

res aecom
N 0 2 3 km
Legend
* Site Access
Turbine
Meteorological Mast (Permanent)
Meteorological Mast (Temporary)
Watercourse
State Controlled Road
Roads
Access Track
Existing Powerlink 275kV Overhead Line
Proposed Overhead Reticulation Proposed Underground Reticulation
BESS Area
Collector Station
Laydown
O&M Building
PLQ Switching Station
Site Compound
Substation
Washdown Area
Site Boundary
Cadastral Boundaries
Clearing Footprint
Cleaning rootprint
Overview 0 60 120 Kilometers • KINGAROY

Figure 5.1



res aecom
Legend
Turbine
Non-host residential receptor
Host residential receptor
Host residential receptor - abandoned*
 Host residential receptor - abandoned* Mountain Peaks
Mountain Peaks
Mountain Peaks State Controlled Road
Mountain Peaks State Controlled Road Watercourse
Mountain Peaks State Controlled Road Watercourse Roads
Mountain Peaks State Controlled Road Watercourse Roads Site Boundary
 Mountain Peaks State Controlled Road Watercourse Roads Site Boundary Local government boundary

*Abandoned structures to be relocated or demolished prior to operation of the Project



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TARONG WEST WIND FARM PLANNING REPORT

SHADOW FLICKER ASSESSMENT AND SENSITIVE LAND USE SEPARATION

Figure 7



PLANS AND DOCUMENTS referred to in the DEVELOPMENT APPROVAL



SARA ref:

2402-39136 SDA

Date:

25 July 2024

PRELIMINARY FAUNA MANAGEMENT PLAN TARONG WEST WIND FARM, IRONPOT QUEENSLAND

December 2023 RES AUSTRALIA PTY LTD



Glossary, acronyms and abbreviations

BBMP	Bird and Bat Management Plan			
ВоМ	Bureau of Meteorology			
Conservation significant species	Species listed as threatened (critically endangered, endangered, vulnerable) and/or migratory under EPBC Act or threatened (critically endangered, endangered, vulnerable) and/or near-threatened under the NC Act			
DAWE	Commonwealth Department of Agriculture, Water and the Environment (now DCCEEW)			
DCCEEW	Commonwealth Department of Climate Change, Energy, the Environment and Water (previously DAWE)			
DES	Queensland Department of Environment and Science			
DoE	Commonwealth Department of the Environment (now DCCEEW)			
EA	Ecological Assessment			
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act</i> 1999 (Commonwealth)			
FMP	Fauna Management Plan			
FSC	Fauna spotter catcher			
HVR	High value regrowth			
MNES	Matters of national environmental significance			
MSES	Matters of state environmental significance			
NC Act	Nature Conservation Act 1992 (Queensland)			
RE	Regional ecosystem			
SARA	State Assessment Referral Agency			
SEVT	Semi-evergreen vine thicket			
SLC	Special least concern species under the NC Act			
SMP	Species Management Program			
Threatened	critically endangered, endangered, or vulnerable			
VMP	Vegetation Management Plan			
WTG	Wind turbine generator			

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raise a chick will forgo the following breeding season (Glossy Black Conservance 2010)

- echidna mating occurs in July and August. Female echidna constructs a short burrow in which to lay their solitary egg. Some females remain in the burrow until the egg/s hatch while others carry the egg in their pouch. When the mother leaves the burrow with the young inside, she seals the entrance. Juvenile echidnas generally emerge from September to November (Augee 2008)
- rufous fantails breed October to February with incubation lasting 14-16 days. Both parents care for the hatching. One or two broods may be raised in a season (DoE 2015)
- satin flycatchers lay eggs in December in Queensland, with clutch sizes averaging three or sometimes four eggs. Both sexes brood and feed the nestlings (DoE 2015)
- fork-tailed swifts do not breed within Australia (DoE 2015).

Clearing of vegetation outside of these species' breeding seasons will be difficult and parental care is given for koala, greater glider and glossy black-cockatoo for up to one year following

PLANS AND DOCUMENTS referred to in the DEVELOPMENT APPROVAL	 relevant species will be used to guide the best as possible. As such, identification and e prioritised, where ever possible. Should an
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4.3 Management approach prior to clearing

4.3.1 Targeted field surveys

Targeted field surveys have been completed by Ecosure, refer to the EA (Ecosure 2023b). The results from targeted fauna surveys have been used in the final WTG layout to minimise impacting fauna habitat.

4.3.2 Pre-clear surveys

Pre-clearance surveys will be completed at varying stages before and during construction. Pre-clear surveys identify the potential presence of threatened fauna and fauna habitat within all significant habitats to be disturbed. The pre-clear survey includes:

- walk-through assessment:
 - to identify the potential presence of threatened fauna within all significant habitats to be disturbed
 - occur 1 2 months before any clearing or construction commences
 - will cover the area proposed to be disturbed



- will identify hollows to be cleared which are suitable for greater glider denning or glossy black-cockatoo nesting, and inform the installation of replacement nest boxes
- completed by a suitably qualified ecologist
- first pre -clear survey
 - to identify active and inactive breeding locations where accessible
 - completed up to seven days prior to clearing (at least 24 hrs prior to clearing)
 - identify and mark potential animal breeding places and hollow-bearing trees
 - assess nearby vegetation/fauna habitat for suitability for animal relocation
 - completed by a suitably qualified ecologist
- second pre-clear survey
 - to identify whether fauna is still present that needs to be relocated or left in situ and avoided for the time being, whether breeding or foraging places are being utilised, or to identify other features that need to be retained at that time and or works rescheduled
 - assessments undertaken immediately prior to clearing
 - completed by a fauna spotter catcher.

4.4 Management approach during clearing

During clearing works the following will occur:

- all vegetation clearing and tree felling must be conducted under the guidance of a suitably qualified FSC
- a FSC is to be present for each piece of clearing equipment (i.e. excavator or bulldozer), unless they are working nearby and the FSC is able to safely and effectively service more than one machine
- communication (e.g. UHF radio) between the FSC and the clearing machine operator is to be maintained at all times
- the FSC is to search ahead of clearing works for the presence of fauna in trees, beneath logs, bark or in hollows or shrubs and for burrowing bird nests
- in the event of a non-threatened animal being located that cannot be immediately captured and relocated, an area of 5 m radius will be established around the tree / location and felling / construction activities must cease in that area until the animal has relocated or an alternative capture method has been agreed upon
- in the event a threatened animal is located, an area of 50 m will be established around the tree or any tree with an overlapping crown that is proposed to be removed and felling / construction activities must cease in that area until the animal has selfrelocated or an alternative capture method has been agreed upon
- a FSC will be present during mulching of cleared vegetation if stockpiled longer than 24 hours prior to processing to assess for fauna which has moved into the stockpile.





4.4.1 Hollow-bearing trees

Hollow-bearing trees may contain nesting or denning fauna which are at risk of injury or mortality if the tree is felled without consideration of this risk. Fauna may reside in hollows within branches, within the trunk of the tree, or within vents.

- hollow-bearing trees will be avoided where possible as they provide significant resources for threatened and least concern fauna species
- where possible, hollow bearing trees will be left in situ as long as possible (minimum 24 hours where possible) prior to felling, while smaller trees around them are cleared to encourage fauna to relocate on their own
- if fauna breeding activity is confirmed within tree hollows, nests or arboreal termite mounds and fauna cannot be safely removed by any method, the tree will be left insitu until the breeding activity has completed, unless otherwise stated in the approved SMP (i.e. high-risk or low-risk of impacts)
- trees with hollows, arboreal termite mounds or nests where no obvious breeding activity is observed will be laid over as gently as possible (soft felled) in a direction that is likely to reduce damage to the habitat feature and minimise deceleration injuries and/or death to any animals that may be inside the hollows or nests
- where possible, felled trees with hollows will be moved adjacent to the work area to remain as potential habitat for animals.

4.4.2 Relocation of fauna

If fauna are to be relocated from the clearing footprint, there is a hierarchy from first preference (ideal) to lowest preference (last resort):

- relocation to suitable habitat within project site
- relocation to suitable habitat adjacent/near project site
- placement within a rehabilitation program with the individual to be released in the future
- individual to be placed into an educational, research or conservation facility.

All vegetation is proposed to be removed from the clearing footprint, however there will be suitable habitat for fauna relocation remaining on the project site in the areas of retained vegetation outside the clearing footprint. Relocation areas must be assessed for suitability during the pre-clear assessment prior to the commencement of any clearing works. If the relocation site is deemed unsuitable, an alternative site will be required to be sourced prior to clearing works.

Where possible, stags and any large logs designated for removal will be retained as timber logs to be placed on the ground outside the vegetation clearing area, to be used as fauna habitat.





4.5 Threatened and conservation significant species management

Species-specific measures to manage threatened and conservation significant species considered likely or confirmed to occur on the site are detailed below.

4.5.1 Koala

Clearing works in koala habitat are to be conducted with a suitably qualified FSC present to identify if koala are present within or adjacent to habitat to be cleared. Clearing works should be completed in a sequential manner to allow koalas to self-relocate. If koalas are observed, clearing works and/or earthworks are to be temporarily suspended within a range of 50 m from any tree which is occupied by a koala, until the koala has self relocated. Works will be avoided in any area between the koala and the nearest areas of habitat to be retained, to allow the animal to move to adjacent undisturbed areas. In addition, clearing will follow the guidelines established in the Nature Conservation (Koala) Conservation Plan 2017 for koala habitat within koala district C (State of Queensland 2023).

Specific actions to minimise impacts to koala include strict traffic management procedures (e.g. limited access routes, speed controls, limited night traffic) with reduced speeds during breeding season); rehabilitation works, where possible, will include planting of locally important koala trees, especially in areas that provide connectivity between larger habitat patches; predator control if signs of koala predation or increased predator numbers are observed during construction; and weed and pest animal management during construction and operational phases to ensure safe movement of koalas within the project site.

4.5.2 Greater glider

Greater gliders shelter in tree hollows, with a preference for large hollows (diameter > 10 cm) in large trees, that usually take 150 years to form in eucalypts, however both live and dead standing trees are used for denning (DCCEEW 2022c). Great gliders use 4-20 den trees each and will co-utilise the same dens at different times (Smith et al. 2007). Active searches for greater gliders by the FSC are required during pre-clearance surveys and for any signs of denning prior to clearing works each day.

To minimise breeding disruption to this species, where possible, clearing will avoid areas of greater glider habitat during March to June, as females give birth to a single young during this period (DCCEEW 2022c). If a tree in which a greater glider is suspected to be denning is identified for clearing, the tree shall be inspected for the presence of denning individuals.

If fauna denning or breeding activity is confirmed or suspected as likely within tree hollows an elevated work platform should be used (unless the site is unsuitable or inaccessible), to safely remove and relocate fauna to suitable habitat or appropriate care. If an elevated work platform can not be used, where possible and safe to do so, an excavator with a vertical tree grab should be used to gently lower the tree and safely remove and relocate fauna to suitable habitat or appropriate care not be safely removed by any method, the tree should be left in-situ until the fauna has self-relocated.

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Trees with hollows where no evidence of sheltering or breeding activity is observed should be laid over as gently as possible using any method available, in a direction that is likely to reduce damage to the hollow and minimise deceleration injuries and/or death to animals.

Nest boxes will be installed in advance of clearing active glider hollows, to allow the resident population to become aware of their availability. Nest boxes for greater gliders will be installed at a minimum ratio of two nest boxes for every one hollow cleared which is suitable for greater glider use.

Vegetation clearing within greater glider habitat along Jumma Road may act as a barrier to the movement and dispersal of the greater glider. Installation of glide poles at 30 m intervals across this corridor (in greater glider habitat only where the clearing footprint is greater than 30 m in width) will facilitate the gap crossing by the greater glider (Environment and Heritage 2016) and mitigate the impacts to their movement and dispersal. Glide poles will be installed as soon as possible after clearing and earthworks.

Other specific measures important for mitigating impacts to greater glider include pre-clear surveys, sequential clearing and use of fauna spotter-catchers to identify and allow greater gliders to self-relocate during construction or be relocated, traffic management to minimise collisions, minimise track widths, undertake pest management and clearly identify and mark the extent of vegetation clearing and "no-go" zones prior to clearing activities to minimise the risk of accidental clearing (refer to Ecosure 2023d) in areas of mapped glider habitat during the construction phase.

4.5.3 *Grey-headed flying-fox*

Active searches for flying-fox camps by the FSC are recommended during pre-clearance surveys and for any signs of roosting or foraging prior to clearing works each day. As reliable foraging sources in spring are critical to the survival of the grey-headed flying-fox, removal of flowering eucalypts (as identified by a suitably qualified ecologist) during this period should be avoided where possible. Further management measures are outlined in the BBMP (Ecosure 2023a).

4.5.4 White-throated needletail

If a tree in which a white-throated needletail is suspected to be roosting is identified for clearing, the tree shall not be felled until the bird has vacated the tree on its own accord. Mitigating impacts for the white-throated needletail are challenging, as this species is an aerial forager, demonstrating an intermittent presence at the site in response to varying weather patterns. Ongoing carcass monitoring to assess strike numbers of white-throated needletail, revised risk assessments and adaptive management measures will be applied during the operational phase, which is outlined in the BBMP (Ecosure 2023a).

4.5.5 Glossy black-cockatoo

As per section 4.2, where possible, it is recommended the removal of glossy black-cockatoo foraging and breeding habitat be scheduled outside of the breeding season (late January to

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late July) (Garnett et al. 1999). Glossy black-cockatoos require large old tree hollow, positioned 10 to 20 m above the ground in eucalypt species, in branches/stems 30 cm in diameter, at a branch/stem angle of vertical or no more than 45 degrees from vertical and with a minimum entrance diameter of 15 cm (Cameron 2006, Glossy Black Conservancy 2010). Habitat disturbance will be minimised by siting WTGs and other infrastructure as far away as practicable from remnant vegetation, and will avoid the removal of hollow bearing trees, in particular areas where (if any) suitable nesting hollows are identified and watering points or large stands of foraging areas (where identified and possible). Further mitigation measures are outlined in the BBMP (Ecosure 2023a).

4.5.6 Short-beaked echidna

If a hollow log is suspected to contain a breeding female or young, then the hollow log will be picked up and moved to adjacent habitats, if possible. If the hollow log cannot be picked up or breaks apart, the FSC must capture the echidna and/or young and relocate to a suitable log in adjacent habitat. The young may be taken to a wildlife carer if the FSC deems this necessary.

If a burrow is suspected to contain a breeding female or young, then the burrow will be checked by the FSC and if animals are present, the FSC must capture the echidna and/or young and relocate to a suitable burrow or hollow log in adjacent habitat. The young may be taken to a wildlife carer if the FSC deems this necessary.

4.5.7 Rufous fantail

If a rufous fantail nest is identified within vegetation to be cleared, the FSC will attempt to relocate and attach the nest to a suitable branch within adjacent habitat. If nest relocation is not possible, the FSC may take the eggs to a wildlife carer for incubation and rearing. Further mitigation measures are outlined in the BBMP (Ecosure 2023a).

4.5.8 Satin flycatcher

If a satin flycatcher nest is identified within vegetation to be cleared, the FSC will attempt to relocate and attach the nest to a suitable branch within adjacent habitat. If nest relocation is not possible, the FSC may take the eggs to a wildlife carer for incubation and rearing. Further mitigation measures are outlined in the BBMP (Ecosure 2023a).

4.5.9 Fork-tailed swift

If a tree in which a fork-tailed swift is suspected to be roosting is identified for clearing, the tree will not be felled until the bird has vacated the tree on its own accord. Mitigating impacts for the fork-tailed swift are challenging, as this species is an aerial forager and the intermittent presence at the site is in response to varying weather patterns. Ongoing carcass monitoring to assess strike numbers of for-tailed swift, revised risk assessments and adaptive management measures will be applied during the operational phase, which is outlined in the BBMP (Ecosure 2023a).

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4.5.10 SMPs

A high-risk SMP will be required for prior to any activities that may involve tampering with a breeding place of greater gliders, grey-headed flying-fox, glossy black-cockatoo, rufous fantail, satin flycatcher, echidna, and least concern colonial breeding species. Least concern colonial breeding species identified to occur on site are the striated pardalote (*Pardalotus striatus*), spotted pardalote (*Pardalotus punctatus*), fairy martin (*Petrochelidon ariel*), and welcome swallow (*Hirundo neoxena*). Interfering with the breeding places of these species (for example, nesting hollows or earthen banks containing hollows) must be conducted in accordance with the measures set out in the SMP.

An SMP is not required for koala, as they do not have a habitual breeding place (DES 2020). SMPs are also not required for white-throated needletail or fork-tailed swift as these migratory species do not breed in Australia.

4.6 Management approach during construction

During the construction phase, the following will occur:

- appropriate speed limits and signage, education of personnel, implementation of buffers as outlined above will manage the increased interactions between fauna and construction vehicles or personnel resulting in direct mortality or movement of animals away from preferred habitats
- during trenching activities, open trenches will be monitored daily. If species are trapped in the trench they will be released by a FSC. The amount of open trench will be minimised and trenches will preferably be backfilled prior to nightfall. Escape ramps, ropes or planks and/or shelter (e.g. sawdust filled bags) for trapped fauna will be installed at 30 m intervals in open trenches where left open overnight
- no works are permitted to occur within ground-truthed greater glider habitat during night-time hours (between local dusk and dawn) to avoid disturbance of nocturnal species. Should night works be undertaken adjacent to greater glider habitats, all lighting used will be configured (i.e. guards and angle of lighting) to minimise light spill into adjacent habitats
- weed washdown facilities will be constructed at key access points and runoff contained on site to reduce transmission of weeds and infection by pathogens carried on equipment and machinery. For more information, refer to the VMP (Ecosure 2023d)
- development of an erosion and sediment control plan to prevent deterioration of aquatic habitats due to installation of drainage works and watercourse crossings for access
- progressively rehabilitate cleared areas, post-construction.
- pest animal management as per Section 4.8 to reduce the movement of pest animals into new areas

into new areas	PLANS AND DOCUMENTS referred to in the DEVELOPMENT APPROVAL		Queensland Government	
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- cleared vegetation stockpiles must not be pushed against retained vegetation including within the structural root zone of retained trees, to reduce fuel load present in retained vegetation should a fire occur
- vegetation stockpiles must not be stored on site for extended periods of time (e.g. periods of several months) as local fauna may take up residence and be injured when the materials are eventually moved. If fauna have taken up residence in stockpiled materials (vegetation or construction materials) during construction, all activities must be stopped until the FSC removes the fauna from the immediate vicinity
- proper storage of chemicals and fuel, and spill management and response measures are to be developed and implemented in a construction environmental management plan.

4.7 Management approach during operation

Routine mitigation measures during operation will be undertaken to minimise the risks to fauna and fauna habitat. These mitigation measures include:

- fencing installed during construction should consider movement of fauna through or over the fence to minimise possible fauna entanglement (e.g. gliders, flying-foxes and birds). However, it is noted that this may not always be possible due to specific project requirements such as maintaining the existing farming use of the land, security and safety fencing
- appropriate speed limits to be enforced, signage installed and education of personnel conducted to reduce interactions between fauna and vehicles
- weed washdowns to reduce loss or alteration of habitat due to weed infestation
- pest animal management as per Section 4.8 to ensure the existing populations in the area do not increase
- reduce night time security lighting where possible to decrease insect attraction to lighting.

4.8 Pest animal management

Pest animals, including introduced predators, are present on the site and may impact on fauna displaced from cleared habitat. Therefore, the site must be managed to avoid increasing populations and attracting exotic predators to the work site.

All putrescible wastes must be disposed of in sealed bins and regularly emptied.

Evidence or sightings of pest animals on the site will be recorded in a register to remain on site. If sightings increase in frequency or new pest species are observed, humane pest controls will be implemented.

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4.9 Treatment / removal of injured fauna

If fauna are injured and require transportation to appropriate care, clearing work shall cease until the FSC advises clearing work can continue.

Any native fauna orphaned or injured during construction shall be reported to Queensland Parks and Wildlife Service 1300 130 372 and / or RSPCA on 1300 852 188 / 07 5575 6146.

Should least concern fauna become seriously injured to the extent that the injuries are likely to be fatal, euthanasia may be conducted in the field where safe to do so (suitably qualified personnel holding appropriate permits) or by a veterinarian or wildlife carer.

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Glossary, acronyms and abbreviations

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Bureau of Meteorology	Date: 25 July 2024				
Biodiversity Planning Assessment					
Species listed as threatened (critic vulnerable) and/or migratory under threatened or near-threated under the	er the EPBC Act, or listed as				
Commonwealth Department of Environment (now DCCEEW)	Agriculture, Water and the				
Diameter at breast height (1.4 m abo	ove ground)				
Commonwealth Department of Environment and Water	Climate Change, Energy, the				
New South Wales Department of Er	vironment and Climate Change				
Queensland Department of Environr DES)	nent and Heritage Protection (now				
Queensland Department of Environment	ment and Science				
Department of the Environment, Wa	ter, Heritage and the Arts				
Queensland Department of Natural Resources and Mines (now DOR)					
Queensland Department of Natural Resources, Mines and Energy (now DoR)					
Commonwealth Department of the E	Environment (now DCCEEW)				
Queensland Department of Resource	ces				
Queensland Department of Region and Water	nal Development, Manufacturing				
Queensland Department of State Government, Infrastructure, Local Government and Planning					
Environmental Offsets Act 2014 (Queensland)					
<i>Environment Protection and Biodiversity Conservation Act</i> 1999 (Commonwealth)					
General biosecurity obligation					
High value regrowth					
Landscape fragmentation and connectivity tool					
Material Change of Use					
Matters of national environmental significance					
Matters of state environmental signif	ficance				
Nature Conservation Act 1992 (Queensland)					
	Bird and Bat Management Plan Bird and bat utilisation survey Bureau of Meteorology Biodiversity Planning Assessment Species listed as threatened (cri vulnerable) and/or migratory under threatened or near-threated under th Commonwealth Department of Environment (now DCCEEW) Diameter at breast height (1.4 m abo Commonwealth Department of Environment and Water New South Wales Department of Environ Department of the Environ Department of Natural Queensland Department of Natural Queensland Department of Natural Queensland Department of Resource Queensland Department of Resource Queensland Department of Resource Queensland Department of Resource Queensland Department of State O Government and Planning Environmental Offsets Act 2014 (Que Environmental Offsets Act 2014 (Que				



OHL	Overhead line
PMAV	Property Map of Assessable Vegetation
PMST	Protected matters search tool (Commonwealth)
QPWS	Queensland Parks and Wildlife Service
RE	Regional ecosystem
RES	RES Australia Pty Ltd
RSA	Rotor swept area
SARA	State Assessment and Referral Agency
SAT	Koala spot assessment technique
SBRC	South Burnett Regional Council
SDAP	State Development Assessment Provisions
SEQ	South-east Queensland
SEVT	Semi-evergreen vine thicket
SLATS	Statewide landcover and tree study
SLC	Special least concern
SMP	Species management program
SPRAT	Species profile and threats database
TEC	Threatened ecological community
TNT	Threatened or near threatened
TSSC	Threatened Species Scientific Committee
UG	Underground
VM	Vegetation management
VM Act	Vegetation Management Act 1999 (Queensland)
WoNS	Weed of National Significance
WTG	Wind turbine generator



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_		vel one avian risk investiga			
6	•	of proposed project			
		mmary of impacts			
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Recommended mitigation measures 7

Impacts will be managed in accordance with the impact minimisation hierarchy to firstly avoid, then minimise, then mitigate any potential impacts on ecological values.

7.1 Avoidance of impacts

Date:

Most impacts to ecological values have been avoided through siting of infrastructure away from sensitive values. This includes the placement of WTGs and tracks away from regulated vegetation and watercourses as far as possible. As detailed design progresses, micro-siting of infrastructure will be implemented to avoid important habitat features such as hollowbearing trees and food trees, where possible.

The project site was reduced during project redesign to avoid large patches of remnant and HVR vegetation to the east of the site. Additionally, the current planning corridor will avoid the largest, most intact patches of vegetation along the eastern boundary and in the north west section of the site. The current design will remove up to a maximum of 16.98 ha of groundtruthed vegetation, comprising 16.98 ha of remnant REs (Table 40, Figure 9). This clearing represents 1.03% of the total remnant and HVR vegetation in the project site. As the project design progresses, all practicable efforts will be made to avoid impacts to vegetation communities and fauna habitats, including seasonal impacts to flora and fauna.

No TECs will be cleared or disturbed by the proposed development.

Pre-clearance surveys are recommended at varying stages before and during construction, including:

- walk-through assessment:
 - pre-clear surveys and assessments to identify the potential presence of threatened flora and fauna within all significant habitats to be disturbed
 - can occur months before any clearing or construction commences (e.g. as part of the infrastructure siting and layout process) and generally cover the area proposed to be disturbed as well as a buffer to allow micro-siting of infrastructure to occur
- pre-clear survey:
 - surveys and assessments to identify the presence of constraints and sensitive areas (including flora and fauna, threatened and otherwise) within a proposed clearing footprint and vicinity
 - generally undertaken within about seven days prior to clearing, but no later than 24 hours prior to clearing
 - identify and mark potential animal breeding places and hollow-bearing trees
- fauna spotter-catching:
 - assessments undertaken just prior to clearing, to identify whether fauna is present that needs to be left in situ and avoided, or relocated, whether habitat





trees, breeding or foraging places are being utilised, or to identify other features need to be retained and or works rescheduled

- also undertaken during all habitat clearing works (e.g. trees, shrubs, earthen banks, built infrastructure, waterbodies or grassed areas) to check habitat for presence of fauna, relocate fauna where feasible and take relocated and/or injured fauna to a qualified carer if required.

7.2 Minimisation of impacts

Where avoidance of an impact is not possible, impacts may be minimised by redesign and/or relocation of infrastructure or low impact construction methods. Impacts to ecological values may be minimised through various strategies including:

- siting of infrastructure in areas that have already been cleared
- siting of infrastructure on the edge of vegetation patches to reduce fragmentation
- micro-siting the location of access tracks and other infrastructure based on the results of pre-clear flora and fauna surveys
- reconfiguring infrastructure to minimise the amount of vegetation impacted (e.g. elongating pad dimensions may be possible on some sites)
- upgrading existing farm tracks for construction traffic to minimise the amount of vegetation requiring removal and reducing fragmentation (compared with clearing required for new tracks)
- minimising track width where possible
- minimising the width of new and upgraded tracks within sensitive habitats such as stream crossings or through remnant/HVR vegetation
- retaining the ground stratum and top soil (e.g. by trimming trees and woody shrubs) may be possible in some areas (e.g. adjacent to tracks and watercourse crossings) rather than ground disturbance works in order to retain soil structure and prevent erosion
- retaining large hollow-bearing trees that provide important nesting habitat for threatened species (e.g. greater glider or glossy black-cockatoo) where possible
- demarcation of clearing boundaries and designation of areas outside clearing boundaries as "no go" zones to avoid accidental damage to adjacent vegetation
- pre-clear surveys to identify habitat features before clearing commences and allow development of an appropriate tree removal procedure if required
- developing a traffic management plan to minimise damage to sensitive ecological areas and injury/mortality of fauna
- presence of a fauna spotter catcher during habitat clearing works (e.g. trees, shrubs, earthen banks, built infrastructure, waterbodies or grassed areas) to detect fauna and conduct appropriate capture and release methods
- avoiding seasonal foraging or breeding seasons of threatened fauna where possible



• protecting trees adjacent to work sites in accordance with the recommendations of a suitably qualified arborist.

7.3 Mitigation of impacts

After impacts have been avoided and minimised as far as practicable, remaining impacts will be mitigated. Mitigation strategies may include:

- rehabilitating disturbed areas following completion of construction activities such as temporary WTG construction pads, laydown areas and other infrastructure (site office, substations) or removal of temporary infrastructure
- rehabilitating unused verges of tracks within sensitive habitats following construction
- protection and potential restoration of any vegetation corridors that may facilitate the long-term survival and dispersal of the threatened flora and fauna species identified in this assessment
- development of appropriate environmental management procedures in a construction environmental management plan (e.g. erosion and sediment control, dust suppression, weed and pest animal management, offsite rubbish disposal)
- installation of wildlife movement or nesting furniture or structures (e.g., glider poles, koala crossings, nest boxes for unavoidable loss of hollows).

Aerial fauna that fly at RSA height may be killed by blade strike or barotrauma. The following mitigation of impacts should be considered to mitigate turbine strike:

- Where possible micro-site WTGS to maximise separation from the edges of remnant vegetation.
- Maintain the RSA height at no less than 60 m above ground height.
- An adaptive management and monitoring program to assess the effectiveness and implementation of controls as required.

Fauna may also be injured or killed by vehicles travelling within the project site during construction and operational stages. A traffic management plan for the project should incorporate measures to reduce the risk of collisions with vehicles including:

- limiting vehicle traffic to authorised tracks and roads
- avoid travel at night and minimise travel at dawn and dusk, where possible
- minimise the number of vehicles by using buses to transport construction staff around site
- enforcing strict speed limits and fauna safe behaviour through signage and staff training.

Generic minimising and mitigating strategies are provided in Table 43.

PLANS AND referred to in DEVELOPM	Queensland Government	
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Date:	25 July 2024	



25 July 2024

Potential impact	Recommended mitigation measures								
Removal of habitat	Set clear boundaries for clearing works.								
	Keep clearing footprints to a minimum.								
	Where possible, remove limbs from trees rather than entire trees (e.g. adjacent to tracks and waterway crossings).								
	Avoid removal of significant vegetation of	communities (e.g. SEVT).							
Declines in threatened species populations	Avoid vegetation clearing where previous available for the location of infrastructure	busly cleared areas in the project site are							
	Avoid removal of critically important fe large hollow-bearing trees for greater gli	atures of threatened species habitats (e.g. iders) where possible.							
		nd, if necessary, relocate threatened fauna e completed in a sequential manner to allow							
	Establish temporary exclusion fencing mortality of fauna in sensitive areas duri	g to minimise entrapment, injury and/or ng construction, where possible.							
		ry Vegetation Management Plan (Ecosure of construction on flora and vegetation							
	Implement Tarong West Preliminary Fa address potential impacts of constructio	una Management Plan (Ecosure 2023c) to n on fauna and habitat.							
	Develop a traffic management plan that includes measures to minimise impacts of construction on fauna and sensitive environmental areas.								
	Implement the Tarong West Preliminary Bird and Bat Management Plan (BBMP) (Ecosure 2023d) to address potential impacts of WTG operation on aerial species.								
Erosion of waterways	Best Practice Erosion and Sediment Control Guidelines (International Erosion Control Association [IECA] 2008) should be followed to prevent off-site impacts to downstream receiving environments.								
Removal of hollow-bearing trees or logs	Where possible, logs and hollow limbs cleared during construction should be placed in adjacent vegetation, so they can be used for habitat.								
Removal of potential and active breeding sites	Fauna spotter catcher to undertake pre-clear survey to identify habitat features and potential breeding sites prior to clearing works so that eggs or young can be removed and taken to qualified carer. A Queensland approved Species Management Plan high risk of impacts should be implemented for potential impacts to the breeding places of threatened and colonial breeding species confirmed or considered likely to occur on the project site.								
Death or injury to fauna	Fauna spotter catcher to check all habit	at prior to and during clearing.							
	Fauna spotter catcher should also che aquatic fauna prior to any proposed wor	ck creeks and drainage lines for frogs and ks in waterways							
	Have contact details of qualified carer to take any fauna injured or orphaned during works for rehabilitation.								
	Develop a traffic management plan that includes measures to minimise impacts of construction on fauna including:								
	 designated access routes 								
	restricting vehicle traffic to daylight	hours where possible.							
	enforcing strict speed limits.								
Spread of weeds	appropriate control technique. Reasona plants with a registered herbicide, whic	d prior to construction commencing using an ble control would include treating individual ch must be applied by an experienced and ure all plant conduct washdowns prior to							
		PLANS AND DOCUMENTS referred to in the DEVELOPMENT APPROVAL							
	· · · · · · · · · · · · · · · · · · ·								
PR3/13 Ecological Assessn	nent for Tarong West Wind Farm	SARA ref: 2402-39136 SDA							

Table 43 Potential impacts to ecological values and recommended mitigation measures

Date:



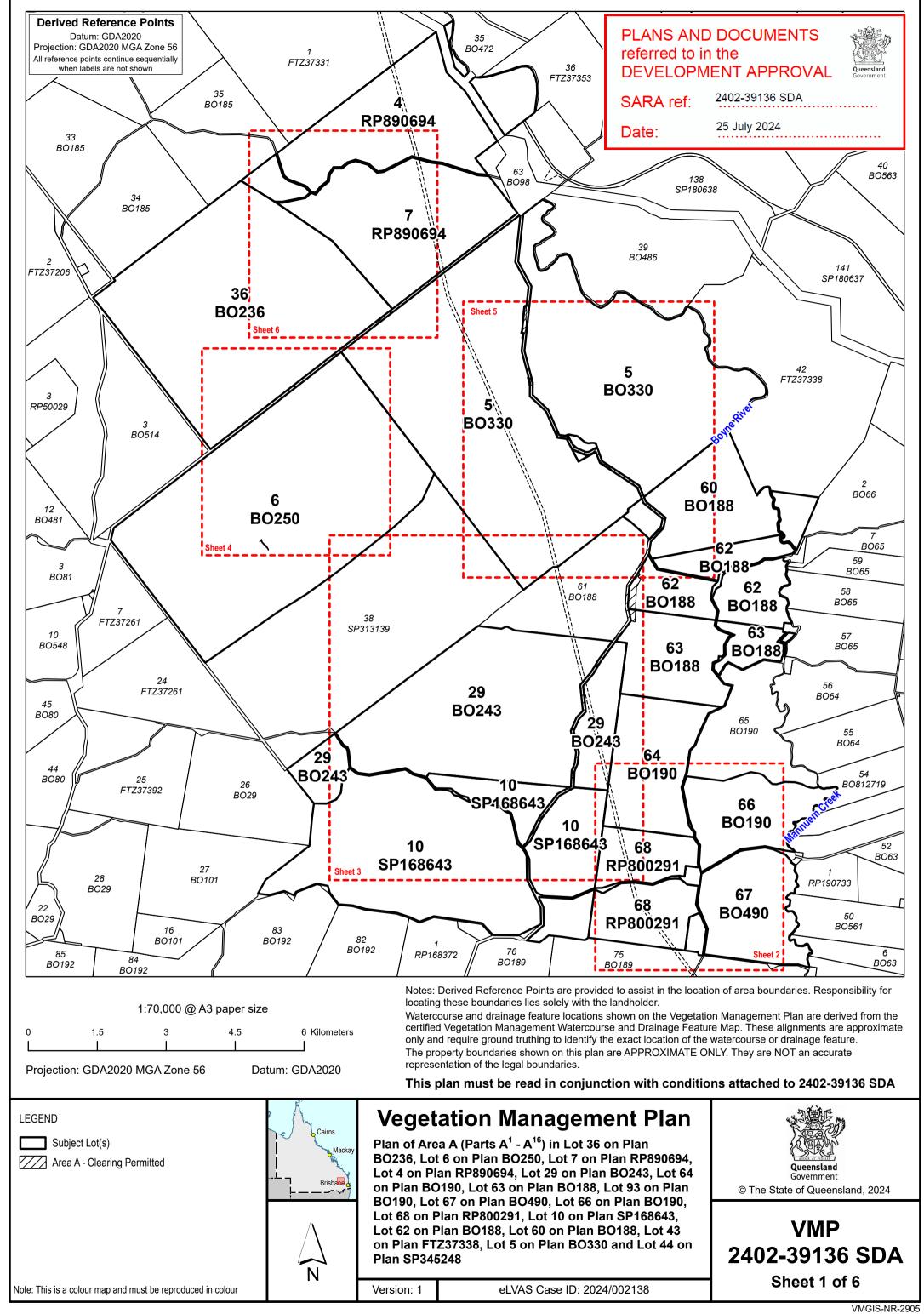
Potential impact	Recommended mitigation measures
Spread of pest animals	Restricted pest animals must be managed to minimise biosecurity risks. During construction and operation, rubbish and food waste should be appropriately stored and disposed off-site to minimise attracting foxes, wild dogs and pigs. Contributing to existing landholder and local government control programs for foxes, wild dogs and pigs may be beneficial to reduce impacts on native ecosystems and infrastructure (e.g. watercourse crossings, fences) and enhance community engagement.

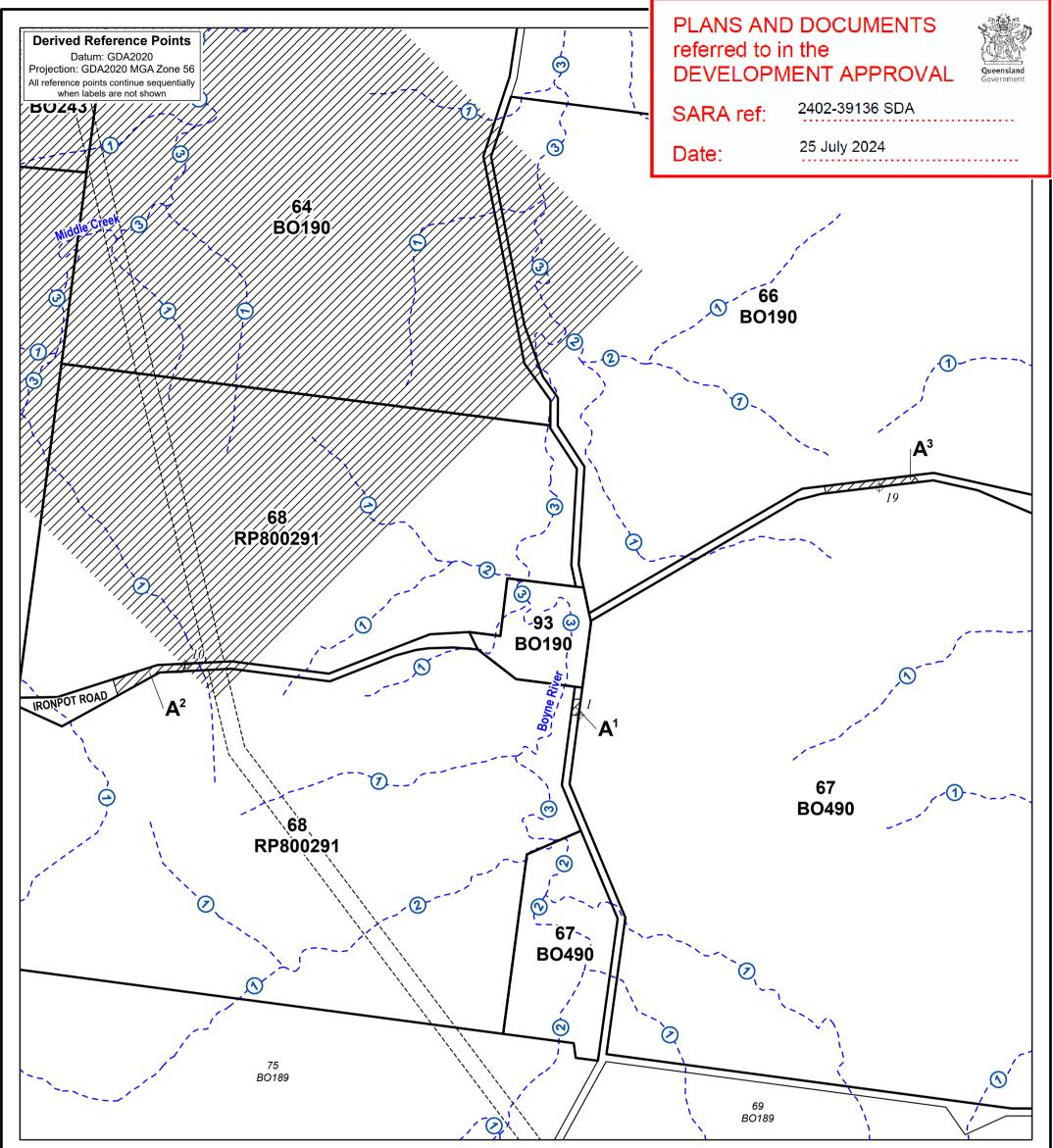
Offsets will be developed to compensate for any significant residual impacts that remain anter implementing all practicable measures to avoid, minimise and mitigate impacts. RES Australia Pty Ltd has purchased a property contiguous with the project site to be dedicated for use as land-based environmental offsets. The management of this offset will be subject to a future management plan required under a future Approval.



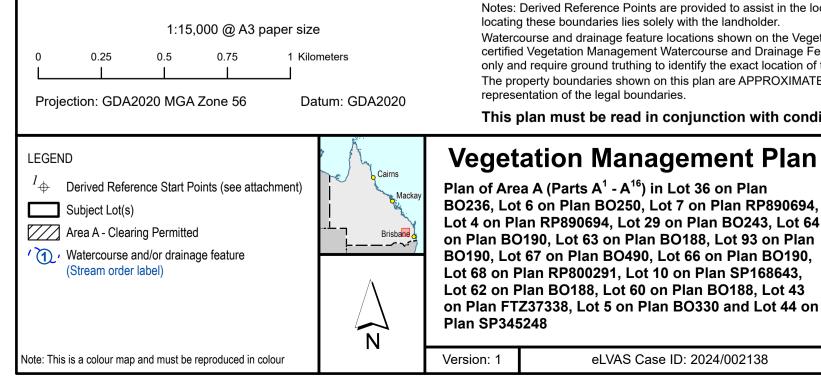
Amended in red by SARA on

25 July 2024





Notes: Derived Reference Points are provided to assist in the location of area boundaries. Responsibility



locating these boundaries lies solely with the landholder.

eLVAS Case ID: 2024/002138

Watercourse and drainage feature locations shown on the Vegetation Management Plan are derived from the certified Vegetation Management Watercourse and Drainage Feature Map. These alignments are approximate only and require ground truthing to identify the exact location of the watercourse or drainage feature. The property boundaries shown on this plan are APPROXIMATE ONLY. They are NOT an accurate representation of the legal boundaries.

This plan must be read in conjunction with conditions attached to 2402-39136 SDA

Queensland

Government

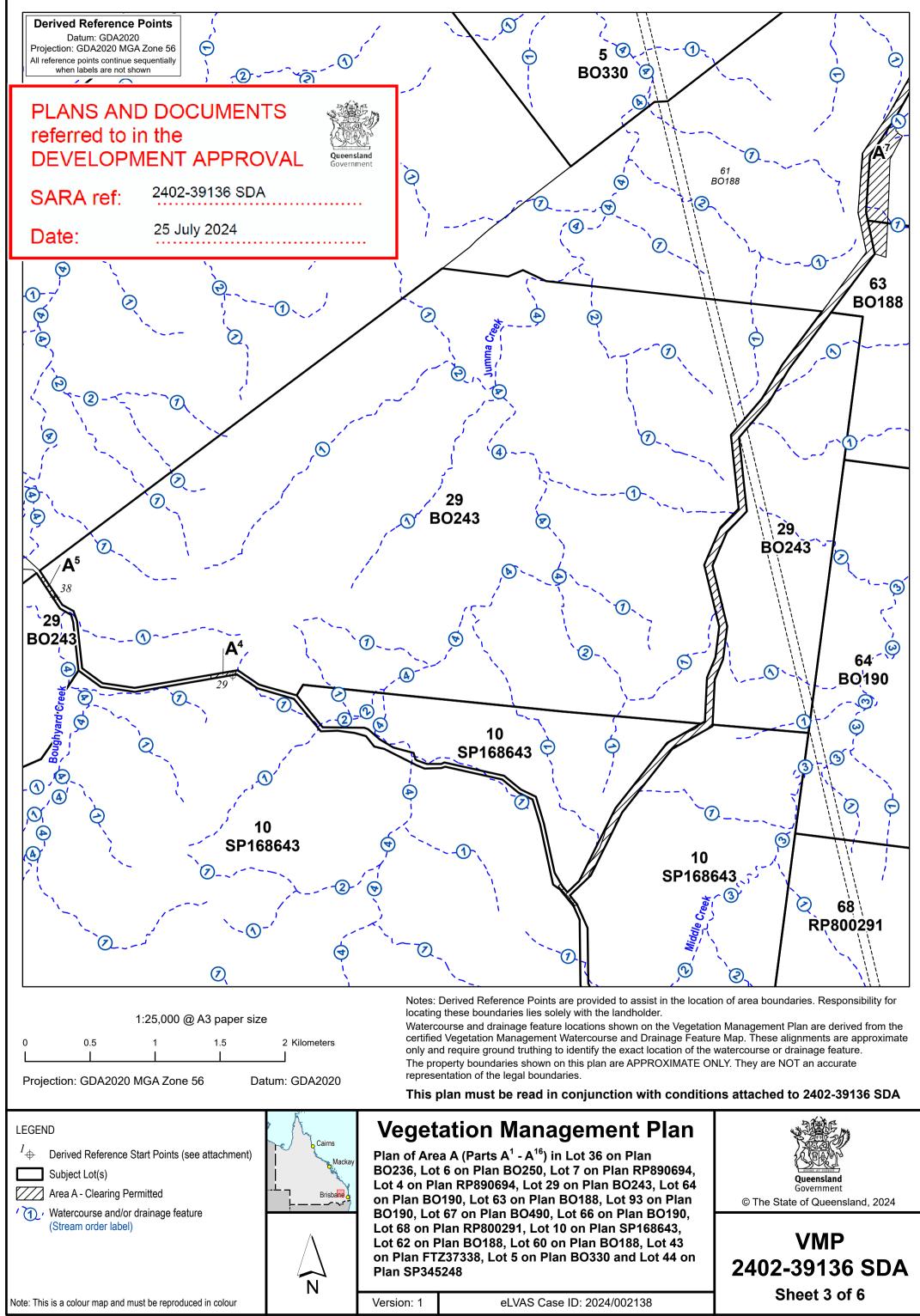
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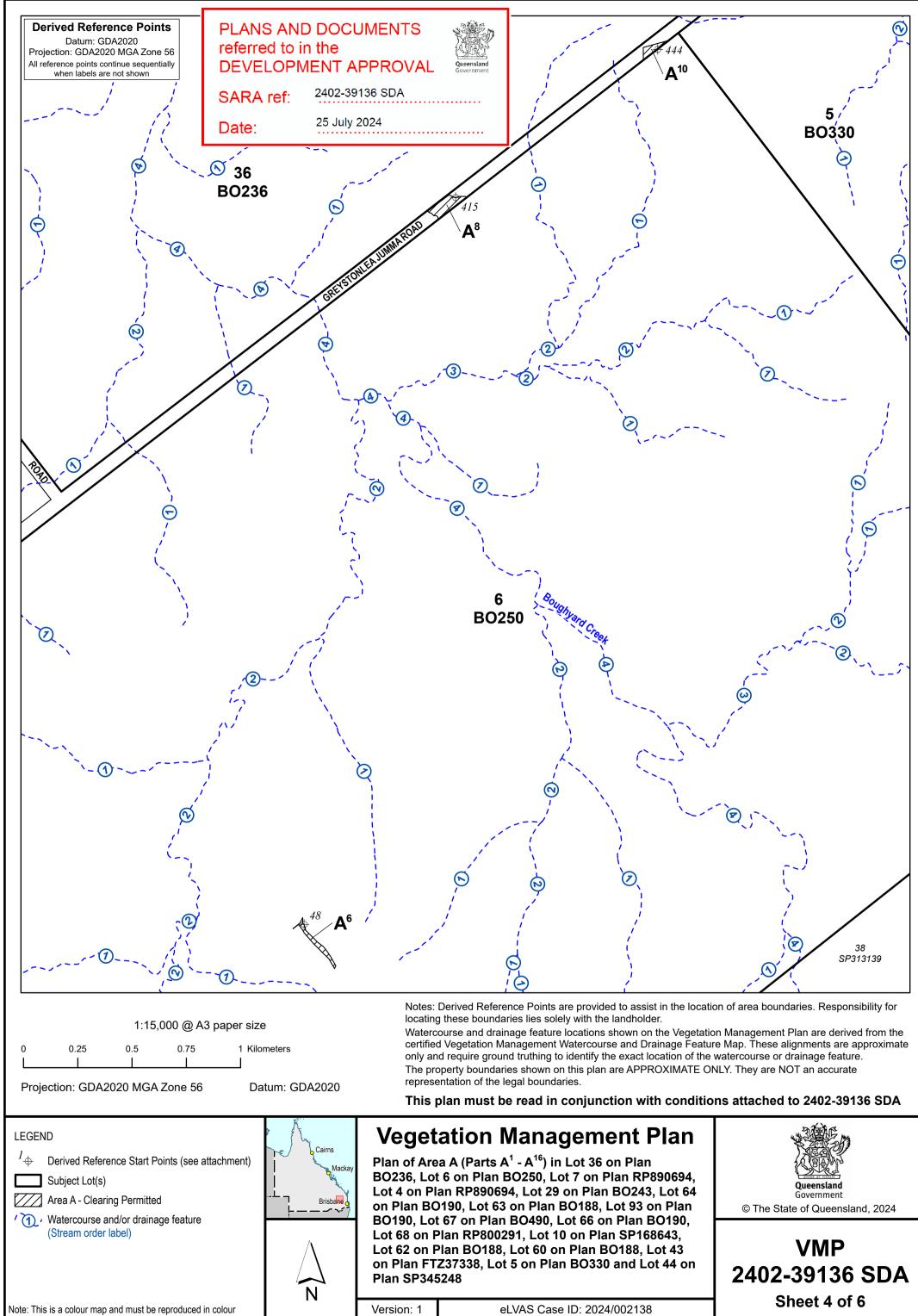
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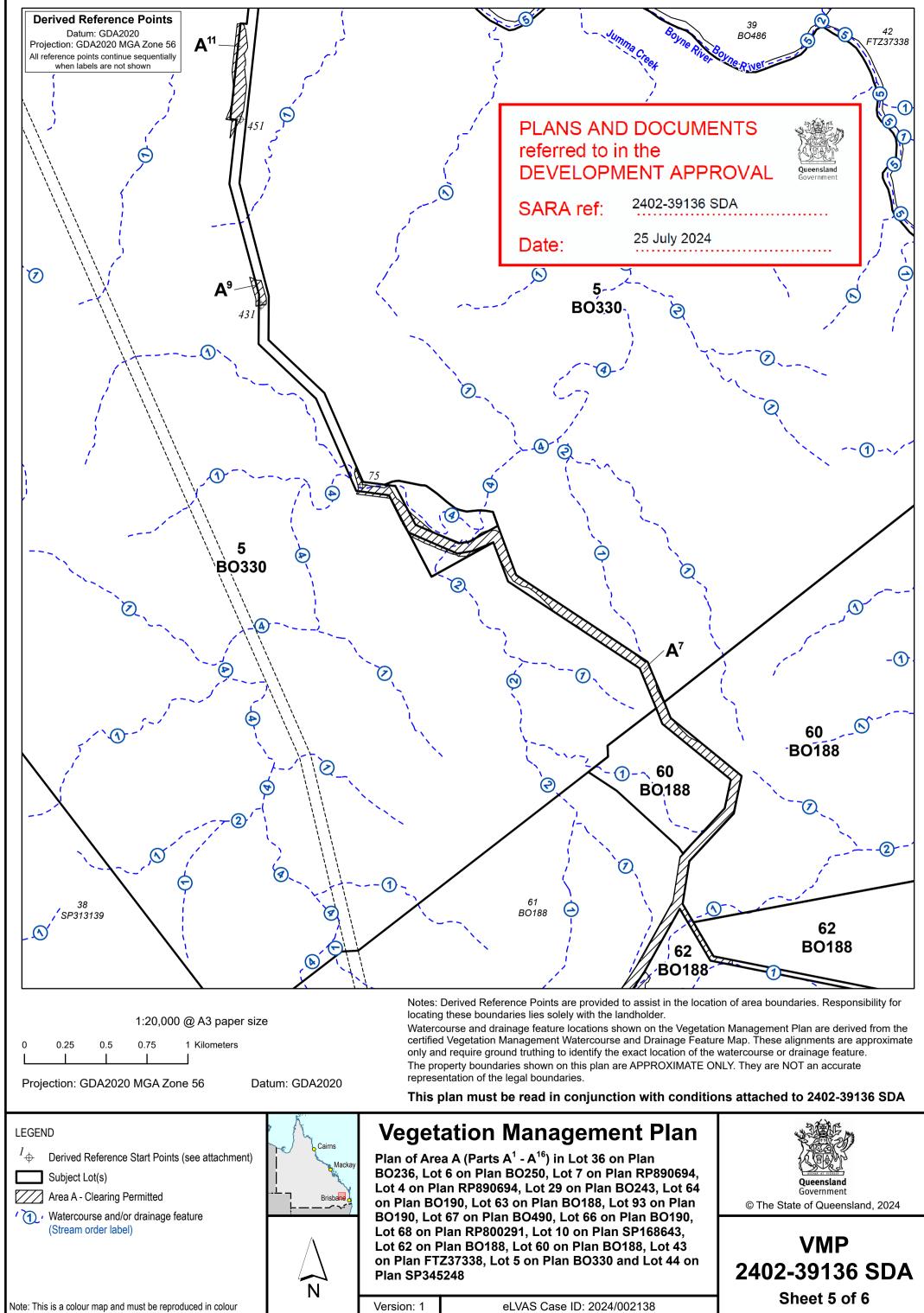
2402-39136 SDA

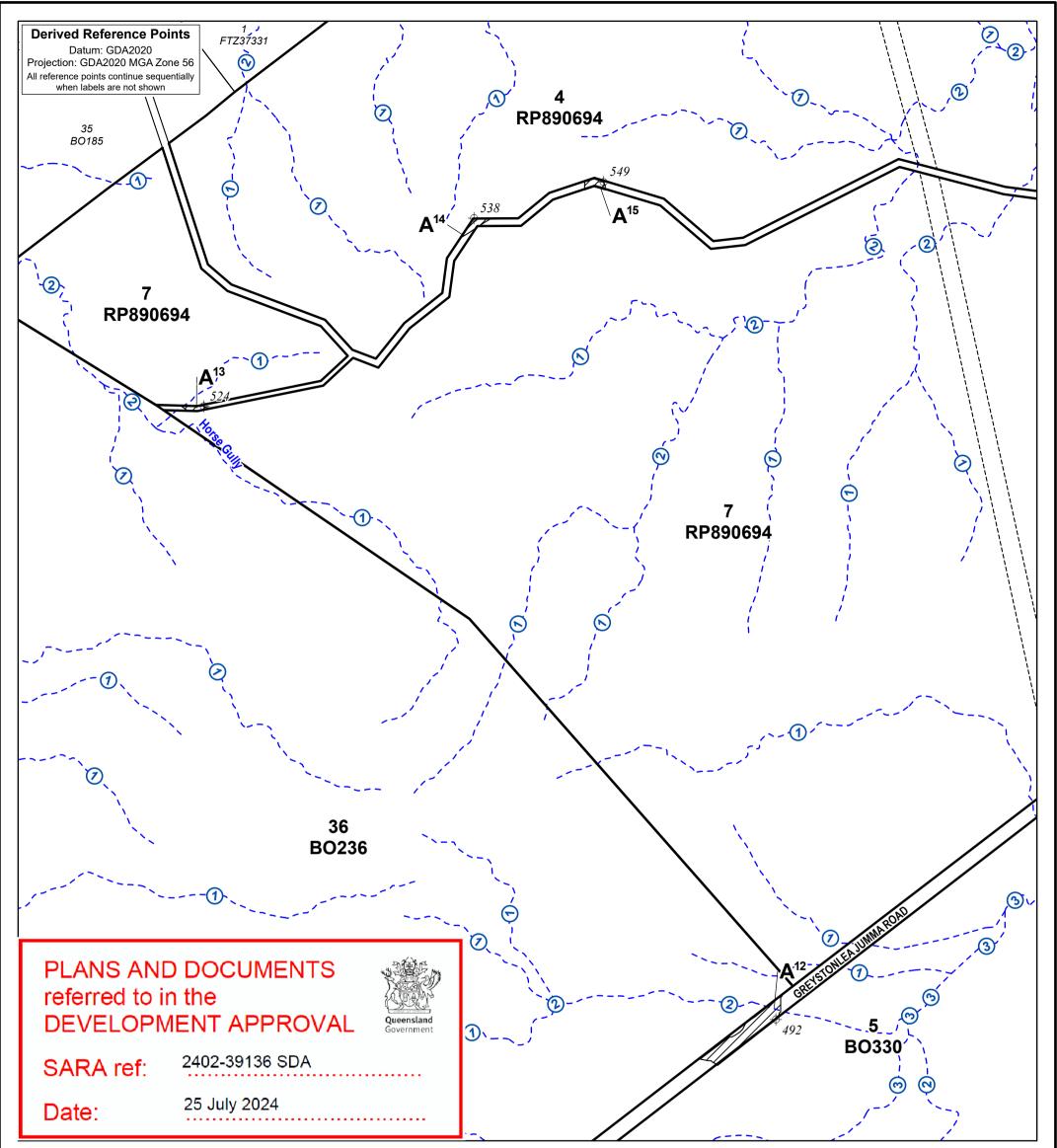
Sheet 2 of 6

VMGIS-NR-2905

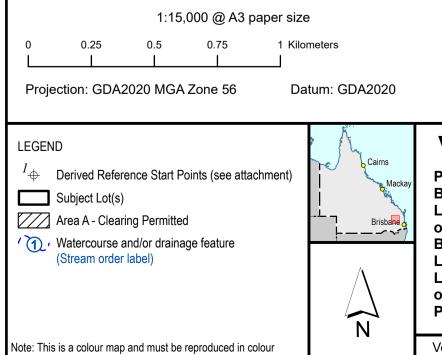








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Vegetation Management Plan

Plan of Area A (Parts $A^1 - A^{16}$) in Lot 36 on Plan BO236, Lot 6 on Plan BO250, Lot 7 on Plan RP890694, Lot 4 on Plan RP890694, Lot 29 on Plan BO243, Lot 64 on Plan BO190, Lot 63 on Plan BO188, Lot 93 on Plan BO190, Lot 67 on Plan BO490, Lot 66 on Plan BO190, Lot 68 on Plan RP800291, Lot 10 on Plan SP168643, Lot 62 on Plan BO188, Lot 60 on Plan BO188, Lot 43 on Plan FTZ37338, Lot 5 on Plan BO330 and Lot 44 on Plan SP345248

Version: 1

eLVAS Case ID: 2024/002138





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Part ID	Unique ID	Easting	Northing	Part ID	Unique ID	Easting	Northing	Part ID	Unique ID	Easting	Northing
A7	181	355403	7054996	A7	241	352958	7049820	A7	301	354438	7053643
A7	182	355397	7054869	A7	242	352964	7049813	A7	302	354550	7053832
A7	183	355391	7054736	A7	243	353015	7049756	A7	303	354597	7053910
A7	184	355308	7054761	A7	244	353009	7049750	A7	304	354902	7054317
A7	185	354972	7054310	A7	245	352996	7049743	A7	305	354946	7054380
A7	186	354800	7054082	A7	246	352953	7049802	A7	306	354952	7054386
A7	187	354648	7053878	A7	247	352945	7049813	A7	307	354959	7054399
A7	188	354565	7053745	A7	248	352926	7049832	A7	308	354972	7054418
A7	189	354521	7053669	A7	249	352869	7049896	A7	309	355048	7054520
A7	190	354489	7053612	A7	250	352888	7049915	A7	310	355238	7054774
A7	191	354394	7053504	A7	251	352901	7049889	A7	311	355238	7054780
A7	192	354317	7053415	A7	252	352939	7049845	A7	312	355219	7054875
A7	193	354317	7053415	A7	253	352952	7049858	A7	313	355200	7054964
A7	194	354260	7053345	A7	254	352990	7049896	A7	314	355188	7055022
A7	195	354278	7053185	A7	255	353028	7049928	A7	315	355186	7055027
A7	196	354297	7053019	A7	256	353028	7049934	A7	316	355175	7055079
A7	197	354316	7052848	A7	257	353034	7049934	A7	317	355186	7055217
A7	198	354324	7052779	A7	258	353091	7050055	A7	318	355194	7055307
A7	199	354165	7052621	A7	259	353123	7050093	A7	319	355194	7055314
A7	200	354088	7052436	A7	260	353187	7050188	A7	320	355204	7055420
A7	201	354057	7052360	A7	261	353208	7050247	A7	321	355213	7055504
A7	201	354087	7052244		262	353225	7050296	A7	322	355213	7055536
A7	203	354120	7052113	A7	263	353225	7050302	A7	323	355373	7055779
A7	203	354120	7052097	A7	264	353244	7050353	A7	323	355410	7055835
A7	204	354124	7051998		265	353307	7050493	A7	324	355423	7055854
				A7							
A7	206	354160	7051942	A7	266	353450	7050674	A7	326	355435	7055873
A7	207	354171	7051897	A7	267	353593	7050855	A7	327	355442	7055892
A7	208	354159	7051814	A7	268	353606	7050868	A7	328	355448	7055892
A7	209	354151	7051750	A7	269	353612	7050874	A7	329	355626	7056216
A7	210	354140	7051643	A7	270	353619	7050880	A7	330	355638	7056241
A7	211	354080	7051494	A7	271	353708	7050995	A7	331	355672	7056452
A7	212	354076	7051484	A7	272	353841	7051071	A7	332	355677	7056482
A7	213	354070	7051427	A7	273	353854	7051077	A7	333	355683	7056508
A7	214	354070	7051420	A7	274	353866	7051077	A7	334	355702	7056527
A7	215	354063	7051408	A7	275	353873	7051084	A7	335	355772	7056609
A7	216	354070	7051408	A7	276	353885	7051090	A7	336	355867	7056717
A7	217	354064	7051288	A7	277	353917	7051103	A7	337	355956	7056806
A7	218	354057	7051134	A7	278	353943	7051122	A7	338	355987	7056952
A7	219	354057	7051128	A7	279	353955	7051141	A7	339	355994	7056984
A7	220	353809	7050982	A7	280	353968	7051147	A7	340	355943	7057022
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A7	224	353732	7050944	A7	285	354012	7051655	A7	345	355592	7057307
A7 A7	225	353733	7050944	A7 A7	286	354082	7051655	A7 A7	345	355592	7057307
A7	227	353714	7050912	A7	287	354108	7051890	A7	347	355537	7057416
A7	228	353358	7050461	A7	288	354095	7051935	A7	348	355531	7057430
A7	229	353333	7050398	A7	289	354073	7052046	A7	349	355476	7057565
A7	230	353326	7050398	A7	290	354070	7052062	A7	350	355435	7057664
A7	231	353320	7050391	A7	291	354037	7052194	A7	351	355408	7057681
A7	232	353314	7050385	A7	292	353998	7052346	A7	352	355293	7057757
A7	233	353293	7050332	A7	293	353993	7052367	A7	353	355182	7057830
A7	234	353276	7050290	A7	294	354109	7052641	A7	354	355086	7057893
A7	235	353276	7050283	A7	295	354114	7052652	A7	355	355070	7057908
A7	236	353168	7050074	A7	296	354260	7052799	A7	356	355060	7057918
A7	237	353117	7050010	A7	297	354242	7052964	A7	357	355003	7057950
A7	238	353091	7049947	A7	298	354223	7053130	A7	358	354965	7057975
		353053			299				359	354957	7057980
A7	239	353053	7049915	A7	299	354204	7053301	A7	359	334957	1051960



PLANS AND DOCUMENTS referred to in the DEVELOPMENT APPROVAL



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2402-39136 SDA

Date:

25 July 2024

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A7	361	354921	7058000	A8	421	347889	7059747	A11	481	353021	7061380
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A7	363	354876	7058051	A8	423	347882	7059766		483	353021	7061354
A7	364	354857	7058070	A8	424	347870	7059766		484	353015	7061348
A7	365	354851	7058077	A8	424	347857	7059779		485	353021	7061289
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A7	368	354768	7058134	A8	427	347838	7059785	A11	487	353010	7061089
A7 A7		354768	7058147	A8	428	347838	7059785	A11	400	353008	7061075
A7	369 370	354762	7058155	A8	429	347939	7059849	A11 A11	409	352996	7061062
A7 A7	370	354756	7058155		430					352996	
A7	372	354749		A9	431	353117 353085	7059887	A11	491 492	350042	7061024
A7 A7	372		7058166	A9	432		7059881	A12			7061411
		354692	7058178	A9		353085	7059925	A12	493	349807	
A7	374	354673	7058191	A9	434	353059	7060014	A12	494	349801	7061233
A7	375	354660	7058197	A9	435	353047	7060058	A12	495	349796	7061236
A7	376	354647	7058216	A9	436	353078	7060046	A12	496	349788	7061240
A7	377	354639	7058227	A9	437	353087	7060041	A12	497	349782	7061246
A7	378	354628	7058242	A9	438	353091	7060039	A12	498	349769	7061246
A7	379	354578	7058331	A9	439	353117	7060039	A12	499	349737	7061253
A7	380	354572	7058345	A9	440	353148	7059931	A12	500	349845	7061335
A7	381	354539	7058432	A9	441	353148	7059919	A12	501	349851	7061341
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A7	385	354362	7058350	A10	445	348835	7060484	A12	505	349909	7061373
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A7	389	354298	7058363	A10	449	348956	7060573	A12	509	350059	7061502
A7	390	354292	7058363	A10	450	348902	7060533	A12	510	350067	7061507
A7	391	354241	7058382	A11	451	352989	7061024	A12	511	350061	7061500
A7	392	354236	7058383	A11	452	352926	7060910	A12	512	350061	7061494
A7	393	354203	7058394	A11	453	352939	7061018	A12	513	350061	7061481
A7	394	354177	7058407	A11	454	352901	7061024	A12	514	350061	7061475
A7	395	354114	7058432	A11	455	352907	7061037	A12	515	350061	7061468
A7	396	354105	7058437	A11	456	352913	7061056	A12	516	350061	7061462
A7	397	354038	7058471	A11	457	352926	7061081	A12	517	350061	7061456
A7	398	354025	7058477	A11	458	352932	7061106	A12	518	350061	7061443
A7	399	353999	7058521	A11	459	352945	7061132	A12	519	350055	7061437
A7	400	353980	7058553	A11	460	352945	7061157	A12	520	350055	7061430
A7	401	353980	7058559	A11	461	352951	7061183	A12	521	350048	7061424
A7	402	353974	7058566	A11	462	352948	7061217	A12	522	350048	7061418
A7	403	353936	7058642	A11	463	352939	7061316	A12	523	350042	7061411
A7	404	353904	7058706	A11	464	352948	7061402	A13	524	347742	7063876
A7	405	353820	7058716	A11	465	352970	7061608	A13	525	347751	7063871
A7	406	353701	7058731	A11	466	353002	7061608	A13	526	347755	7063869
A7	407	353714	7058769	A11	467	353008	7061602	A13	527	347768	7063869
A7	408	353708	7058789	A11	468	353015	7061595	A13	528	347781	7063869
A7	409	353688	7058858	A11	469	353015	7061583	A13	529	347844	7063882
A7	410	353695	7058890	A11	470	353021	7061576	A13	530	347739	7063860
A7	411	353720	7058826	A11	471	353032	7061486	A13	531	347723	7063857
A7	412	353726	7058820	A11	472	353034	7061475	A13	532	347717	7063857
A7	413	353730	7058811		472	353034	7061462	A13	533	347679	7063857
A7	413	353739	7058788		473	353034	7061449	A13	534	347653	7063876
A7 A8	414	347971	7059849		474		7061449	A13 A13		347653	7063876
A8 A8		347971	7059849	A11	475	353021 353015			535	347717	7063876
	416			A11			7061430	A13	536		
A8	417	347990	7059855	A11	477	353015	7061424	A13	537	347742	7063876
A8	418	348003	7059855	A11	478	353015	7061411	A14	538	348829	7064632
A8	419	348016	7059855	A11	479	353021	7061392	A14	539	348879	7064632
A8	420	348022	7059849	A11	480	353021	7061386	A14	540	348898	7064632



Date:

25 July 2024

Notes: Derived Reference Points are provided to assist in the location of area boundaries.

Responsibility for locating these boundaries lies solely with the landholder and delegated contractor(s). Coordinates start at a point indicated on the accompanying plan and continue sequentially when labels are not shown.

Northing Part ID Unique ID Easting Part ID Unique ID Easting Northing Part ID Unique ID Easting Northing A14 541 348867 7064613 A14 542 348848 7064600 A14 543 348841 7064600 A14 544 348841 7064593 545 348829 7064587 A14 A14 546 348810 7064574 A14 547 348778 7064555 A14 548 348829 7064632 549 A15 349349 7064778 A15 550 349356 7064765 A15 551 349356 7064746 A15 552 349311 7064759 553 349273 7064746 A15 A15 554 349273 7064765 A15 555 349273 7064778 A15 556 349311 7064790 349349 7064778 A15 557

TRAFFIC IMPACT ASSESSMENT

23-047 TARONG WEST WIND FARM



icubed consulting



Prepared By	Pranay Madhaparia
Released By	Travis Smith
Job Number	23-047
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Document Revision History

Version	Prepared by	Date	Revision History
1.0	PM	20/12/23	For Approval

Suc

Travis Smith RPEQ 16400

20/12/2023

STATEMENT OF LIMITATION

Data and conclusions of this report are the findings and opinions of icubed consulting and are not an expressed or implied representation, warranty or guarantee. This report has been prepared for RES Australia Pty Ltd. icubed Consulting does not accept liability for any third party's use or reliance on this report.

PLANS AND DOCUMENTS referred to in the DEVELOPMENT APPROVAL						
SARA ref:	2402-39136 SDA					
Date:	25 July 2024					

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Amended in red by SARA on 25 July 2024



2 **Existing Conditions**

2.1 Site Location

The subject site is located at Ironpot Road, Ironpot in Queensland and is described as:

- Lots 4 and 7 on RP890694
- Lot 36 on BO236
- Lot 6 on BO250
- Lot 5 on BO330
- Lot 44 on FTZ37207
- Lot 43 on FTZ237338
- Lots 60, 62 and 63 on BO188
- Lots 64, 66 and 93 on BO190
- Lot 67 on BO490
- Lot 68 on RP800291
- Lot 10 on SP168643
- Lot 29 on BO243.

 PLANS AND DOCUMENTS

 referred to in the

 DEVELOPMENT APPROVAL

 SARA ref:

 2402-39136 SDA

 Date:

The main proposed access point for the site is from Jumma Road and Ironpot Road, accessed via:

- Mannuem Road, off the Bunya Highway for OSOM vehicles only
- Nords Road and Red Tank Road, off the Bunya Highway for all non-OSOM vehicles approaching from the South (Brisbane, Toowoomba, Dalby and surrounding towns).
- Nords Road and Red Tank Road, off the Bunya Highway for all heavy vehicles approaching from the East (Kingaroy and surrounding towns)
- The Bunya Highway for light vehicles approaching from the East (Kingaroy and surrounding towns)

Other internal access locations include a second entry off Ironpot Road to the West of the site, for all vehicles. These access locations are shown in Figure 1.

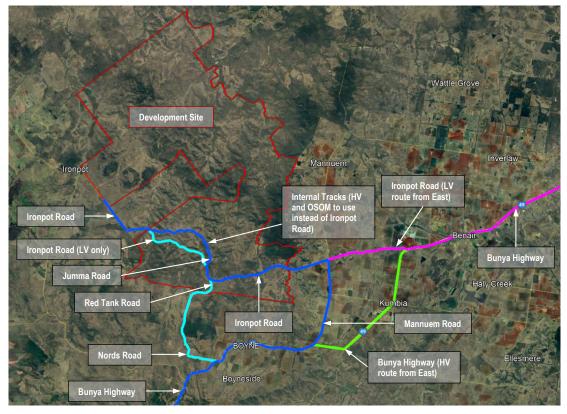


Figure 1: Site Locality Plan and Proposed Access Roads (Google Earth, 2023)