown Red Gum	120	N
13	<i>Eucalyptus dealbata</i>	Tumbledown Red Gum	120	N
14	<i>Eucalyptus dealbata</i>	Tumbledown Red Gum	140	N
15	<i>Eucalyptus dealbata</i>	Tumbledown Red Gum	130	N
16	<i>Eucalyptus dealbata</i>	Tumbledown Red Gum	100	N
17	<i>Eucalyptus dealbata</i>	Tumbledown Red Gum	120	N
18	<i>Eucalyptus dealbata</i>	Tumbledown Red Gum	130	N
19	<i>Eucalyptus dealbata</i>	Tumbledown Red Gum	100	N
20	<i>Eucalyptus dealbata</i>	Tumbledown Red Gum	130	N
21	<i>Eucalyptus dealbata</i>	Tumbledown Red Gum	210	N
22	<i>Eucalyptus dealbata</i>	Tumbledown Red Gum	100	N
23	<i>Eucalyptus dealbata</i>	Tumbledown Red Gum	100	N
24	<i>Eucalyptus dealbata</i>	Tumbledown Red Gum	120	N
25	<i>Eucalyptus dealbata</i>	Tumbledown Red Gum	190	N
26	<i>Eucalyptus dealbata</i>	Tumbledown Red Gum	100	N
27	<i>Eucalyptus dealbata</i>	Tumbledown Red Gum	140	N
28	<i>Eucalyptus dealbata</i>	Tumbledown Red Gum	130	N
29	<i>Eucalyptus dealbata</i>	Tumbledown Red Gum	110	N
30	<i>Eucalyptus dealbata</i>	Tumbledown Red Gum	140	N
Total Scats			0	
Percentage			0.00	
East Coast (med-high) Activity Category			Low	

Spot Assessment Technique (SAT)				
Date:	21/02/2024	Site: 11954 - Non-remnant vegetation to the north of project area	SAT ID: 3	
Tree No.	Scientific Name	Common Name	DBH	Scats
1	<i>Eucalyptus dealbata</i>	Tumbledown Red Gum	180	N
2	<i>Eucalyptus crebra</i>	Narrow-leaved Ironbark	110	N
3	<i>Eucalyptus dealbata</i>	Tumbledown Red Gum	180	N
4	<i>Eucalyptus dealbata</i>	Tumbledown Red Gum	170	N
5	<i>Eucalyptus crebra</i>	Narrow-leaved Ironbark	180	N
6	<i>Eucalyptus crebra</i>	Narrow-leaved Ironbark	110	N
7	<i>Eucalyptus crebra</i>	Narrow-leaved Ironbark	140	N
8	<i>Eucalyptus crebra</i>	Narrow-leaved Ironbark	150	N
9	<i>Eucalyptus crebra</i>	Narrow-leaved Ironbark	130	N
10	<i>Eucalyptus crebra</i>	Narrow-leaved Ironbark	170	N
11	<i>Eucalyptus crebra</i>	Narrow-leaved Ironbark	110	N
12	<i>Eucalyptus dealbata</i>	Tumbledown Red Gum	170	N
13	<i>Eucalyptus crebra</i>	Narrow-leaved Ironbark	140	N
14	<i>Eucalyptus crebra</i>	Narrow-leaved Ironbark	220	N
15	<i>Eucalyptus crebra</i>	Narrow-leaved Ironbark	210	N
16	<i>Eucalyptus crebra</i>	Narrow-leaved Ironbark	170	N
17	<i>Eucalyptus dealbata</i>	Tumbledown Red Gum	100	N
18	<i>Eucalyptus crebra</i>	Narrow-leaved Ironbark	110	N
19	<i>Eucalyptus crebra</i>	Narrow-leaved Ironbark	100	N
20	<i>Eucalyptus crebra</i>	Narrow-leaved Ironbark	250	N
21	<i>Eucalyptus crebra</i>	Narrow-leaved Ironbark	140	N
22	<i>Eucalyptus crebra</i>	Narrow-leaved Ironbark	100	N
23	<i>Eucalyptus dealbata</i>	Tumbledown Red Gum	100	N
24	<i>Eucalyptus crebra</i>	Narrow-leaved Ironbark	190	N
25	<i>Eucalyptus crebra</i>	Narrow-leaved Ironbark	110	N
26	<i>Eucalyptus crebra</i>	Narrow-leaved Ironbark	150	N
27	<i>Eucalyptus crebra</i>	Narrow-leaved Ironbark	190	N
28	<i>Eucalyptus crebra</i>	Narrow-leaved Ironbark	110	N
29	<i>Eucalyptus crebra</i>	Narrow-leaved Ironbark	120	N
30	<i>Eucalyptus crebra</i>	Narrow-leaved Ironbark	120	N
Total Scats			0	
Percentage			0.00	
East Coast (med-high) Activity Category			Low	

Spot Assessment Technique (SAT)				
Date:	21/02/2024	Site: 11954 - Non-remnant vegetation to the north of project area	SAT ID: 3	
Tree No.	Scientific Name	Common Name	DBH	Scats
1	<i>Eucalyptus dealbata</i>	Tumbledown Red Gum	380	N
2	<i>Eucalyptus dealbata</i>	Tumbledown Red Gum	90	N
3	<i>Eucalyptus dealbata</i>	Tumbledown Red Gum	110	N
4	<i>Eucalyptus dealbata</i>	Tumbledown Red Gum	100	N
5	<i>Eucalyptus dealbata</i>	Tumbledown Red Gum	100	N
6	<i>Eucalyptus dealbata</i>	Tumbledown Red Gum	100	N
7	<i>Eucalyptus dealbata</i>	Tumbledown Red Gum	130	N
8	<i>Eucalyptus dealbata</i>	Tumbledown Red Gum	180	N
9	<i>Eucalyptus dealbata</i>	Tumbledown Red Gum	110	N
10	<i>Eucalyptus dealbata</i>	Tumbledown Red Gum	360	N
11	<i>Callitris glaucophylla</i>	White Cypress	130	N
12	<i>Eucalyptus dealbata</i>	Tumbledown Red Gum	110	N
13	<i>Callitris glaucophylla</i>	White Cypress	100	N
14	<i>Eucalyptus dealbata</i>	Tumbledown Red Gum	100	N
15	<i>Eucalyptus dealbata</i>	Tumbledown Red Gum	100	N
16	<i>Eucalyptus dealbata</i>	Tumbledown Red Gum	250	N
17	<i>Eucalyptus dealbata</i>	Tumbledown Red Gum	90	N
18	<i>Eucalyptus dealbata</i>	Tumbledown Red Gum	90	N
19	<i>Eucalyptus dealbata</i>	Tumbledown Red Gum	140	N
20	<i>Eucalyptus dealbata</i>	Tumbledown Red Gum	140	N
21	<i>Eucalyptus dealbata</i>	Tumbledown Red Gum	160	N
22	<i>Callitris glaucophylla</i>	White Cypress	120	N
23	<i>Eucalyptus dealbata</i>	Tumbledown Red Gum	80	N
24	<i>Eucalyptus dealbata</i>	Tumbledown Red Gum	110	N
25	<i>Eucalyptus dealbata</i>	Tumbledown Red Gum	120	N
26	<i>Eucalyptus dealbata</i>	Tumbledown Red Gum	120	N
27	<i>Eucalyptus dealbata</i>	Tumbledown Red Gum	100	N
28	<i>Eucalyptus dealbata</i>	Tumbledown Red Gum	110	N
29	<i>Eucalyptus dealbata</i>	Tumbledown Red Gum	120	N
30	<i>Eucalyptus dealbata</i>	Tumbledown Red Gum	150	N
Total Scats			0	
Percentage			0.00	
East Coast (med-high) Activity Category			Low	

Spot Assessment Technique (SAT)				
Date:	21/02/2024	Site: 11954 - Non-remnant vegetation to the north of project area	SAT ID: 3	
Tree No.	Scientific Name	Common Name	DBH	Scats
1	<i>Eucalyptus crebra</i>	Narrow-leaved Ironbark	470	N
2	<i>Callitris glaucophylla</i>	White Cypress	250	N
3	<i>Callitris glaucophylla</i>	White Cypress	200	N
4	<i>Eucalyptus dealbata</i>	Tumbledown Red Gum	170	N
5	<i>Callitris glaucophylla</i>	White Cypress	200	N
6	<i>Eucalyptus dealbata</i>	Tumbledown Red Gum	100	N
7	<i>Eucalyptus dealbata</i>	Tumbledown Red Gum	200	N
8	<i>Callitris glaucophylla</i>	White Cypress	230	N
9	<i>Callitris glaucophylla</i>	White Cypress	200	N
10	<i>Callitris glaucophylla</i>	White Cypress	270	N
11	<i>Eucalyptus dealbata</i>	Tumbledown Red Gum	500	N
12	<i>Callitris glaucophylla</i>	White Cypress	250	N
13	<i>Callitris glaucophylla</i>	White Cypress	100	N
14	<i>Callitris glaucophylla</i>	White Cypress	240	N
15	<i>Callitris glaucophylla</i>	White Cypress	200	N
16	<i>Callitris glaucophylla</i>	White Cypress	250	N
17	<i>Callitris glaucophylla</i>	White Cypress	150	N
18	<i>Callitris glaucophylla</i>	White Cypress	260	N
19	<i>Callitris glaucophylla</i>	White Cypress	200	N
20	<i>Callitris glaucophylla</i>	White Cypress	250	N
21	<i>Eucalyptus dealbata</i>	Tumbledown Red Gum	200	N
22	<i>Callitris glaucophylla</i>	White Cypress	180	N
23	<i>Callitris glaucophylla</i>	White Cypress	130	N
24	<i>Callitris glaucophylla</i>	White Cypress	100	N
25	<i>Callitris glaucophylla</i>	White Cypress	200	N
26	<i>Eucalyptus dealbata</i>	Tumbledown Red Gum	200	N
27	<i>Callitris glaucophylla</i>	White Cypress	150	N
28	<i>Callitris glaucophylla</i>	White Cypress	100	N
29	<i>Callitris glaucophylla</i>	White Cypress	250	N
30	<i>Callitris glaucophylla</i>	White Cypress	180	N
Total Scats			0	
Percentage			0.00	
East Coast (med-high) Activity Category			Low	