APPENDIX N

Draft Fauna Management Plan

BORDER TO GOWRIE REVISED DRAFT ENVIRONMENTAL IMPACT STATEMENT

Inland Rail is a subsidiary of
Australian Rail Track Corporation

INLAND RAIL

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TERMS AND ABBREVIATIONS

TERMS

Term	Definition
Fauna	For the purposes of this Management Plan, fauna includes all vertebrate species located within the Project footprint.
Fauna Spotter Catcher	A person who holds a current Rehabilitation Permit issued by the Administering Authority.
Incident	Any event which has the potential to, or does, impact on any protected matter(s)
Management Plan	Management Plans are specific to an environmental issue and/or topic. Management Plans are developed to provide a high-level overview of the legislative and approval requirements, as well as the management and mitigation measures relevant to the environmental issue.

Term	Definition
Non-compliance	An occurrence, set of circumstances or development that is a breach of the approval conditions or commitments made in plans.
Project footprint	Refers to the land required to accommodate all permanent and temporary components of the Project, as described in revised draft EIS Chapter 5 – Project Description.
Rehabilitation	Rehabilitation is the process for the restoration of a disturbed area to a stable landform in accordance with the acceptance criteria outlined in approvals.
Responsibility	Refers to the assignment of responsibility for carrying out control measures to a relevant person.
Sub-plan	A sub-plan forms part of the management plan under which it is prepared, which may define more complex or specific arrangements than those contained in the overarching management plan.
The Project	The Border the Gowrie component of the Inland Rail Program.

ABBREVIATIONS

Project stage	Description
ARTC	Australian Rail Track Corporation
B2G	NSW/QLD Border to Gowrie
CEMP	Construction Environmental Management Plan
Cth	Commonwealth
DCCEEW	Department of Climate Change, Energy, the Environment and Water
DESI	Department of Environment, Science and Innovation (Qld)
EIS	Environmental Impact Statement
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999* (Cth)
MNES	Matters of National Environmental Significance
MSES	Matters of State Environmental Significance
NC Act	*Nature Conservation Act 1992* (Qld)

Project stage	Description
OEMP	Outline EMP
Operation EMP	Operation Environmental Management Plan
KMP	Koala Management Plan
Qld	Queensland
SLC	Special Least Concern

1. INTRODUCTION

1.1 PROJECT OVERVIEW

The Australian Rail Track Corporation (ARTC) proposes to construct and operate the New South Wales (NSW)/Queensland (QLD) Border to Gowrie Project (the Project), a section of the larger Inland Rail Program. The Project consists of 217.48 km of single-track railway with five crossing loops. The Project will be constructed to accommodate 1,800 metre (m) long double-stack freight trains, and as such each crossing loop with be 2,200 m long. The new railway will comprise approximately 149.48 km of new rail corridor (greenfield) and approximately 68.00 km of existing open access rail corridor (brownfield), that forms part of Queensland Rail's (QR) South Western Line and Millmerran Branch Line.

Vegetation clearing associated with the proposal, as assessed by the Environmental Impact Statement (EIS), is limited to that contained within the Project footprint (see Section 2.2).

The Project revised reference design responds to key environmental and social constraints and has been developed in line with engineering standards to produce a feasible rail design that will achieve the performance specifications for Inland Rail and the Project.

1.2 OBJECTIVES

The objectives of this draft Fauna Management Plan (FMP) are to establish best-practice mitigation and management measures to avoid or minimise the impact of Project activities and comply with all relevant Commonwealth and State legislation, regulations, conditions of approval and permit requirements during all stages of the Project.

1.3 DOCUMENT PURPOSE AND SCOPE

This draft FMP has been prepared for the purposes of the Project's revised draft Environmental Impact Statement (EIS) and in accordance with the Department of Climate Change, Energy, the Environment and Water (DCCEEW) *Environmental Management Plan Guidelines* (DCCEEW, 2024).

The purpose of this draft FMP is to outline the potential impacts to fauna as identified in the EIS, and describe the management strategies, actions and controls proposed to be implemented, to demonstrate how these impacts will be mitigated. The intent is that this draft FMP will be updated to reflect the requirements of the final Outline Environmental Management Plan (OEMP) (revised draft EIS Chapter 24) including approval conditions and this draft FMP will form the basis of the Biodiversity Management Plan, as a component of the Construction Environmental Management Plan (CEMP) and Operations Environmental Management Plan (Operations EMP). Prior to finalization, the Biodiversity Management Plan will be endorsed by a suitably qualified and experienced ecologist.

1.4 ASSOCIATED MANAGEMENT PLANS

This draft FMP forms part of the ARTC environmental management framework for the Project.

Other Project environmental management documents which relate to fauna management include:

- Draft Koala Management Plan (KMP) (EIS Appendix M: Draft Koala Management Plan) to establish best-practice mitigation and management measures to be implemented during design, construction and operation of the Project that reduce the risk of Koala injury and/or mortality, minimise losses to Koala foraging, breeding and dispersal habitat, and maintain connectivity between areas of important Koala habitat. The KMP defines key aspects of a Koala monitoring plan for all Project phases and provides a framework for adaptive management, including schedules and triggers for audits, management plan review and reporting.
- Wildlife Connectivity Plan developed in accordance with the Fauna Connectivity Impact Assessment and Strategy (revised draft EIS Appendix P) to maintain ecological connectivity and dispersal function through the landscape and minimise the risk of fauna injury and mortality as a result of the Project.
- Wildlife Lighting Management Plan, to be prepared in accordance with the *National Light Pollution Guidelines for Wildlife* (DCCEEW, 2023) to ensure the impacts of artificial light on wildlife to ensure impacts of artificial light on wildlife are considered and managed for both construction and operation of the Project.
- Construction Environmental Management Plan (CEMP) in accordance with the *Australian Government's Environmental Management Plan Guidelines* (DCCEEW, 2024) and the OEMP to detail how the performance, commitments and mitigations measures for the Project will be implemented and achieved during all stages of construction, including the following relevant sub-plans:
    - Biodiversity Management Plan, which will outline the management strategies, actions and controls to be implemented to avoid or minimise potential impacts to biodiversity during construction. The Biodiversity Management Plan will be consistent with goals and objectives, mitigation measures and monitoring requirements of the Commonwealth approved conservation advice and any Recovery Plans for all Matters of National Environmental Significance
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    - Biosecurity Management Plan, which will outline biosecurity risks associated with the construction of the Project and the processes that are to be used to manage those risks.
    - Rehabilitation and Landscaping Management Plan, which will be based on the Inland Rail Landscape and Rehabilitation Strategy, Inland Rail Landscape and Rehabilitation Framework and location-specific reinstatement commitments. This sub-plan will be developed in consultation with local councils and affected communities, including Traditional Owners.
    - Soil Management Plan, which provides procedures and protocols for the management of potential impacts on land resources during construction. The Soil Management Plan will include soil conservation measures and erosion and sediment controls with specific reference to identified habitat for threatened flora (where they are found to occur).
- Operational Environmental Management Plan (Operational EMP) in accordance with relevant guidelines to detail how the performance outcomes, commitments and mitigation measures for the Project will be implemented and achieved during operation, including the following programs and sub-plans:

- Biosecurity Management Plan which will outline biosecurity risks associated with operation of the Project and the processes that are to be used to manage those risks.
- Biodiversity Management Plan, which will outline the management strategies, actions and controls to be implemented to minimise potential impacts of the Project during operation.

2. PROJECT DESCRIPTION

2.1 PROJECT LOCATION

The Project starts at the New South Wales (NSW) / Queensland (QLD) border approximately 18 km to the south-east of Goondiwindi, near Kurumbul and ends in the Gowrie area, approximately 500 m east of Leesons Road.

The Project provides a link between the adjacent Inland Rail projects of:

- North Star to NSW/QLD border (NS2B) to the south at the Macintyre River, and
- Gowrie to Helidon (G2H) project in the north, which connects into QR's West Moreton Line.

The Project is located within the Goondiwindi Regional Council and Toowoomba Regional Council local government areas in the Darling Downs.

2.2 PROJECT FOOTPRINT

The Project footprint (3,382.17 ha) is the land required to accommodate all permanent and temporary components of the Project, being:

- Temporary disturbance footprint (3,382.17 ha): the area required to accommodate construction activities and facilities of a temporary nature and duration to support the Project. The temporary footprint is generally wider than the permanent footprint to allow for the construction of project elements including fencing, drainage features including erosion and sediment control measures, temporary stockpiling of soil, and cleared vegetation, and to allow necessary construction access and turnaround provisions. Temporary project facilities include laydowns, site office areas, non-resident workforce accommodation, a material distribution centre, concrete batch plants and borrow pits.
- Permanent disturbance footprint (2,544.86 ha): the area required to accommodate permanent infrastructure associated with the project including rail, road and other miscellaneous infrastructure. Rail infrastructure includes rail tracks, crossing loops, turnouts, earthworks, bridges, drainage, level crossings, grade separations, rail maintenance access roads, signalling and fencing. Road related works resulting from the Project encompasses new and upgraded roads, realignments and diversions, intersection improvements and closures.

The Project footprint includes all areas where vegetation will be cleared to accommodate both permanent infrastructure and temporary construction-related activities and facilities.

Cumulative, indirect and facilitated impacts occurring outside the Project footprint have been assessed at a scale relevant to the impact being assessed.

2.3 REGIONAL CONTEXT

The Project is within the Brigalow Belt South bioregion. From west to east, the Project is within the Commoron Creek Floodout subregion (NSW/QLD border to Yelarbon), Inglewood Sandstones subregion (from Yelarbon to Millmerran) and the Eastern Darling Downs subregion (from Millmerran north to Gowrie). The Brigalow Belt South bioregion is characterised by a dry subtropical climate with no pronounced dry season with rainfall increasing with proximity to the coast. The bioregion has experienced a long history of human disturbance as a result of agricultural practices and resource development. At a regional level, most remaining areas of vegetation are now fragmented, occurring on the rockier hilly areas of ranges, as part of state lands (state forests), roadside vegetation, or relatively small isolated remnants.

Within the Study area, the majority of lands are highly modified having been cleared for pasture, agricultural purposes and for rural and urban residential settlements. Areas of planned future development on the western outskirts of Toowoomba include the Wellcamp Business Park, Witmack Industry Park, and Charlton Logistics Park which will be subject to future infrastructure and industrial development.

Agricultural activities are prominent within the low-lying floodplains associated with the Dumaresq River, Macintyre River, Macintyre Brook, and Condamine River, which have fertile soils and productive agricultural landscapes. Tracts of remnant vegetation are present (largely to the south of Millmerran), generally being limited to steeper terrain on isolated mountains and hills (typically associated with granite and basaltic outcrops and sandstone hills), road reserves and State forests.

Despite the disturbances within the Study area, the Biodiversity Planning Assessment (BPA) mapping for Brigalow Belt (Queensland Government, 2024) identifies regional and State corridors, which portrays vegetation that is significant for the connectivity and movement of flora and fauna. Both riparian and terrestrial State ecological corridors are mapped across the Project footprint.

2.4 PROJECT DESIGN

The Project consists of the key permanent and temporary features listed in Table 2-1 Key features of the Project are also shown in revised draft EIS Appendix B1: Design Drawings.

Further detail regarding key features of the Project is provided in revised draft EIS Chapter 5: Project Description, including the works that form part of the Project activities.

TABLE 2-1 KEY FEATURES OF THE PROJECT

Aspect	Description
Permanent features	

New track	• Approximately 217.48 km of new single-track railway, consisting of:
	  ◦ 7.0 km of standard gauge rail (1,435 millimetres (mm)), and
	  ◦ 210.48 km of dual gauge rail (standard (1,435 mm) and narrow (1,067 mm) gauge).
	• Railway infrastructure and the corridor will be constructed for 1,800 m long trains.

Rail corridor	• Establishment of approximately 149.48 km of new rail corridor (greenfield) and use of approximately 68.00 km of existing open access rail corridor (brownfield),
	• The rail corridor width will vary along the length of the alignment. The width is a minimum of 30 m, and is dependent on various elements in the corridor including:
	  ◦ embankment height or cutting depth,
	  ◦ crossing loop and/or maintenance siding,
	  ◦ structures (e.g. bridges, viaducts, concrete boxes, pipes etc.),
	  ◦ drainage and scour protection lengths,
	  ◦ railway maintenance access roads,
	  ◦ level crossings, and
	  ◦ Queensland Rail connections.
	• Brownfield corridor refers to locations where the Project has coincided with existing rail corridors to prioritise areas of existing pre-clearing and disturbance. This does not mean that the railway is located wholly within the existing rail corridor. Corridor widening and/or curve easing may be required to meet the requirements of the

Aspect	Description
	ARTC Basis of Design, resulting in some works outside the extent of the existing rail corridors.

Crossing loops and turnouts	• Crossing loops are places on a single-line track where trains in opposing directions can pass each other. Five crossing loops will be constructed as part of the Project, 2,200 m in length for each loop.
	• The proposed locations for the crossing loops are:
	  ° Yelarbon—Ch 16.3 km to Ch 18.5 km,
	  ° Inglewood—Ch 50.2 km to Ch 52.4 km,
	  ° Kooroongarra—Ch 89.2 km to Ch 91.4 km,
	  ° Yandilla—Ch 132.2 km to Ch 134.4 km, and
	  ° Broxburn—Ch 176.1 km to Ch 178.4 km.
	• Turnouts allow the train to be guided from one section of track to another. Turnouts that connect in to crossing loops and QR's existing South Western Line, Millmerran Branch Line and sidings have been incorporated into the revised reference design.

Earthworks	• Excavations in the existing ground profile will be made where the final design level is lower than the surrounding land, these are known as cuttings. There are 23 locations where the cuts are greater than 7 m in depth along the alignment to maintain the required track elevations. The total cut estimated for the Project is 11,368,000 m^3. • Embankments and benching. • Structural fill and capping are required at the top of the formation to provide a solid foundation on which the railway ballast, sleepers and track can be placed.

Bridges	• Bridges to accommodate topographical variation, crossings of waterways or other infrastructure.
	• The Project involves the construction of 37 new bridge structures. These include:
	  ° 14 rail-over-road bridges,
	  ° 18 rail-over-watercourse bridges, and
	  ° 5 road-over-rail bridges.

Drainage infrastructure	• Cross-drainage will be provided by bridges, reinforced concrete pipe culverts and reinforced concrete box culverts. The Project includes 1,090 reinforced concrete box culverts, 2,074 reinforced concrete pipe culverts and a series of viaducts / bridge structures spanning 12 km watercourses and floodplains.
	• Scour protection measures will be installed around culvert entrances and exits, on disturbed stream banks and on land bound by a watercourse to prevent erosion and sedimentation.
	• Longitudinal or track drainage is proposed at specific locations along the Project alignment where the gradient is steep enough to divert surface runoff to the nearest bridge or culvert location. The following two types of track drainage are proposed:
	  ° Embankment drains – longitudinal drains that run parallel to the railway and are located within the permanent footprint, at the foot of the railway embankment.
	  ° Catch drains – longitudinal drains that run parallel to the railway and are located within the permanent footprint, on the up-slope side of cuttings.
	• The Yelarbon levee will be augmented to mitigate flood impacts associated with the Inland Rail project and, at a minimum, maintain the current flood immunity offered by the levee.

Road-rail interfaces	• Road–rail interfaces are points at which the rail alignment intersects a public road. Road manager interfaces treatments include:
	  ° Department of Transport and Main Roads (TMR) – 9
	  ° Goondiwindi Regional Council (GRC) – 16
	  ° Toowoomba Regional Council (TRC) - 25

Aspect	Description
Road network changes	• To facilitate the Project, changes to the local road network are required to safely accommodate the railway and maintain local and regional connectivity. The road network changes have been developed in consultation with DTMR and local council road managers and will be undertaken in accordance with relevant DTMR and local council design standards. The road network changes consist of road realignments or diversions, consolidations, and upgrades
Rail maintenance access roads	• Rail maintenance access roads are required to facilitate maintenance for critical infrastructure (e.g. turnouts), to enable construction in a safe manner and to provide access for emergency recovery during operation of the railway. Formation level access has been proposed for all turnout locations and, where reasonably practical, for the full extent of crossing loops.
Utilities and services	• All utility owners have been consulted by ARTC during the revised reference design process to establish potential interface impacts and to identify initial design solutions. Permanent connections will be required during the operational stage.
Fencing	• To prevent public access to the Project's rail corridor, fencing will be provided for the majority of the rail corridor. Fencing will act to protect adjoining lands from trespass and to prevent livestock and wildlife from gaining access to the railway. Fencing is to extend between the corridor and private lots or property adjoining the railway. Specific fencing considerations will be discussed with relevant landowners as part of the detailed design process. • Fauna exclusion fencing will be installed to prevent wildlife access to the railway and guide wildlife towards fauna crossing structures. • The Project intersects the wild dog check fence at three locations, and will be realigned in two of these locations in consultation with GRC and Department of Agriculture and Fisheries (DAF): ° From Springborg Road to Whetstone (Ch 37.7 km to Ch 43.5 km) the rail corridor runs parallel to the existing wild dog check fence and is impacted by the necessary corridor widening works of the existing QR South Western Line. ° Direct severance from McDougalls Road and Cremascos Road (Ch 50.2 km to Ch 51.2 km) requiring a realignment along the rail corridor boundary fence. ° Direct severance from Cremascos Road heading north-east (Ch 54.6 km to Ch 56.0 km) requiring a realignment along the rail corridor boundary fence. • The Project intersects the DDMRB rabbit-proof fence when traversing through the locality of Clontarf, at approximately Ch 120.2 km. The rabbit proof fence will need to be reinstated and ARTC have undertaken consultation with the DDMRB to determine fencing requirements at this location.
Fish passage	• The Fisheries Act and the Planning Act require that works within waterways that are considered waterway barriers, must be conducted in a manner to provide for adequate fish passage.
Signalling and communications	• The Project will be operated initially using Centralised Train Control with the infrastructure installed upgradable to accommodate future deployment of the Advanced Train Management System (ATMS).
Construction features (temporary)	
Land	• Temporary access tracks will be used to access construction sites. Where possible, access tracks will be retained to serve as rail maintenance access roads during the operation of the Project. • Land requirements for construction will include temporary workspaces, site offices and laydown facilities. Five site offices will be

Aspect	Description
	co-located with laydown areas. These requirements are encompassed within the nominated Project footprint. • Seventy-eight laydown areas to support construction activities, including site offices, material and equipment storage, and to facilitate bridge construction, will be located within the temporary footprint (avoiding 1% annual exceedance probability (AEP) floodplains, where possible, and areas of native vegetation). • Two facilities are required during construction for the dual activities of precast concrete structure storage (laydown) and on-site concrete batching.
Quarries and borrow pits	• Seven quarries and seven borrow pits at six locations (dual pits on one location) have been identified as potentially suitable for use during construction activities. o Established quarries are expected to be the primary source for ballast and capping and other high-quality aggregates for the Project. o Borrow pits are to supply fill for the Project construction.
Non-resident accommodation facilities	• Construction, use and decommissioning of temporary non-resident workforce accommodation facilities to support the construction workforce associated with the Project. Two camp locations have been identified, at Yelarbon and Inglewood.
Utilities and services	• Temporary connections will be required during the construction stage. Utilities and services such as water, sewerage, electricity and telecommunications will need to be supplied to laydown areas, the non-resident workforce accommodation sites and compounds for use in site offices and amenities as required. • Where these utilities are already located close to construction sites, the Contractor will engage with utility providers, with the objective of connecting to mains power, water, communications and sewerage. • Where connection to existing infrastructure networks is not possible or practicable, temporary portable alternatives will be adopted.
Whetstone Material Distribution Centre	• A temporary material distribution centre will be located in Whetstone approximately 18 km south-west of Inglewood and 59 km east of Goondiwindi, with a total area of 69.3 ha. The facility is required to support construction of the Project. This will require a temporary change in land use from rural/agricultural to rail operations, work site, material storage and laydown areas. • The facility will include a narrow-gauge turnout to support construction activities as well as to accept and redistribute material via the QR South Western line.

2.5 CONSTRUCTION WORKS

2.5.1 INDICATIVE CONSTRUCTION SCHEDULE

The indicative construction timetable for the Project is shown in Table 2-2. The broad milestone dates for construction are indicative only and are subject to change during the Detailed Design and Construction Works stages as a result of a range of factors, including:

- Weather conditions,
- Changes to construction methods and materials, and
- Unexpected finds, such as contamination, threatened biodiversity species or cultural heritage values.

Variations to the construction sequences in relation to program optimisation, constructability, resource availability, local conditions (weather and industry) and adjacent Inland Rail projects will be investigated during the Detailed Design stage of the Project. The schedule of environmental controls, including traffic management and noise controls, would be adjusted accordingly.

TABLE 2-2 BREAKDOWN OF INDICATIVE CONSTRUCTION ACTIVITIES

	Year 1				Year 2				Year 3				Year 4				Year 5			
Quater	**1**	**2**	**3**	**4**	**1**	**2**	**3**	**4**	**1**	**2**	**3**	**4**	**1**	**2**	**3**	**4**	**1**	**2**	**3**	**4**
Civil earthworks and drainage																				
Bridge																				
Track																				
Signalling testing and commissioning																				

2.5.2 HOURS OF WORK

The majority of the construction works for the Project will be undertaken during the day. To shorten the duration of the construction period as far as practicable and minimise potential impacts to the community the following primary construction hours are proposed:

- Monday to Sunday 6.00 am to 6.00 pm; and
- No work on public holidays.

Blasting activities would only be undertaken during the hours of:

- Monday to Friday 9.00 am to 3.00 pm;
- Saturday 9.00 am to 1.00 pm; and
- No blasting Sundays and public holidays.

Depending on the nature of the works some activities may need to be undertaken outside of the primary construction hours. The anticipated scenarios where the primary construction hours would be extended to include works during the evening and night-time include:

- Works during rail corridor possession (where works are required within active railway corridors it is often necessary to undertake works under track possessions, when the Contractor has control over an operating railway. These works are often required to proceed during the evening and night time to conduct the works safely and minimise the disruption to rail services. Track possession of QR assets will generally be allocated over weekend periods, including the primary hours of construction, and with extended track possession occurring over public holiday periods); and
- Work where there are no sensitive receptors (where works are required outside of the primary hours of construction, and there are no sensitive receptors that would be adversely affected by the works, construction of the Project may be undertaken up to 24 hours a day, 7 days a week. Site-specific assessments, for example noise and vibration, would be undertaken to demonstrate the environmental impacts and risks associated with the works can be managed consistent with relevant guidelines and requirements. The

assessments would determine the additional measures required to mitigate the identified impacts and support the justification of construction hours at the work locations).

Other out-of-hours construction works may be required throughout the duration of the construction program. For example, for the delivery of oversized plant or structures that police or other authorities have determined requires special arrangements to transport along public roads, roadworks to local and arterial roads, including works required to maintain the safety of motorists and workers, and arrival and departure of construction staff during shift change-overs.

2.6 OPERATION

Operations stage activities will include the use of the railway for freight purposes, signalling, and general track and infrastructure maintenance. The Project will involve operation of a single track with crossing loops to accommodate double-stacked freight trains 1,800 m long and 6.5 m high. Train speeds will vary according to axle loads and track geometry, and range from 80 to 115 km/h.

The railway will be operational 24 hours a day, 365 days a year, on a variable schedule.

It is estimated that once operational, the Project will involve an annual average of 14 train services per day during initial years of operation. This is likely to increase to an average of 20 trains per day after 15 years, and up to 25 per day during peak operational periods. Annual freight tonnages will increase in parallel, from approximately 14.2 million tonnes per year in year one of operations to 21.8 million tonnes per year in peak operations.

3. LEGAL AND OTHER REQUIREMENTS

3.1 LEGISLATIVE CONTEXT

Key legislation relevant to fauna and this draft FMP are described in Table 3-1.

TABLE 3-1 KEY LEGISLATION

Legislation	Legislative jurisdiction	Intent	Applicability
Commonwealth			
Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)	Australia and its Territories. Specifically, projects that involve or have the potential to impact upon nationally and internationally important flora, fauna, ecological communities, and heritage places – defined under the Act as MNES.	The EPBC Act is the Australian Government's central piece of environmental legislation and provides the legal basis for the management and protection of nationally and internationally important flora, fauna, ecological communities, and heritage places. Under Section 45 of the EPBC Act, the Australian Government and Queensland Government have implemented a bilateral agreement relating to environmental assessment. This agreement allows the Australian Government Minister for the Environment and DCCEEW to rely on specified environmental impact assessment processes of Queensland in assessing actions under the EPBC Act. The bilateral agreement specifically aims to achieve the following objectives: • Protect the environment in accordance with the requirements of the EPBC Act, • Promote the conservation and sustainable use of natural resources, and Ensure an efficient, timely and effective process for environmental assessment and approval of actions.	ARTC submitted an EPBC Act referral to the DCCEEW in February 2018 (EPBC 2018/8165). The Minister for the Environment determined the Project a 'controlled action' on 9 April 2018. The controlling provisions for the controlled action are: • Listed threatened species and communities. No Project works that are part of the referred action, will commence prior to the Minister's decision on the EPBC Act controlled action. The EPBC Act controlled action will be assessed under the bilateral agreement with the Queensland Government.
State			

Legislation	Legislative jurisdiction	Intent	Applicability
Biosecurity Act 2014 (Qld) *(*Biosecurity Act*)*	Queensland	The Biosecurity Act seeks to provide a framework for an effective biosecurity system for Queensland that helps to manage and minimise State biosecurity risks, as well as facilitate the response to biosecurity issues and events in a timely and effective way, to align with national and international obligations. The Act introduces the general biosecurity obligation upon all persons to take all reasonable and practical measures to prevent or minimise biosecurity risks. The Biosecurity Act defines Prohibited Matter and Restricted Matter in which specific actions are required to limit the spread and impact of this matter by reducing, controlling, or containing it, depending on the category. The Biosecurity Act identifies requirements for invasive animal barrier fencing including authority for building and maintaining the wild dog check fence, rabbit fence and agreements that are required in order to make an opening in the barrier fences.	The Project will involve interaction with restricted matters and prohibited matters (potentially including pests, diseases or contaminants) and will therefore require compliance with the Biosecurity Act. The Project interacts with the wild dog check fence for the purposes of construction, therefore approvals under the Biosecurity Act will be required.
Fisheries Act 1994 (Qld) (Fisheries Act)	Queensland	The Fisheries Act provides for the management, use, development and protection of fish habitats and resources, together with the management of aquaculture activities. The Act covers both marine and freshwater and natural and artificial waterbodies. Administered by the Department of Agriculture and Fisheries (DAF), the Fisheries Act applies to, but not limited to: • Works in a declared fish habitat area (FHA), and	The Project transverses mapped waterways for waterway barrier works and therefore will likely trigger the requirement to obtain a Development Permit for Operational Works that is constructing or raising waterway barrier works (State Development Assessment Provisions (SDAP) State Code 18 – Constructing or raising waterway barrier works in fish habitats), unless an exemption applies, or where works can be shown to comply with the accepted development requirements. The Project does not require:

Legislation	Legislative jurisdiction	Intent	Applicability
		• Waterway barrier works resulting in the construction of instream structures inhibiting the free movement of fish along waterways. ***Waterway Barrier Works**:* A waterway includes a river, creek, stream, watercourse, or inlet of the sea as defined in the Schedule under the Fisheries Act and mapped according to the spatial data layer, Queensland waterways for waterway barrier works. Waterways providing for fish passage are MSES. A waterway barrier is defined under the Fisheries Act as a dam, weir, or other barrier across a waterway if the barrier limits fish stock access and movement along a waterway. Under the provisions of the Fisheries Act and Planning Act, a Development Permit for Operational Works involving Waterway Barrier Works is required for works which pose a barrier to fish passage (including permanent, partial, and temporary barriers) within a waterway which is mapped by DAF on the spatial data layer *'Queensland waterways for waterway barrier works'* unless: • The works have a low impact to fisheries productivity and comply with DAF's requirements for 'works which are not waterway barrier works' which include (subject to specific design and construction requirements): ◦ New single or multi-span bridges, ◦ Maintenance of existing bridge structures not subject to an existing permit, ◦ Bank revetment,	• The removal, destruction or damage of marine plants, • Works involving aquaculture, and • Work that is completely or partly within a declared FHA. If dewatering of existing storages is required, fish salvage should occur in accordance with the 'DAF' Guidelines for fish salvage as described in Section 3.3.

Legislation	Legislative jurisdiction	Intent	Applicability
		◦ Road resurfacing at waterway crossings, and ◦ Stormwater outlet construction. Works that occur within these waterways will be defined as waterway barrier works, unless the works comply with the Accepted development requirements for operational work that is constructing or raising waterway barrier works (1 October 2018).	
Nature Conservation Act 1992 (Qld) (NC Act)	Queensland	The NC Act provides for the conservation of nature through protection of all native plants, birds, reptiles, mammals and amphibians in Queensland (along with a limited range of invertebrates and freshwater fish). The NC Act is based on principles aimed at conserving biological diversity, ecologically sustainable use of wildlife, ecologically sustainable development and international criteria developed by the International Union for the Conservation of Nature (IUCN) for establishing and managing protected areas. • Relevant regulations of the NC Act includes: Nature Conservation (Animals) Regulation 2020, which prohibits the taking or destruction, without authorisation, of protected animals and lists all fauna species that are considered to be extinct in the wild, endangered, vulnerable, near threatened, least concern and special least concern wildlife (Glossary and Abbreviations for definitions of these terms). Also listed is international wildlife and prohibited wildlife. • Nature Conservation (Plants) Regulation 2020, which prohibits the taking or destruction, without authorisation, of	Permits and Species Management Programs may be required for the Project under the NC Act, as described in Section 3.3

Legislation	Legislative jurisdiction	Intent	Applicability
		protected plants and lists all flora species that are considered to be extinct in the wild, endangered, vulnerable, near threatened, least concern and special least concern wildlife (Glossary and Abbreviations for definitions of these terms). Also listed is international wildlife and prohibited wildlife. The NC Act also includes provisions for protected areas such as national parks, nature refuges, and world heritage management areas.	
Vegetation Management Act 1999 (Qld) (VM Act)	Queensland. Specifically, activities that are regulated through the Planning Act	The VM Act regulates the conservation and management of vegetation communities and clearing of vegetation identified as "Regulated vegetation" identified as Category A, B, C and R. The VM Act provides a framework for identification, description, and mapping of remnant Regional Ecosystems (RE) certified by DESI as 'Endangered', 'Of Concern' or 'Least Concern' (Glossary for definitions of these terms). It also provides a framework for the identification, description, and mapping of High Value Regrowth (HVR) vegetation as 'Endangered', 'Of Concern' or 'Least Concern'.	The clearing of vegetation regulated under the VM Act (e.g. Category B and C regulated vegetation) is considered to be eligible for exemption under Schedule 21 of the Planning Regulation (i.e. GSTI) and does not require a development approval. This includes clearing for early works and pre-construction activities, including the establishment of laydown areas and access roads as described in EIS Chapter 5: Project Description and EIS Chapter 3: Legislation and Project Approvals Process.

3.2 KEY LEGISLATIVE REQUIREMENTS AND APPROVALS

Key primary approvals are listed in Table 3-2.

TABLE 3-2 KEY APPROVALS

Legislation	Approval
State Development and Public Works Organisation Act 1971 (SDPWO Act) (QLD)	Coordinator-General's EIS evaluation report
EPBC Act	Approval for the undertaking of a controlled action for the purposes of the relevant controlling provision (listed threatened species and communities) under Section 18 and 18A of the EPBC Act.

Table 3-3 will be updated to describe relevant conditions of approval when they have been received and to reference where they are addressed within the draft FMP.

TABLE 3-3 CONDITIONS OF APPROVAL REFERENCE TABLE

Ref.	Cond.	Condition requirement	FMP Reference	Demonstration and commitments

3.3 OTHER APPROVALS, PERMITS AND LICENSES

A summary of the potential post-EIS State approvals which may be required under relevant legislation and which relates in some way to the management of fauna is outlined in Table 3-4. This list will be subject to review and update during the detail design process.

TABLE 3-4 POTENTIAL POST-EIS STATE APPROVALS

Approval, Permit, License or Authority	Trigger	Potential exemptions	Administering Authority	Timing
Wildlife Movement Permit (Sections 88 and 97 of the NC Act)	A person must not take, use, keep or interfere with a protected animal unless the person is an authorised person or the taking is authorised under the NC Act. A person, other than an authorised person, must not take, use, keep or interfere with native wildlife (other than protected wildlife) in an area that is identified under a regulation or a conservation plan as, or including a critical habitat or an area of major interest.	An animal authority will not be required where particular entities carry out particular activities in relation to particular animals, as specified in Chapter 3, Part 2 of the Animals Regulation	Department of Environment, Science and Innovation (DESI)	Prior to taking, using, keeping or interfering with protected animals.
Rehabilitation Permit (spotter catcher endorsement) Part 14 of the *Nature Conservation (Animals) Regulation 2020*	A rehabilitation permit is required to rehabilitate sick, injured or orphaned animals.	Nil	DESI	Prior to any clearing
Damage Mitigation Permit (removal and relocation) Part 10 of the *Nature Conservation*	A damage mitigation permit is required to lawfully remove native wildlife from property that is causing a threat to human health or well being, in a safe and humane manner.	Nil	DESI	Prior to any clearing

Approval, Permit, License or Authority	Trigger	Potential exemptions	Administering Authority	Timing
(Animals) Regulation 2020)				
Species Management Program (low-risk and high-risk) (Section 335 of the *Nature Conservation (Animals) Regulation 2020*).	A person must not, without a reasonable excuse remove or tamper with an animal breeding place that is being used by a protected animal to incubate or rear the animal's offspring.	Nil A person may only remove or otherwise tamper with a breeding place if the removal or tampering is part of an approved species management program for the animal the person holds a damage mitigation permit for and the permit authorises the removal or tampering.	DESI	Prior to undertaking any works in a breeding place
Operational work development approval for waterway barrier works *Planning Act 2016* (Planning Act) Planning Regulation 2017 (Planning Regulation) *Fisheries Act 1994* (Fisheries Act)	Operational work that is constructing or raising waterway barrier works is assessable development	Operational work for constructing or raising is accepted development if it complies with the document '*Accepted development requirements for operational work that is constructing or raising waterway barrier works*' (DAF, 2018)	State Assessment and Referral Agency (SARA) and Department of Fisheries (DAF)	
Fish Salvage Permit Fisheries Act	Relocation of fish from areas where stranding may occur, also known as fish salvage,			Prior to construction of waterway barriers and in-stream structures.

3.4 STANDARDS AND GUIDELINES

Key standards and guidelines that were reviewed during the development of this draft FMP include:

- *Arrive Clean, Leave Clean – Guidelines to help prevent the spread of invasive plant diseases and weeds threatening our native plants, animals and ecosystems* (DoE, 2015)
- *Code of Practice: Care of Sick, Injured or Orphaned Protected Animals in Queensland* (NC Act) (DES, 2020);
- *Environmental Management Plan Guidelines* (DCCEEW, 2024);
- *Fauna Design Guidelines for the ARTC Inland Rail Program* (ARTC, 2022);
- *Fauna Sensitive Transport Infrastructure Delivery Manual* (TMR 2024);
- *Fish salvage guidelines 2024* (Queensland Government, 2024);
- *Hygiene protocols for the control of diseases in Australian frogs* (Department of Sustainability, Environment, Water, Population and Communities) (Murray et al., 2011);
- *Hygiene protocols for the prevention and control of diseases (particularly beak and feather disease) in Australian birds* (DEH, 2006); and
- *National Light Pollution Guidelines for Wildlife* (DCCEEW, 2023).

4. ENVIRONMENTAL MANAGEMENT

4.1 ROLES AND RESPONSIBILITIES

A summary of the roles and responsibilities of relevant entities for delivery of the Project works, as they relate to fauna management, are set out in 4.1. For a full, detailed description of the roles and responsibilities refer to the draft Outline Environmental Management Plan.

Each member of the Project delivery team has a 'general environmental duty' under Section 319 of the *Environmental Protection Act 1994* (QLD)(EP Act), and will not carry out any activities that cause, or are likely to cause, unauthorized environmental harm, unless all reasonable and practical measures are taken to prevent or minimise harm.

TABLE 4-1 ROLES AND RESPONSIBILITIES

Role	Responsibility
ARTC	• Proponent for the Project; • Administers the Project agreement; • Oversees the contractor's detail design process and construction to achieve the environmental outcomes; • Notification to State and/or Commonwealth authorities of any incidents or non-comformances in accordance with approval requirements. • Engage the environmental monitor, for the duration of construction.
Principal Contractor	• Prepare, maintain, and implement the CEMP; • Deliver the Project in accordance with all laws, including conditions of approval; • Provide notifications and reports, as required by law, including conditions of approval; • Ensure the construction workforce are properly and regularly trained in environmental responsibilities, in accordance with the FMP; and • Establish and maintain a complaints management system, to receive and respond to complaints.
Environmental Monitor	• Monitor compliance with the CEMP, and any imposed conditions; • Review any audit and compliance reports prepared by the contractor or proponent; • Have oversight of the implementation of the environmental monitoring requirements established in the CEMP. Review the results of the monitoring and verify these results if the Environmental Monitor considers it necessary; • Immediate notification to ARTC of any incidents or non-conformances in accordance with approval requirements.
Site Supervisors	• Responsible for the implementation and maintenance of fauna management and mitigation measures for all activities and work areas.
Site Personnel	• Ensure that environmental nuisance or harm is minimised by adhering to all Project environmental management plans and documentation; • Maintain familiarity with key risks to fauna and associated management and mitigation measures as outlined in Section 6 of this Fauna Management Plan.
Fauna Spotter Catcher	• Pre-clearance surveys, habitat removal supervision and fauna handling/rescue works

4.2 ENVIRONMENTAL TRAINING

It is mandatory that all Project personnel undergo site induction training to inform them of their responsibilities under the CEMP and Operational EMP, with particular focus on fauna management issues and corrective actions. Environmental training will be documented in a developed training register and be maintained throughout the Project lifecycle. The training register will include:

- The person receiving the training
- The date training was received
- The name of the person conducting the training
- A summary of the training.

Environmental training will be communicated as relevant throughout the Project lifecycle through methods outlined in Table 4-2

TABLE 4-2 ENVIRONMENTAL TRAINING DETAILS

Environmental training	Learning outcomes/topics of training
Environmental induction programs and training	• Requirements of the FMP. • Relevant legislation and conditions of approval as determined for the Project. • Roles and responsibilities specific to fauna. • Reporting procedure of injured fauna within the Project site. • Threatened fauna that reside within the Project footprint. • Contact information of fauna spotter catcher and environmental manager.
Daily pre-start meetings	• Delineate what works will occur on the day. • Ensuring high value habitat areas are avoided.
Weekly toolbox meetings	• Clear delineation of no-go areas where threatened fauna habitat is present. • Likely threatened species present in the area of works. • The procedure of unexpected finds of threatened fauna. • Hygiene procedures for weeds / pathogens and vehicle biosecurity requirements. • Contact information of fauna spotter catcher and environmental manager • Requirements of the Biodiversity Management Plan in relation to the Project.
Risk workshops	• Risk associated with fauna within the Project.
Management meetings	• Updates to the Projects status. • Effectiveness of the Biodiversity Management Plan. • Discussions regarding evaluations of the Biodiversity Management Plan. • Conditions of approval for the Project.
Noticeboards	• Map of no-go areas in which threatened fauna habitat is present. • Contact information for fauna spotter catcher. • Unexpected fauna finding procedure. • Updates to locations undergoing works. • Safety updates with Project specific risks.
Environmental incident reports	• Incident report procedure. • Relevance of these incident reports to the Project and legislative outcomes.

4.3 REPORTING

During construction, a monthly construction compliance report will be prepared by the Principal Contractor. This will include:

- A summary of monitoring data and interpretation of results;
- Details of non-compliance events, including a description of the incident, resulting effects, corrective actions, revised practices to prevent a recurrence, responsibility and timing; and
- Reporting of complaints, including the number of complaints, description of issues, responses, and corrective actions.

For the duration of construction, an Annual Construction Report will be prepared by the Contractor that includes:

- A compliance evaluation table detailing the relevant imposed condition, whether compliance with the imposed condition was achieved and how compliance was evaluated;
- An evaluation of compliance with the CEMP and any conditions of approval;
- A summary of incidents and non-compliance events during the reporting period;
- A summary of incidents and non-compliance events during the previous reporting period, with details of site construction works, remediation works, corrective actions taken, or to be taken, and revised practices implemented or to be implemented (as relevant); and
- Relevant trends and interpretation related to environmental outcomes and performance criteria for each environmental element (all periods to date).

Relevant works, investigations and approvals undertaken in Pre-Construction and Early Works stage of the Project, will be included in the construction compliance reporting by the Contractor: These may include:

- Inspection results of installed erosion and sediment control devices, as per the Erosion and Sediment Control Plan (ESCP);
- Pre-clearance fauna spotter survey reporting; and
- Status of secured secondary approvals obtained prior to works commencing.

Specific reporting requirements for fauna management will be updated to reflect the requirements of the final OEMP including approval conditions. As a minimum, reporting requirements include:

- Results of pre-clearing surveys will be reported by a qualified Fauna Spotter Catcher prior to clearing of areas containing remnant/regrowth vegetation, or that contains habitat features;
- Outcome of each clearing event, including details of any fauna encountered, relocation details, fauna health etc., will be reported by a qualified Fauna Spotter Catcher post clearing;
- Any mortality of MNES/MSES fauna will be reported directly to DESI and/or DCCEEW within required timeframes; and
- Any sightings and/or incidents involving fauna species during the construction and operation of the Project are to be recorded in the Project fauna register. This is to include records of fauna encounters, captures, incidents, injuries and mortalities.

4.4 INCIDENT AND EMERGENCY MANAGEMENT

All staff and contractors will be required to report any environmental incidents (including complaints) or breaches of any approval conditions in accordance with the requirements and timeframes set out in the CEMP, Operation EMP and any statutory requirements.

Environmental incidents relating to fauna may include, but not be limited to:

- Clearing or damage to habitat outside of the designated clearing areas;
- Unauthorised interference to threatened species; and
- Unauthorised or accidental death or injury of native fauna as a result of Project activities.

In the event that fauna are encountered within the work area, works in the immediate area will stop to allow it to move out of the work area. If fauna will not move out of the work area, the Site Supervisor will be notified and a suitably qualified fauna spotter catcher or wildlife handler (ie. Wires or Wildcare) will be contacted. Relocation of fauna from within the Project construction site by a suitably qualified Fauna Spotter Catcher is to be recorded as part of the pre-clearance reporting obligations or Principal Contractor worksite inspection reports/diary and recorded in the Project fauna register.

If the animal is not injured or stressed it may be released nearby in accordance with the following:

- If the species is nocturnal, it must be released at dusk;
- The release area is to contain similar habitat (the same vegetation community if possible) and occur as close as possible to the original capture location, in a predetermined area that will not be disturbed by construction activities;
- Fauna will not be released during periods of heavy rainfall, unless ecologist or fauna rescue service determines the animal is too stressed to be held longer; and
- Hollow-dependent species, particularly those with dependent young, shall be released into a temporary nest box.

If fauna will not move out of the work area due to injury or other reasons a suitably qualified fauna spotter catcher or wildlife handler (i.e. Wires or Wildcare) will be contacted. If a rescue/local veterinary surgery cannot be contacted, the Site Supervisor or fauna spotter catcher is to deliver the animal to the rescue service within 24 hours.

All fauna handling will be undertaken by a suitably qualified fauna handler, and in accordance with relevant hygiene protocols including:

- National Wildlife Biosecurity Guidelines (Wildlife Health Australia, 2018); and
- Hygiene Protocol for the Control of Disease in Frogs (DECC, 2008).

In the event that MNES or MSES fauna are discovered during construction the unexpected finds procedure will be implemented as follows:

- Stop works, protect threatened species and inform ARTC.
- Engage suitably qualified ecologist to undertake assessment and provide recommendations for management
- Where impacts can be avoided:
    - Works may proceed.

- Where impacts cannot be avoided:
  - Consult with agencies and submit management plan for approval, and
  - Recommence works with updated controls where necessary.
- Update Biodiversity Management Plan and include species in subsequent inductions, toolbox talks, etc.

In instances where previously unidentified habitat for listed threatened fauna in identified in construction areas, the area is to remain undisturbed until it has been reported to DCCEEW and/or DESI, and guidance received from the department on how to proceed.

A fauna handling procedure and a Protected Matters unexpected finds procedure will be prepared prior to construction and implemented as part of the CEMP Biodiversity Management Plan to detail the management and handling of fauna, and the actions to be taken if any threatened species or threatened species habitat are unexpectedly encountered. The procedures will be communicated to personnel through site inductions and during toolbox talks.

4.4.1 INCIDENT AND NON-COMPLIANCE NOTIFICATION

Any incidents or non-compliance with the future Project approval conditions, or commitments made in approved plans will be reported in writing to the DCCEEW and/or DESI as soon as practicable, within 2 business days. The notification will specify:

- Any condition which is or may be in breach
- A short description of the incident and/or non-compliance
- The location (including co-ordinates), date, and time of the incident and/or non-compliance. In the event the exact information cannot be provided, the best information available will be provided.

Details of the incident or non-compliance will be provided within 10 business days outlining any corrective action or investigation taken, potential impacts of the incident, and the method and timing of any remedial action that will be undertaken.

5. POTENTIAL IMPACTS

5.1 SPECIES RICHNESS

A total of 281 fauna species have been identified within the Project footprint, including 264 native species (93.95 %) and 17 non-native species (6.05 %), nine of which were restricted matters. Species recorded include 164 birds (58.36 %), 48 mammals (17.08 %), 43 reptiles (15.30 %), 23 amphibians (8.19 %), two gastropods (0.71 %) and one crustacean (0.36 %).

A description of fauna and fauna habitat within the Project footprint is provided in revised draft EIS Appendix L: Terrestrial and Aquatic Ecology Technical Report.

5.2 THREATENED SPECIES

A total of 30 threatened fauna species listed under the provisions of the NC Act and/or the EPBC Act are known, likely or have the potential to occur within the Project footprint. Nineteen species are listed under the EPBC Act, including fauna that are dual listed (Table 5-1). Fauna that are listed under NC Act only, species that have been listed under the EPBC Act after the Project was determined a controlled action (Controlled action date: 9th April 2018) and are dually listed as conservation significant under the NC Act, and Special Least Concern species are provided in Table 5-2.

TABLE 5-1 EPBC ACT LISTED THREATENED FAUNA SPECIES

Scientific name	Common name	EPBC Act status	Field verified likelihood of occurrence
Birds			
Anthochaera phrygia	Regent honeyeater	CE	Potential
Botaurus poiciloptilus	Australasian bittern	E	Likely
Calidris ferruginea	Curlew sandpiper	CE	Potential
Geophaps scripta scripta	Squatter pigeon (southern)	V	Likely
Grantiella picta	Painted honeyeater	V	Known
Lathamus discolor	Swift parrot	CE	Potential
Rostratula australis	Australian painted snipe	E	Likely
Mammals			
Dasyurus maculatus maculatus	Spotted-tailed quoll	E	Potential
Nyctophilus corbeni	South-eastern long-eared bat	V	Known
Petauroides volans	Greater glider (southern and central)	V[1]	Potential
Phascolarctos cinereus	Koala	V[2]	Known
Pteropus poliocephalus	Grey-headed flying-fox	V	Known
Reptiles			
Anomalopus mackayi	Five clawed worm-skink	V	Likely

Scientific name	Common name	EPBC Act status	Field verified likelihood of occurrence
Delma torquata	Collared delma	V	Potential
Egernia rugosa	Yakka skink	V	Likely
Furina dunmalli	Dunmall's snake	V	Likely
Tympanocryptis condaminensis	Condamine earless dragon	E	Known
Fish			
Maccullochella peelii	Murray cod	V	Known
Invertebrates			
Adclarkia cameroni	Brigalow woodland snail	E	Known

Table notes:
CE = Critically endangered; E = Endangered; V = Vulnerable
Note: NC Act listed species are considered and assessed in accordance with their listing status at the time the latest survey efforts were undertaken, 17 March 2022.
[1]Greater glider (southern and central) uplisted to Endangered effective 5 February 2022, after controlled action date.
[3] Koala uplisted to Endangered effective 12 February 2022, after controlled action date.

TABLE 5-2 NC ACT LISTED THREATENED FAUNA SPECIES

Scientific name	Common name	EPBC Act status	NC Act Status	Field verified likelihood of occurrence
Birds				
Aphelocephala leucopsis	Southern whiteface	V[1]	V	Known
Apus pacificus	Fork-tailed swift	Mi	SLC	Known
Calidris acuminata	Sharp-tailed sandpiper		SLC	Likely
Climacteris picumnus victoriae	Brown treecreeper (south-eastern)	V[1]	V	Known
Calyptorhynchus lathami lathami	Glossy black-cockatoo (south-eastern)	V[2]	V	Known
Gallinago hardwickii	Latham's snipe	V[3], Mi	SLC	Known
Hirundapus caudacutus	White-throated needletail	V[4]	V	Known
Melanodryas cucullata cucullata	Hooded robin (south-eastern)	E[1]	E	Potential
Myiagra cyanoleuca	Satin flycatcher	Mi	SLC	Known
Plegadis falcinellus	Glossy ibis	Mi	SLC	Known
Rhipidura rufifrons	Rufous fantail	Mi	SLC	Likely

Scientific name	Common name	EPBC Act status	NC Act Status	Field verified likelihood of occurrence
Stagonopleura guttata	Diamond firetail	V[1]	V	Likely
Mammals				
Petaurus australis australis	Yellow-bellied glider (south-eastern)	V[4]	V	Potential
Ornithorhynchus anatinus	Platypus	-	SLC	Known
Tachyglossus aculeatus	Short-beaked echidna	-	SLC	Known
Reptiles				
Acanthophis antarcticus	Common death adder	-	V	Likely
Hemiaspis damelii	Grey snake	E[1]	E	Known
Invertebrates				
Hypochrysops piceatus	Bulloak jewel butterfly	CE	CE	Potential

Table notes:
CE = Critically endangered; E = Endangered; V = Vulnerable, SLC = Special Least Concern

Note:
[1]Species listed 31 March 2023, after controlled action date
[2]Glossy black-cockatoo listed 10 August 2022, after controlled action date.
[3]Latham's snipe listed 5 January 2024, after controlled action date
[4]White-throated needletail listed 4 July 2019, after controlled action date
[5]Yellow-bellied glider (south-eastern) listed 2 March 2023, after controlled action date

5.3 PROJECT ACTIVITIES

Activities proposed as part of the Project that may impact fauna have been categorized into two phases: pre-construction and construction, and commissioning and operation.

A summary of Project related activities is provided in Table 5-3. The durations listed for each disturbance activity have been classified as per the *Queensland EIS Guideline* (DSDI, 2024)

TABLE 5-3 SUMMARY OF PROJECT RELATED ACTIVITIES AND ANTICIPATED DURATION OF DISTURBANCE

Phase	Infrastructure activity	Description of activities	Anticipated duration of disturbance*
Pre-construction and construction	Site preparation (relating to all work sites)	Vegetation clearing	Permanent
		Topsoil stripping	Medium term

Phase	Infrastructure activity	Description of activities	Anticipated duration of disturbance*
		Construction of temporary site compounds including fencing	Medium term
		Construction of rail access roads	Permanent
		Installation of boreholes and construction water storage	Medium term
		Installation of offices, hardstands, etc.	Medium term
		Stockpiling	Medium term
		Establishment of initial laydown areas	Medium term
		Establishment of temporary drainage infrastructure (e.g., sediment ponds)	Medium term
		Borrow pit establishment and excavation of fill	Medium term
	Additional surveys	Potential further geotechnical investigations	Short term
	Traffic and transport	Delivery of materials to the Project footprint	Medium term
		Movement of workforce	Medium term
		Transportation/collection of plant, equipment and other machinery	Medium term
		Delivery of non-resident workforce accommodation cabins to site	Medium term
		Rail-to-road diversions due to track closures	Medium term
	Fencing	Modification of biosecurity fencing	Long term
		Installation of boundary fencing	Short term
		Moving / protection of QR assets	Medium term

Phase	Infrastructure activity	Description of activities	Anticipated duration of disturbance*
	Relocation of QR assets and utilities / services	Establishing utilities and services	Medium term
	Accommodation	Establishment of non-resident workforce accommodation	Medium term
	Utility diversions	Excavation	Short term
		Trenching	Short term
		Modification, diversion and realignment of utilities and associated infrastructure	Short term/medium term
	Drainage	Installation of drainage infrastructure (culverts, longitudinal drainage, scour).	Permanent
	Structures	Construction of waterway crossings (bridges and piers)	Permanent
		Road/rail bridge construction	Permanent
	Civil works	Earthworks and embankment construction involving excavation for cuts, cut to fill, importation of fill from quarries and other external sources where required and bank stabilisation.	Medium term
		Construction of temporary haul roads	Medium term
	Road works	Road realignment	Permanent
		Construction of permanent rail maintenance access roads	Permanent
	Rail logistics	Sleeper stockpiling	Medium term
		Rail stockpiling	Medium term
	Rail construction	Drilling	Short term

Phase	Infrastructure activity	Description of activities	Anticipated duration of disturbance*
		Ballast installation	Short term
		Sleeper placement	Long term
		Rail placement	Permanent
		Installation of train signals and communications infrastructure	Long term
		Demobilising site compounds	Short term
	Signals and communications installation	Installation of telecommunications and signalling infrastructure.	Short term
	Demobilisation	Temporary site offices, accommodation facilities, laydowns, fencing, stockpile areas, temporary drainage, concrete batch plants, and associated facilities removed. Construction sites, borrow pits, compounds, and access routes will be reinstated or rehabilitated progressively once available.	Short term
		Removal of temporary waterway crossings as soon as they are no longer needed to support construction works.	Short term
		Decommissioning and decontamination of any impact areas (e.g. around fuel transfer locations)	Short term
		Stabilisation of landforms	Permanent
		Progressive establishment of permanent fencing	Short term
		Decommissioning of access roads no longer required	Short term
Commissioning and operation	Testing and commissioning	Testing and checking of the rail line and communication / signalling systems	Short term

Phase	Infrastructure activity	Description of activities	Anticipated duration of disturbance*
	Training	Driver training and test trains	Short term
	Train operations	Train movement along railway	Permanent
	Operational maintenance works	Ongoing vehicle movement within railway corridor	Long term
		Minor maintenance works: • Bridge inspections • Culvert cleanout • Sleeper replacement • Rail welding and grinding • Ballast profile management • Track tamping • Vegetation management – slashing/clearing	Short term
		Major periodic maintenance: • Ballast cleaning • Formation work • Reconditioning of track • Adjustment • Turnout replacement • Correction of track level and line • Maintenance of structures including waterproofing, jointing.	Short term

Table note:

*Duration of disturbance timeframes (DSDI, 2024):

- Short term – up to 12 months
- Medium term – from 1 to 3 years
- Long term – from 3 to 100 years
- Permanent.

5.4 POTENTIAL IMPACTS TO FAUNA

Table 5-4 summarises the potential impacts to fauna associated with each stage of the Project. More detail on potential impacts to fauna, as well as a comprehensive risk assessment, is provided in the revised draft EIS Appendix L: Terrestrial and Aquatic Ecology Report and Appendix O: Matters of National Environmental Significance Report.

TABLE 5-4 POTENTIAL IMPACTS OF THE PROJECT ON FAUNA

Potential Impact	Project stage	Description
Habitat loss through clearing	Pre-construction and construction	Habitat loss within the Project footprint through vegetation clearing will pose the largest risk of direct adverse impacts for fauna arising from Project construction. Vegetation clearing will result in the loss of available habitat within the Project footprint for threatened species. The Project footprint encompasses a total of 3,382.17 ha, with 2,544.86 ha being within the permanent footprint and 837.31 ha being temporarily disturbed. Ground-truthed vegetation mapping indicates that the Project footprint includes approximately 570.75 ha of remnant vegetation, 16.48 ha of mature regrowth vegetation and 270.92 ha of immature regrowth vegetation. The remaining 2,524.02 ha (74.6% of the Project footprint) has been subject to previous clearing for agriculture, grazing, mining, industry, or transport (road and rail corridors) and is classified as non-remnant areas.
Fauna injury or mortality	Pre-construction and construction, and Operation	Fauna injury or fatality has the potential to occur during all phases of the Project, with the highest potential likelihood during construction activities that involve vegetation clearing, earthworks and trenching. Physical trauma to fauna species causing injury or mortality may occur through: • Vegetation clearing • Vehicle strike related to construction or maintenance traffic • Fauna being trapped in trenches or other excavations • Fence and barbed wire entanglement • Construction within waterways that may impact aquatic fauna, and • Train strike during the operational phase.
Introduction and spread of weeds, pathogens and pest species	Pre-construction and construction, and Operations	Weeds, pathogens and pest species have the potential to impact fauna through displacement, predation, competition and disease. Proliferation of weed and pest species has the potential to occur during all stages of the Project, however, colonization potential is increased during vegetation clearing and soil disturbance activities during the construction phase, as well as rehabilitation activities of the temporary disturbance footprint.
Habitat fragmentation	Construction and Operation	Habitat fragmentation relates to the physical separation of a continuous habitat into disjointed smaller fragments (Fahrig, 2002). Habitat fragmentation can lead to loss of connectivity of wildlife habitat and create a barrier where species are unable or unwilling to move between suitable areas of habitat. The Project will result in localized fragmentation in a landscape which is already highly fragmented. Fauna groups most susceptible include terrestrial invertebrates, small mammals, frogs, and reptiles, however, larger terrestrial species are also susceptible, particularly where fencing creates an additional barrier.
Noise and vibration	Pre-construction and construction, and Operation	Noise associated with construction activities has the potential to impact on fauna, although generally these impacts will be short term. Potential impacts to use of breeding habitat during construction is considered to potentially have the largest impact, especially for construction activities that persist over a longer period. During operations, the greatest impacts to wildlife are likely to be in areas of newly constructed rail, particularly within the state forests, small riparian areas and patches of small woodlands, and undeveloped areas where noise mitigation measures are not in place to minimise impacts to human sensitive receptors. Operational noise has the impact to interfere with fauna connectivity, where fauna may

Potential Impact	Project stage	Description
		be disinclined to use crossing structures as a result of higher levels of noise close to the rail line.
Air quality and dust	Pre-construction and construction	The Project will lead to increases of airborne dust levels during construction across the Project footprint if unmanaged. Increased dust can result in respiratory issues in fauna and decrease in degrade fauna habitat. Project impacts associated with air quality and dust were assessed in detail in revised draft EIS Appendix O: Air Quality Technical Report. Potential impacts relating to dust and air quality will be managed through implementation of the CEMP.
Lighting	Construction and Operations	Lighting associated with construction of the Project will include security lighting at laydowns and offices, flashing beacons and temporary spotlights in support of short-duration night works (if required) and will be relatively short term in nature. Lighting associated with the operational phase (head lamp on rolling stock and safety lighting at road-rail interfaces) will exist as pulses of shorter duration (for rolling stock) at frequencies determined by operational schedules.
Increase in Waste	Pre-construction and construction	Improper waste disposal has the potential to impact wildlife though external injury, entanglement and if accidentally ingested, may cause starvation or suffocation. In appropriate storage and handling of waste materials may also result in an increase in pest fauna. Regulated waste generated by the Project, will be managed in accordance with the Queensland Environmental Protection Act 1994, Environmental Protection Regulation 2019. As such, it is considered not likely to have an impact on threatened flora and fauna.
Altered hydrology and flooding	Pre-construction and construction, and Operations	The Project has the potential to alter flooding and hydrological regimes as modification of existing landforms and introduction of Project components such as the railway line foundation and the installation of drainage structures such as culverts has the potential to alter natural stream flows and flow paths in some locations. Potential impacts during construction include drowning of fauna trapped in flooded excavations and short-term changes to surface water distribution and overland flow during rainfall and flooding events. The revised reference design has incorporated a 1% AEP flood immunity for the constructed Project. Modelling and impact assessments undertaken determined that MNES and MSES fauna and fauna habitat are at low to negligible risk of impacts during operations.
Aquatic habitat degradation	Pre-construction and construction, and Operations	Aquatic fauna may potentially be impacted during construction of the Project though: • Disturbance of riparian vegetation and aquatic habitats within the bed and banks of watercourses, • Modification of aquatic habitats with the installation of culverts, bridges and scour protection, and removal of natural materials that comprise habitat including rocks and gravel, snags and aquatic plants, • Permanent and temporary instream structures which may create physical and behavioral barriers to fish passage, • Altered hydrology through the installation of artificial structures that have the potential to alter natural stream flows and flow paths, • Reduced water quality through increased turbidity and sedimentation and contamination as a result of accidental spills, and the invasion of aquatic weeds and pest species.

Potential Impact	Project stage	Description
		The use of herbicides during track maintenance during operations has the potential to impact on fauna living in and adjacent to waterways.

6. ENVIRONMENTAL MANAGEMENT CONTROLS

Mitigation measures to avoid or minimise the potential impacts of the Project on fauna are described in Sections 6.1 and 6.2 for pre-construction and construction, and operation stages respectively.

These mitigation measures address Project specific issues and opportunities and will form the basis for the development of the Project Biodiversity Management Plan, or where indicated, highlight how mitigation will be achieved through the implementation of other relevant plans. Information related to government conservation advices, threat abatement plans and recovery plans has been incorporated into the identified mitigation measures wherever applicable. Mitigation measures have been selected based on the best available information, including government guidelines (e.g. TMR's *Fauna Sensitive Transport Infrastructure Delivery manual* (DTMR 2024)), and the appropriateness and effectiveness in managing the identified impacts including mitigation measures used on similar projects that have been subject to legislative approval.

All mitigation measures will be subject to monitoring and corrective actions throughout the implementation period as a means of tracking and ensuring effectiveness.

6.1 MITIGATION MEASURES DURING PRE-CONSTRUCTION AND CONSTRUCTION

TABLE 6-1 PROJECT IMPACT MITIGATION MEASURES DURING PRE-CONSTRUCTION AND CONSTRUCTION

Aspect	Mitigation and management measures
Habitat loss through clearing	• A Biodiversity Management Plan will be developed and implemented as part of the CEMP for relevant works. This plan will be developed on the basis of this draft FMP and will include appropriate criteria, directives and procedures in relation to: ◦ Methods and sequencing of protected plant preclearance surveys. Flora species to be targeted through these surveys include MNES and MSES flora identified as known, likely or with potential to occur within the Project footprint. ◦ Methods and sequencing of pre-clearance fauna surveys for relevant species. ◦ Staging works so that they avoid animal breeding periods (for species that breed within Australia) as much as possible within areas of habitat where relevant works are proposed ◦ Staged and sequential clearing protocols to all areas impacted by the Project where threatened species have been identified. ◦ Animal handling protocols, including engagement of an approved fauna handler with a valid damage mitigation permit. ◦ Relocation of plants and habitat features for threatened species, where possible, and documented evidence of previous relocation success ◦ Requirements for inspections and corrective actions during construction and rehabilitation activities. ◦ Biodiversity/fauna and flora management actions will be undertaken by suitably qualified persons. ◦ Requirements for training, inspections, corrective actions, notification and classification of environmental incidents, record keeping, monitoring and performance objectives for handover on completion of construction

Aspect	Mitigation and management measures
	◦ Corrective actions if the outcomes do not achieve the adopted objectives.
	• Clearing limits and location of known sensitive areas (e.g. known MNES/MSES threatened species records and habitat areas) identified through pre-construction habitat surveys undertaken during the detailed design stage, will be supplied to Principal Contractor via environmental constraints maps.
	• Construction personnel are to be informed of the environmentally sensitive aspects of the Project site, including plans for impacted and adjoining areas showing important fauna habitat areas, and locations where threatened species or populations have been recorded.
	• Clearing of native vegetation is to be minimised to the greatest extent practicable with the objective of reducing impacts to threated species. Clearing extents will be limited to the area safely and reasonably required for permanent and temporary works, avoiding impacts to native vegetation and habitats as far as practicable.
	• Prior to any pre-construction clearing works being undertaken, the clearing extents/site boundary/limit of works will be clearly defined and marked. Designated revegetation/rehabilitation zones and other no-go areas (including large significant trees and any threatened flora to be retained) will also be marked. High-visibility tape, barricade webbing or similar will be used. All contractors will be briefed on clearing requirements and restrictions (including fines) to prevent over-clearing of these areas. Construction areas, including compounds, stockpiles, fuel storage areas, laydown areas and staff parking, will be located and established outside the tree protection zone as defined in *AS4970-2009 Protection of trees on development sites*.
	• Should MNES or MSES species habitat be retained within the Project footprint, weekly inspections will be undertaken during active site works and annual monitoring against the initial BioCondition assessment will be conducted. Corrective actions to be implemented where Project-associated impacts are identified.
	• Pre-clearance surveys, including terrestrial and aquatic habitats to, include demarcation of habitat resources and habitat features that are suitable for translocation or salvage.
	• Salvage and relocation of microhabitat features for offset properties or other adjacent suitable habitat will be undertaken as part of rehabilitation, reinstatement, habitat enhancement and beneficial re-use activities, as far as practicable, including in areas identified as important for functional movement corridors (e.g. priority connectivity zones). Destruction and disposal of microhabitat features will only be considered where there are no practicable re-use options.
	• Post-clearance surveys of disturbed areas to be undertaken to record extent of clearing that has occurred and ensure approved clearing limits have not been exceeded.
	• A Rehabilitation and Landscaping Management Plan will be prepared as a component of the CEMP and finalised prior to project works . This plan will be based on the Inland Rail Landscape and Rehabilitation Strategy, Inland Rail Landscape and Rehabilitation Framework . It will establish the following: ◦ Location-specific objectives, indicators, and success criteria for rehabilitation, reinstatement and/or stabilisation based on the hierarchy for rehabilitation.

Aspect	Mitigation and management measures
	◦ Procedures, timeframes, measurable performance objectives and responsibilities for monitoring the success of rehabilitation and/or reinstatement/stabilisation areas (including biodiversity, vegetation establishment and erosion and sediment control outcomes to be achieved). ◦ Consideration for maintenance or performance issues of rehabilitation, e.g. use of groundcover that does not grow and obscure signals or impact the longevity of rail infrastructure, and suitable monitoring and contingency procedures for rehabilitation maintenance and redesign if required. ◦ How the objectives align with relevant recovery plans, threat abatement plans, conservation advices, or policy guidance for target species in areas identified for rehabilitation. ◦ Details of the actions and responsibilities to progressively rehabilitate, regenerate, and/or revegetate areas, whilst minimising the duration of exposure in disturbed areas. ◦ How the reinstatement approach considers native flora species to the Darling Downs and Toowoomba regions, the pre-cleared regional ecosystems and other suitable species appropriate to the landscape context and nursery/seed stock sources. ◦ Revegetation of areas affected by the proposed project is to occur and will include cut and fill embankments. ◦ Include rehabilitation requirements such as: – Milling and removal of bitumen pavement; – Removal of any decommissioned culverts; – Tyning and ripping of base and sub-base material; – Application of soil ameliorants; – Topsoiling and/or compost blanket; and – Stabilisation and rehabilitation (e.g., planting and/or seeding). ◦ Timeframes, measurable performance objectives and responsibilities for the success of rehabilitation and/or reinstatement/stabilisation areas ◦ Where appropriate, how the objectives align with relevant recovery plans, threat abatement plans, conservation advices, or policy guidance for target species in areas identified for rehabilitation ◦ Corrective actions if the outcomes of rehabilitation and/or reinstatement/stabilisation are not achieved.
	• Where temporary construction facilities are required, land will be returned to a stable condition that complies with the applicable landowner agreements and if relevant, regulatory approvals.
	• Reinstatement, stabilisation and rehabilitation of disturbed areas will be undertaken progressively, as work fronts are completed.
Fauna injury or mortality	• Notification of local wildlife groups prior to clearing to confirm they can receive any injured fauna.
	• Pre-clearance surveys will be undertaken by a suitably qualified Fauna Spotter Catcher within 48 hours of tree felling works and include the following: ◦ Identification and marking of habitat resources and habitat trees (those containing hollows, cracks or fissures and spouts, active nests, dreys or other signs of recent fauna usage. Other habitat features to be identified include fallen timber/hollow logs, burrows and boulder piles). ◦ Identification of threatened species or habitat features that are suitable for translocation or salvage.
	• Tree felling to be completed within 48 hours of pre-clearance surveys to limit the potential for new issues to arise (such as new active nests

Aspect	Mitigation and management measures
	being built), adhering to recommendations made during the pre-clearance surveys.
	• Tree felling supervision will be undertaken by a suitably qualified Fauna Spotter Catcher after pre-clearance surveys have identified potential habitat features.

	• Prior to felling habitat trees identified in the pre-clearance survey, the following must be undertaken:
	  ◦ Completion of action of actions recommended from the pre-clearing surveys including salvage of identified habitat trees, additional assessments to determine threatened fauna usage of the area (if required), identification of active burrows or dens, any actions required to discourage fauna occupation and weed or feral animal requirements.
	  ◦ Removal of any non-habitat trees/vegetation as close to the habitat tree as possible in order to create disturbance to discourage fauna usage of the habitat trees
	◦ Shaking of habitat trees (with heavy machinery) as appropriate may be undertaken to encourage fauna to abandon trees.

	• On the day of felling habitat trees, the following must be undertaken:
	  ◦ All habitat trees will be subject to a visual inspection to survey for threatened species.
	  ◦ Trees previously identified as containing fauna will be shaken and then felled, providing no fauna are identified.
	  ◦ The lowering of hollow-bearing trees will be done as gently as possible with heavy machinery.
	  ◦ If fauna are identified in a habitat tree on the day of felling, the Fauna Spotter Catcher is to advise the most appropriate method to minise harm. This may include leaving the tree overnight, further shaking, gradual removal of branches to discourage ongoing use, soft-felling of the tree with the animal in place, or measures to capture and relocate the animal to secure habitat.
	  ◦ Uninjured animals shall be released on the day of capture into nearby secure habitat and should not be held for extended periods of time.
	  ◦ Felled trees are to be rolled where appropriate so that the number of hollows blocked against the ground is minimised.
	  ◦ All felled trees shall remain in place for at least one night to allow any remaining fauna to escape.
	  ◦ Handling and relocation of terrestrial and aquatic fauna to suitable habitat and insuring injured and/or sick fauna are assessed and treated accordingly will be undertaken and recorded by a suitably qualified Fauna Spotter Catcher.
	  ◦ Allow safe and responsible handling of fauna (where required) and repatriation in pre-identified appropriate habitat outside of the Project footprint, in consultation with applicable landholders.

	• If any fauna is to sustain injury at any time during construction, the fauna must be handed over to appropriate wildlife carer personnel or veterinary clinic within 24 hours and correct ARTC personnel notified.

	• Management measures will be implemented to minimise fauna entrapment in excavations, including:
	  ◦ Minimising to the extent practicable, the period of time the excavation is left open,
	  ◦ Providing opportunities for fauna to exit the excavation;
	  ◦ Daily pre-start inspections of work areas and removal of trapped fauna by suitably qualified fauna handler as required.

	• In the event that native fauna are detected within the construction footprint, all mobile construction in the area will cease work. Mobile

Aspect	Mitigation and management measures
	construction equipment will not recommence until a wildlife handler has removed the individual or it has been confirmed that the individual has left the workspace. Any captured wildlife will be removed and relocated to nearby adjacent habitat away from the construction area in accordance with the fauna handling procedure and recorded in the Project fauna register fauna handling record.
	• Works which have the potential to impact on a protected animal breeding place will be subject to a Species Management Program.
	• In the event that unexpected threatened fauna or threatened fauna habitat are discovered during construction the unexpected finds procedure will be implemented as follows: ° Stop works, protect threatened species and inform ARTC. ° Engage suitably qualified ecologist to undertake assessment and provide recommendations for management ° Where impacts can be avoided: – Works may proceed. ° Where impacts cannot be avoided: – Consult with agencies and submit management plan for approval, and – Recommence works with updated controls where necessary. • Update Biodiversity Management Plan and include species in subsequent inductions, toolbox talks, etc.
	• Control vehicle speed limits on site to no more than 40 km/h
	• Temporary fencing will be installed around construction works where practicable, to discourage fauna from entering active construction zones.
	• The salvage and relocation of fish within isolated aquatic environments will be managed in accordance with *Guidelines for fish salvage* (DAF, 2018).
	• An appropriately qualified person will be consulted to make an assessment on the method of recovery, transport and release of fish and other aquatic fauna, as required. As a minimum, the following will be implemented: ° Relocation will be undertaken by a suitably qualified person; ° Dewatering pumps will have an intake screen; and ° Records of all fish recovered, and the location of their release will be maintained.
	• Dewatering of dams/waterbodies to be supervised by a suitably qualified Fauna Spotter Catcher.
	• In the event of a spill incident during construction, any impacted aquatic environments will be assessed for the presence of fauna. If necessary, salvage and recovery efforts will be undertaken.
Introduction and spread of weeds, pathogens and pest species	• A Biosecurity Management Plan will be developed and implemented in accordance with the requirements of the Biosecurity Act 2014 (QLD), as part of the CEMP. This will be developed in consultation with TRC and GRC to provide an approach and priorities that align with the Toowoomba Region Biosecurity Plan 2020 and the Goondiwindi Regional Council Strategic Biosecurity Plan 2022. The plan will be based on current weed and pest listing advice and will include the following: ° Requirements for pre-clearing surveys to determine current risks of weeds or pest animals being present within the Project footprint. ° Maps of the existing extent, confirmed through surveys, and severity of weed infestation (e.g. restricted matters including

Aspect	Mitigation and management measures
	mother-of-millions (*Bryophyllum delagoense*), opuntioid cacti, African boxthorn (*Lycium ferocissimum*), lippia (*Phyla canescens*) and lantana (*Lantana camara*) and weed management requirements. ° Pest animal management controls, including protocols for severing, realigning, and reinstating the wild dog check fence and the Darling Downs Moreton Rabbit Board (DDMRB) rabbit fence. ° Measures to confirm that soil movement complies with Queensland biosecurity requirements for managing the spread of imported fire ants (*Solenopsis invicta*). ° Site hygiene and waste management procedures to deter pest animals. ° Locations and procedures for vehicle washdown (light vehicle and oversize vehicles), wheel washes and rumble grids. ° Weed surveillance and treatment during construction and rehabilitation activities such as: • Vehicle and plant washdown requirements for fleet moving from low-risk areas to and high-risk areas; and • Weed certification requirements for vehicles, plant and materials arriving onto the construction site. ° Requirements in relation to pesticide and herbicide use, including any limitations on use. Restrictions may apply in proximity to watercourses, known areas of MNES or MSES habitat or land uses sensitive to spray-drift from the application of pesticides and herbicides (e.g. organic farming practices). ° Erosion and sediment control risks associated with broad scale weed removal or treatment. ° Monitoring of the effectiveness of weed hygiene measures as a component of the environmental monitoring procedure for the Project. ° Corrective actions should the outcomes not achieve the adopted objectives.
	• Property-specific weed hygiene requirements will be developed in consultation with the relevant landowners/operators prior to pre-construction/construction activities occurring on that property, outside of the permanent footprint. Protocols will be documented in individual property management agreements
	• Where the Project crosses the DDMRB fence at Ch 120.2 km, the fence will be reinstated, and a rabbit trap will be established in accordance with the design solution developed in consultation with DDMRB through the detailed design process.
	• Any vegetated material containing, or with the potential to contain, weed seed material will not be used for on-site mulching or erosion protection.
	• A complaints management system will be developed to enable members of the public, landholders or other stakeholders to make enquires or complaints, including concerns regarding weeds and pests on a 24 hour, seven days a week basis during the construction stage.
Habitat fragmentation	• A Wildlife Connectivity Plan will be developed and implemented in accordance with the Fauna Connectivity Strategy (revised draft EIS Appendix P) to construct connectivity opportunities to maintain ecological connectivity and dispersal function.
	• Fauna movement opportunities will be constructed to reinstate safe fauna passage as soon as possible, in accordance with the detailed design and Wildlife Connectivity Plan.

Aspect	Mitigation and management measures
	• Cleared vegetation, which may be mulched or stored as is depending on the reinstatement/rehabilitation requirements for specific areas, will be stockpiled separately in a manner that does not unreasonably impede wildlife
	• Rehabilitation to the banks of watercourses will occur as soon as possible after construction works in the area have been completed and will consist of suitable substrate to support fauna movement, with details documented in the Wildlife Connectivity Plan.
	• Construction works will be undertaken sequentially to allow fauna to move around construction work areas
Noise and vibration	• A Noise and Vibration Management Plan will be prepared and implemented as a component of the CEMP, to provide appropriate management for noise and vibration impacts to ecological receptors as a result of construction of the Project through the following: ° Plant and equipment will be selected to minimise noise emissions, in-so-far-as possible whilst maintaining efficiency of function. Mufflers will be fitted, and all noise control equipment will be maintained in good working order. ° Where possible, plant will be located away from ecologically sensitive receptors. Appropriate mitigation measures will be investigated. If required, site access roads will be located as far as practicable away from noise sensitive areas.
	• Construction personnel are to be informed of any environmentally sensitive aspects of the Project site, including plans for impacted and adjoining areas showing fauna breeding habitat within a 500 m buffer, identified during pre-clearance surveys, and locations where threatened species, populations or ecological communities have been recorded.
	• Works to be staged so that they avoid animal breeding periods as much as possible within areas of breeding habitat. Works which have the potential to impact an identified protected animal breeding place will be subject to a Species Management Program.
	• Where possible, plant will be located/oriented to direct noise away from ecologically sensitive receptors. Materials and stockpiles are to be used to increase acoustic shielding, where feasible. If required, site access roads will be located as far as practicable away from noise sensitive areas.
	• Night works near ecologically sensitive receptors will be scheduled at a restricted number of nights per week, with night-time traffic redirected away from noise-sensitive receptors.
	• All workers will be briefed on the importance of threatened fauna species, their location (where they are found to occur within or near the Project footprint), and procedures for working around them. Regular reinforcement (such as at toolbox talks) of the need to minimise noise and vibration impacts.
Air quality and dust	• Implement controls to prevent or minimise dust generation during activities involving excavation or disturbance of soils or vegetation, or handling ballast (e.g. use water sprays or water carts for dust suppression as required) in accordance with the Air Quality Management Plan that will be prepared and implemented as part of the CEMP. This will reduce impacts to fauna habitat, as increased dust and reduced air quality can impact photosynthesis, and therefore the health of individual plants and vegetation.

Aspect	Mitigation and management measures
Lighting	• Implementation of the Wildlife Lighting Management Plan, to be developed in accordance with the *National Light Pollution Guidelines for Wildlife* (DCCEEW, 2024) to ensure impacts of artificial light on wildlife are considered and managed during construction.

	• As a minimum, off-site lighting impacts will be minimised by:
	  ° External lighting is installed as low intensity lighting (except where required for safety or emergency purposes;
	  ° External lighting does not shine above the horizontal; and
	  ° Management of light generated during construction complies with Australian Standard AS4282 (INT) 1997 – Control of obtrusive effects of outdoor lighting, or its latest version.

Increase in waste	• Implementation of the Waste Management Plan as part of the CEMP to manage site hygiene and waste to avoid impacts relating to fauna.

Aquatic habitat degradation	• An appropriately qualified person will be consulted to make an assessment on the method of recovery, transport and release of fish and other aquatic fauna, as required. As a minimum, the following will be implemented:
	  ° Relocation will be undertaken by a suitably qualified person;
	  ° Dewatering pumps will have an intake screen; and
	  ° Records of all fish recovered, and the location of their release will be maintained.

	• Dewatering of dams/waterbodies to be supervised by a suitably qualified Fauna Spotter Catcher
	• Implement the Soil Management Plan and associated Erosion and Sediment Control Plan as part of the CEMP.
	• Schedule construction activities to minimise time of works in or adjacent to drainage lines, waterways or watercourses, particularly during periods of flow.
	• Implement procedures for safe and effective fuel, oil and chemical storage and handling. This includes storage of these materials within roofed, bunded areas. The bunding will have floors and walls that are lined with an impermeable material, to prevent leaching and spills.
	• Minimise the area of disturbance and vegetation clearing extents to the area necessary within the bed and banks of watercourses.
	• Retention of natural materials that comprise habitat including rocks and gravel, and snags where possible, for reinstatement on completion of works.
	Works within or adjacent to watercourses will be conducted in accordance with the intent of: • Riverine protection permit exemption requirements (WSS/2013/726) or conditions of a riverine protection permit issued for the Project • Accepted development requirements for operational work that is constructing or raising waterway barrier works (DAF, 2018) or conditions of development approval for operational work that is constructing or raising waterway barrier works.
Altered hydrology and flooding	• Short term impacts to fauna as a result of altered hydrology and flooding will be mitigated through construction planning and the layout of construction work sites and compounds which would be undertaken with consideration of overland flow paths and flood risk, avoiding flood liable land and flood events where practicable.
Erosion and sedimentation	• An Erosion and Sediment Control Plan (ESCP) as a component of the CEMP will be developed prior to commencement of project works to

Aspect	Mitigation and management measures
	manage project activities and works in a manner that minimizes harm to the surrounding environmental values. The ESCP will guide development of area, site, or section specific ESCPs and include detailed erosion hazard assessments and erosion and sediment control structure designs. The erosion and sediment control measures will be developed by a certified practitioner in erosion and sediment control and be in accordance with the International Erosion Control Association Best Practice Erosion and Sediment Control (2008). Details will include the following: ° Locations for specific temporary/permanent erosion and sediment control measures, such as: ° Sediment retention basins; ° Scour protection (included in the revised reference design); ° Sediment fencing; and ° Berms and other surface flow diversions. ° Nomination of location-specific erosion controls will include consideration of site conditions, proximity to environmental receptors, adjoining land uses, climatic and seasonal factors, and will be based on an erosion risk assessment. ° Minimisation of the area of disturbance during each stage to that required to enable the safe construction, operation and maintenance of the project ° Revegetating sites in a timely manner following completion of construction ° Minimising disturbance (timing of clearing to minimise amount of exposed soil) ° Scheduling of works with consideration to periods of higher rainfall (summer months) ° Establishing and specifying the monitoring and performance objectives for handover on completion of construction ° Stockpiling and management/segregation of topsoil where it contains native plants, seedbank or weed material. Establish and specify the monitoring and performance objectives for handover on completion of construction.
Modification of aquatic habitat	• Avoid, then minimise the extent of temporary and permanent waterway diversions. Where temporary diversions are unavoidable, implement water quality and ESCP measures to minimise impacts to downstream environments and water users. Where permanent diversions are unavoidable, waterway diversion design to include simulation of natural features e.g. meanders, pools, riffles, shaded and open sections, deep and shallow sections, and different types of sub-strata, depending on the pre-disturbance environmental values, as per relevant guidelines and legislation. Maintenance activity locations, construction compounds and storage areas will be positioned away from waterways to the extent possible.
	• Scheduling of construction activities to minimise time of works in or adjacent to drainage lines, waterways, or watercourses particularly during periods of flow.
	• Laydown sites and stockpiles will be located an appropriate distance from riparian habitat to avoid indirect impacts on aquatic habitats. Direct impacts on in-stream vegetation and native vegetation on the banks of watercourses would be avoided, as far as practicable.
Water quality	• A Surface Water Management Plan will be prepared and finalised prior to Project works and implemented as a component of the CEMP. The plan will be prepared in consultation with local governments, relevant agencies and other stakeholders, after the establishment of location-specific water quality objectives and prior to construction commencing. The Plan will provide a surface water monitoring framework which will be prepared in accordance with the *Receiving*

Aspect	Mitigation and management measures
	Environment Monitoring Program Guideline – for use with environmentally relevant activities under the EP Act (DESI, 2024). The Surface Water Management Plan will provide information to support (if necessary) an evaluation of the potential impacts of releases of contaminants into wetlands and waterways (both ephemeral and permanent), including impacts on aquatic species, aquatic habitats, and species that rely upon the receiving environment as a water source. As a minimum the Plan will establish: ° A description of the Project and construction activities of relevance to surface water quality; ° A description of the receiving waters; ° Water quality indicators (chemistry, turbidity, temperature, turbidity, electroconductivity) as specified in the Water Quality Guidelines; ° Management strategies and mitigation measures proposed to satisfy the performance criteria and achieve the surface water environmental outcomes; ° Monitoring details such as locations of monitoring sites, sampling frequency and timing having regard to seasonal variations, sampling methods and analysis of results; ° Spill prevention measures, as well as spill response procedures (should an accidental discharge take place); ° Spill management and discharge permitting system to reduce the risk of accidental discharge from site; ° Compliance and corrective action requirements; and ° Reporting requirements and schedule. ° The Surface Water Monitoring Framework (see Chapter 13: Surface Water) will consider, where appropriate, aligning with the in-stream monitoring program. The in-stream monitoring program is to be developed for the purposes of monitoring impacts to riparian vegetation, aquatic fauna and habitats. It will be developed through the detailed design process to inform engineering design and management measures to be used at proposed waterway crossing activities during construction.
	• Stormwater controls, such as scour protection, will be developed and incorporated where necessary in accordance with the Project's flooding and geomorphology mitigation framework to manage impacts to the surrounding environment including water quality of wetlands and waterways and subsequent impacts to aquatic and terrestrial species that rely upon receiving environments a a source of water. Measures will be appropriate to the site conditions, responding to the erosion risk assessment, environmental receptors, climatic zone, and seasonal factors.
	• Refuelling will only occur at designated locations within the Project footprint and sited at suitable separation distances from ecological values, including surface water features and drainage lines. These refuelling locations will be equipped with on-site chemical and hydrocarbon absorbent socks/booms, spill kits and bunded as appropriate.
	• Where the dewatering of excavations (e.g., trenches, pier holes, etc.) is required, water will need to meet the established water quality objectives for receiving waterways before being released/discharged into local waterways. This will be managed in accordance with applicable guidelines and standards.
Invasion of aquatic weeds and pest species	• If dewatering of existing storages is required, dewatering strategies will be required to comply with the Biosecurity Act to take reasonable measures to avoid the spread of pest species, for example, screening of pump intake.

6.2 MITIGATION MEASURES DURING OPERATIONS

TABLE 6-2 PROJECT IMPACT MITIGATION MEASURES DURING OPERATIONS

Aspect	Mitigation and management measures
Fauna injury or mortality	• ARTC will provide a communication mechanism for members of the public to notify ARTC of issues, including concerns regarding fauna injury or mortality, and pest animals.
	• Fauna exclusion fencing, fence escape mechanisms, connectivity structures and adjoining fauna furniture and vegetation within the rail corridor will be inspected and maintained in accordance with the Wildlife Connectivity Plan to retain integrity and reduce the likelihood of interaction between trains and fauna species
	• Vegetation maintenance on the habitat side of the fauna exclusion fencing will be required to maintain a clearance zone such that species cannot use vegetation to climb onto the exclusion fencing, in accordance with the Wildlife Connectivity Plan.

	• The rail corridor will be inspected for trapped fauna during standard operational maintenance, in accordance with ARTC's rail corridor maintenance procedures and policies.
	  ◦ When an animal is detected within the rail corridor, if possible and safe to do so, the animal will be encouraged towards a fauna escape ramp, other escape mechanism or fence end, whichever is closest and provides a safe exit from the corridor.
	  ◦ Where required, a suitably qualified wildlife carer/handler will be engaged to remove trapped fauna and a health assessment will be undertaken by a wildlife veterinarian.
	  ◦ Information on the likely location of fauna breach of the fence will be used inform potential further measures to be applied to minimise/eliminate the risk of future incidents.

	• All fauna detected within the rail corridor including healthy, injured, sick or dead fauna will be recorded and reported in the operations fauna management and incident register.
	• Injured or sick fauna as assessed by a wildlife veterinarian must be handed over to appropriate wildlife carer personnel or veterinary clinic in accordance with the Fauna Management Plan.
	• Permanent boundary fencing will be inspected and maintained as part of standard operational maintenance, in accordance with the ARTC's rail corridor maintenance procedures and policies to maintain integrity and reduce the likelihood of fauna entanglement.
	• Rail maintenance access roads will be speed limited to no more than 40 km/hr to reduce the risk of vehicle strike.

Aspect	Mitigation and management measures
Introduction and spread of weeds, pathogens and pest species	• A Biosecurity Management Plan will be developed in accordance with the requirements of the *Biosecurity Act 2014* (QLD), GRC and TRC biosecurity plans and *ARTC operation and maintenance procedures and policies*, as part of the Operational EMP and implemented. This plan will be based on relevant weed and pest listing advice and will include the following: ° Identification, locations and procedures for vehicle wash down, requirements for operational surveys to determine current risks of weeds or pest animals and appropriate weed management procedures. ° Maps of the existing extent, confirmed through surveys, and severity of weed infestation (e.g. restricted matters and Weeds of National Significance) and weed management requirements. ° Pest animal management controls. ° Site hygiene and waste management procedures to deter pest animals. ° Weed surveillance and treatment during maintenance activities. ° Requirements in relation to pesticide and herbicide use, including any limitations on use. Restrictions may apply in proximity to watercourses, known areas of MNES or MSES receptors and habitat, or land uses sensitive to spray-drift from the application of pesticides and herbicides. ° Erosion and sediment control risks associated with broad-scale weed removal or treatment.
	• A predator monitor and control program will be developed as a component of the Wildlife Connectivity Plan to assess the abundance and use of crossing structures by predators that may reduce usage rates by target species. The program will be implemented for up to five years or until the habitat has been restored to a level that provides threatened fauna with protection from predators.
Habitat fragmentation	• The post construction monitoring, evaluation and reporting program will be developed and detailed the Wildlife Connectivity Plan and will include mmonitoring of target fauna movements at crossing to assess the success of the fauna connectivity measures and crossing structures at managing fauna train strike risk and managing connectivity.
Lighting	• Lighting associated with operation of the Project including from rollingstock and static infrastructure such as safety lighting at road-rail interfaces will be maintained in accordance with the Wildlife Lighting Management Plan to consider and manage impacts of artificial light on wildlife in accordance with the approach, monitoring and reporting detailed in the National Light Pollution Guidelines for Wildlife (DCCEEW, 2023).
Aquatic habitat degradation	• Maintenance activities within or adjacent to watercourses will be conducted in accordance with r*iverine protection permit exemption requirements* (WSS/2013/726) or conditions of a riverine protection permit issued for the Project.
Waterway barrier effects	• *Works will be conducted in accordance with the Accepted development requirements for operational work that is constructing or raising waterway barrier works* (DAF, 2018) or conditions of development approval for operational work that is constructing or raising waterway barrier works.
	• Drainage infrastructure that provides for the flow of watercourses would be inspected and maintained in accordance with ARTC's standard operating procedures to address any issues that may contribute to the blockage of fish passage

6.3 MITIGATION MEASURES SPECIFIC TO MNES AND MSES FAUNA

Table 6-3 outlines the proposed mitigation measures that are specific to an MNES protected matter, which are to be implemented in addition to the standard measures outlined above.

TABLE 6-3 PROJECT IMPACT MITIGATION MEASURES SPECIFIC TO MNES FAUNA

Aspect	Mitigation and management measures
Pre-construction and construction	
Murray cod (*Maccullochella peelii*)	• Construction activities to avoid/minimise instream works and associated riparian habitat in identified Murray cod habitat, where practicable.
	• Construction works will, where practicable, take place outside of the wet season when low flows in floodplain systems are more likely and potential impacts to Murray cod habitat can be reduced (e.g. erosion and sedimentation impacts to water quality, and barriers to fish passage).
	• High-risk construction activities will not be carried out in known Murray cod habitat during the Murray cod spawning period between September and November (inclusive), unless otherwise agreed by Queensland Department of Agriculture and Fisheries (DAF). High-risk construction activities are defined as: ◦ piling within the waterway and within the bed and banks; ◦ construction and/or removal of temporary work platforms within the waterway; ◦ installation and removal of temporary waterway crossings; and ◦ high noise impact noise generating construction activities, including construction of foundations and piers.
	• Consider alternative construction methodologies to driven piling (i.e. bored piles with a screw in casing) in Murray cod habitat to avoid the potential for impacts associated with noise.
	• Where a temporary impoundment or diversion is required for construction purposes and the species is found to be present, an appropriately qualified person will be consulted to make an assessment on the method of recovery, transport and release of fish and will follow relevant State (DAF) fish salvage guidelines during construction activities.
	• Where possible, instream habitat will be reinstated to pre-construction state immediately upstream and downstream of bridges (e.g. replacement of large woody debris to provide no or limited change to instream flows and allow fish passage).
	• Prior to construction, beneficial aquatic habitat for Murray cod is to be provided within one kilometre upstream of the bridge crossing of the MacIntyre River. The beneficial aquatic habitat must be placed on the northern bank of the MacIntyre River within QLD and must include the placement of woody debris (snags) to provide Murray cod breeding habitat. Prior to the commencement of these habitat improvement works, consultation must be undertaken with DAF on the location, type and timing of Murray cod habitat improvement works.
South-eastern long-eared bat (*Nyctophilus corbeni*)	• Undertake pre-clearance surveys for south-eastern long-eared bat and retrieval of tree hollows, where safe to do so, prior to vegetation clearing allowing for inspections for denning or roosting for the south-eastern long-eared bat. Allow safe daytime storage of roosting bats and evening release of individuals. This will be undertaken by a

Aspect	Mitigation and management measures
	Fauna Spotter Catcher who is trained and experienced in the safe and appropriate handling and relocation of bats.
Koala (*Phascolarctos cinereus*)	• Implementation of the Koala Management Plan, including the following: ° Qualified koala specialists will undergo baseline surveys (Koala scent detection dogs, visual assessments (can include the use of drones)) to determine areas of high-koala activity and focal areas for heightened koala management. The surveys may commence up to six months prior to commencement of project works in suitable habitat areas. ° Koala-specific clearing protocols. ° Koala encounter procedures, including treating sick or injured koalas and relocation of koalas. ° Sequential clearing protocols will be undertaken in all areas where koalas have been identified, including all Koala Districts, areas with known koala records and mapped koala habitat. Sequential clearing will comply with the sequential clearing conditions provided in the Nature Conservation (Koala) Conservation Plan 2017. ° Vegetation clearing within the Project footprint in koala habitat will be carried out in a manner to minimise stress on potential individuals as much as is practicably possible (e.g. sequential clearing and minimising time of disturbance to animals). Where practicable, clearing activities will take place outside the breeding season for koala (October-May).
	• The CEMP Biosecurity Management Plan will include reference to relevant guidelines to control potential deleterious pathogens including *Phytophthora cinnamomi* and Myrtle rust (e.g. DoE, 2015f) associated with Project activities both of which may impact eucalypt species and therefore koala.
	• The CEMP Biosecurity Management Plan will detail necessary measures accordingly for diseases in relation to koala retrovirus and the pathogen *Chlamydia pecorum* including: ○ Handling and assessing of koalas for chlamydia by experienced personnel, those with suspected infection to be sent to veterinarians/wildlife carers for treatment prior to release, and ○ Monitoring for indirect impacts associated with reduced animal health contributing to increased occurrence of disease. This should include liaising with site personnel and the community for knowledge on 'sick' koala incidences.
	• Rehabilitation of temporary construction areas where woodland habitat has been cleared (depending on agreement with the landowner). Revegetation plant species will be obtained from a reliable source that is certified free of pathogens and should include some locally important koala tree species, such as *Eucalyptus amplifolia subsp. sessiliflora*, *E. tereticornis*, *E. chloroclada, E. melliodora*, *E. camaldulensis*, *E. crebra*, *E. fibrosa*, *E. melanophloia*, *E. orgadophila*, and *E. populnea*. Plantings of these species in temporary construction areas near crossing structures targeted for koalas may assist in encouraging use of structures.
Grey-headed flying-fox (*Pteropus poliocephalus*)	• Surveys during detailed design of riparian habitat. The surveys will identify whether camps occur within or near to the Project footprint including the known flying-fox roost site in Inglewood (3 km south of Project).
	• Should a roost site be found to occur, the Project will comply with the mitigation standards detailed in the Commonwealth's Referral

Aspect	Mitigation and management measures
	guideline for management actions in grey-headed and spectacled flying-fox camps (DoE, 2015b).

Table 6-4 outlines proposed mitigation measures that are specific to MSES, which are to be implemented in addition to the standard measures outlined above.

TABLE 6-4 PROPOSED MITIGATION MEASURES SPECIFIC TO MATTERS OF STATE ENVIRONMENTAL SIGNIFICANCE

SLC	Receptor-specific mitigation and management measures
Pre-construction and construction	
Aquatic SLC species: Platypus (*Ornithorhynchus anatinus*)	• Construction activities scheduled to avoid/minimise instream works and associated riparian habitat in identified habitat, where possible.
	• Construction works will, where possible, take place outside of the wet season when low flows in floodplain systems are more likely and potential impacts to platypus habitat can be reduced (e.g. erosion and sedimentation impacts to water quality).
	• Where a temporary impoundment or diversion is required for construction purposes and the species is found to be present, an appropriately qualified person will be consulted to make an assessment on the requirement for a species management program, should breeding places (i.e. burrows) be present.
	• Where possible, instream habitat will be reinstated to pre-construction state immediately upstream and downstream of bridges (e.g. replacement of large woody debris and excavated substrate to provide no or limited change to instream flows and passage).
	• No high noise impact generating construction activities, including construction of foundations and piers, to be undertaken in known platypus habitat during breeding/spawning periods (August to September, inclusive).
	• Consider alternative construction methodologies to driven piling (i.e. bored piles with a screw in casing) in platypus habitat to avoid the potential for impacts associated with noise.

6.4 MONITORING, PERFORMANCE CRITERIA AND CORRECTIVE ACTIONS

6.4.1 MONITORING

ARTC will monitor the effectiveness of the proposed mitigation measures for up to five years following commencement of operations or as deemed appropriate for specific measures. An adaptive management framework will facilitate change and improvement to the management strategies where the objectives of the proposed measures are not met.

Where monitoring and auditing determines that the existing management measures are not effective, corrective and preventative measures will be developed and implemented as soon as practicable. The following fauna (and fauna habitat) monitoring will be undertaken during the pre-construction and construction stage of the Project:

- Daily inspections of the extent of works to ensure management action compliance including pre-start inspections of site demarcations and clearing extents, and any excavations.
- Monitoring of construction site lighting in accordance with the requirements of the Wildlife Lighting Management Plan.
- Monitoring in accordance with the requirements of any other relevant management plans including:
  - Any secondary approvals including Species Management Programs;
  - The KMP; and
  - The Biosecurity Management Plan as component of the CEMP.

The following fauna (and fauna habitat) specific surveys and follow-up monitoring will be conducted during the operation stage of the Project:

- Koala population monitoring to continue through the operation stage, in accordance with the timeframes established in the final Koala Management Plan, to collect data on individual animal movements, as well as to understand population genetics post construction. Koala population monitoring to also include records of road and rail injuries and mortalities, including number and location of koala-vehicle strikes.
- Success of rehabilitation and/or reinstatement to be monitored over the initial stabilisation period, in accordance with the timeframes established in the Rehabilitation and Landscaping Management Plan.
- Weed monitoring within the rail corridor will be conducted in accordance with ARTC's rail corridor maintenance procedures and policies and the Outline EMP.
- Evidence of fauna incursions into the fenced rail corridor will be recorded and investigated, including wildlife-train collisions.
- Should MNES (or their habitat) be retained within the Project footprint, annual monitoring will be undertaken against the initial BioCondition assessment. Corrective actions to be implemented where Project-associated impacts are identified.
- A monitoring program to assess the abundance and use of crossing structures by predators that may reduce usage rates by target species will be undertaken in accordance with the Wildlife Connectivity Plan. A predator control program will be undertaken at crossing structures within priority connectivity zones for up to five years or until the habitat has been restored to a level that provides threatened fauna with protection from predators.
- The fauna crossing structures and wildlife populations on either side of the Project will be monitored where practicable before construction, during construction and after construction to determine their level of effectiveness in maintaining ecological connectivity, avoiding risk to ecological function due to habitat fragmentation and minimising the risk of injury and mortality of fauna from wildlife-train collisions. Preliminary SMART mitigation goals and survey methods to evaluate the effectiveness of the crossing structures are outlined in Table 6.5 as per the Fauna Connectivity Strategy. These will be finalised and detailed in the Wildlife Connectivity Plan, the monitoring, evaluation and reporting (MER) and the wild dog predation monitoring program.
- Noise and vibration monitoring at fauna crossing structures may be considered if monitoring of structures indicates the level of effectiveness of the structures is inadequate to determine whether levels may be a deterrent for utilisation, particularly within areas of

known wildlife corridors. This will be used to determine behavioural responses of fauna to train pass-bys and inform potential modifications to structures should noise or vibration from train pass-bys be identified as discouraging use of the structures by wildlife.

TABLE 6.5 PRELIMINARY SMART MITIGATION GOALS FOR THE TARGET SPECIES AND GUILDS[1]

Target species	SMART goals	Survey methods and study design considerations to evaluate success at achieving SMART goals
Woodland birds	• The rate of daily movement across the Project at designated bird crossing locations (i.e., under bridges and at the at-grade crossings) and elsewhere along the alignment occurs at a similar rate to movement across comparable control sites with similar gap sizes and vegetation characteristics before construction and at five years after operation. • Higher rates of daily crossing at designated bird crossing locations compared to elsewhere on the Project.	• Assessment to adopt a replicated Before-After-Control-Impact study design. • Field studies quantify the rate of movement of woodland birds across gaps in woodland cover. Study design to take into account woodland type, gap size, type of barrier (e.g., rail, powerline, farmland, etc.), and to commence prior to clearing of vegetation for Project construction. Studies to commence before construction, continue during construction and for at least five years after construction. • Targeted surveys of dead birds due to wildlife-train collisions within areas where woodland birds have been observed crossing the railway..
Spotted-tailed quoll	• Spotted-tailed quoll use the crossing structures (e.g. culverts and bridge underpasses) at five years after construction at rates in proportion to their occurrence in the landscape in the vicinity of each wildlife crossing structure. • No genetic differentiation of populations on opposite sides of the Project at 10 years post operation.	• Installing motion-triggered cameras on targeted crossing structures and in adjacent habitat to assess presence, abundance, and rate of use of crossing structures. • Use GPS or satellite tracking to assess movement of animals living in the vicinity of the Project. • If insufficient spotted-tailed quolls occur in the broader area for effective monitoring, consider using other species of small- to medium-sized ground-dwelling mammals as surrogates. • Explore DNA survey options if spotted-tailed quoll are found in proximity to the Project. Investigate feasibility of evaluating effectiveness of crossing structures using DNA sampling or tracking methods before and after construction. • Undertake mortality surveys of quolls on railway.
Gliding mammals	• Gliding mammals use the crossing structures (e.g. above-rail and below-rail canopy bridges and glider poles) at five years after construction at rates in proportion to their occurrence in the landscape in the	• Install motion-triggered cameras on targeted crossing structures and in adjacent habitat to assess presence, abundance, and rate of use of crossing structures.

Target species	SMART goals	Survey methods and study design considerations to evaluate success at achieving SMART goals
	vicinity of each wildlife crossing structure. • No genetic differentiation of populations on opposite sides of the Project at 10 years post operation.	• If insufficient greater gliders in area for effective monitoring, use other species of glider and/or possums as surrogates. • Explore DNA survey options if greater gliders are found during field assessment in proximity to rail. Investigate feasibility of evaluating effectiveness of crossing structures using DNA sampling or tracking methods before and after construction. • Undertake mortality surveys of greater glider on railway.
Woodland reptiles, cracking-clay reptiles, Condamine earless dragon	• Target reptile species are present in habitat within Project footprint leading to the crossing structures at five years after construction. • Target species use crossing structures (e.g. culverts and bridge underpasses) at five years after construction for dispersal at rates in proportion to their occurrence in the landscape in the vicinity of each crossing structure.	• Undertake surveys of target species in habitats adjacent to crossing structures and in habitats away from the railway. • Use capture-mark-recapture methods, sensitive cameras and/or other techniques to detect reptiles using the crossing structures.
Brigalow woodland snail	• Brigalow woodland snail are present in habitat within Project footprint leading to snail crossing structures at five years after construction. • Brigalow woodland snails use the crossing structures (e.g. culverts and bridge underpasses) at five years after construction for dispersal at rates in proportion to their occurrence in the landscape in the vicinity of each crossing structure.	• Undertake surveys of target species in habitats adjacent to crossing structures and in habitats away from the railway. • Use capture-mark-recapture methods and/or other techniques to detect snails using the crossing structures. • If insufficient brigalow woodland snails occur in the area for effective monitoring, use other species of snail as surrogates. • Undertake genetic studies to measure gene flow.
Koala	• The movement of koalas around and across the railway will reach pre-construction levels within five years of opening to train movements. • Koalas use the crossing structures (e.g. culverts and bridge underpasses) at five years after construction for daily movements and dispersal at rates in proportion to their occurrence in the landscape in the vicinity of each crossing structure. • Sufficient gene flow across the Project within 10 years of operation that ensures no genetic differentiation of populations on opposite sides due to the Project.	• The movement of individual koalas will be assessed using GPS tracking using same methods as currently employed by the University of Southern Queensland. • Ongoing collection and analysis of koala DNA samples from adjacent and broader areas from the Project and an analysis of gene flow at five-yearly intervals for 20 years. Koala DNA samples to be collected from a range of sources, including scat samples, tissue biopsies to be collected as part of ongoing research sponsored by ARTC, roadkill animals, rescued animals, etc. • The use of targeted crossing structures by koala is measured using

Target species	SMART goals	Survey methods and study design considerations to evaluate success at achieving SMART goals
		camera traps and tracking of koalas in vicinity of the Project. • Mortality of koalas to be measured from train driver reporting, tracking results and targeted wildlife-train collision surveys conducted during and after construction.
Murray cod	• No reduction in cross-rail movement within 12 months of construction. • Murray cod use bridge underpasses for daily movements and dispersal at rates in proportion to their occurrence in the landscape in the vicinity of each bridge structure. • Murray cod present in waterways upstream and downstream of each bridge. • No genetic differentiation of populations on opposite sides of the Project at five years post operation.	• Investigate feasibility of eDNA and other genetic sampling techniques to assess presence of Murray cod in waterways and to measure changes in population structure across the Project. • The rate of use of crossing structures by Murray cod is in proportion to their occurrence in the adjacent area. • Use surrogate fish species if Murray cod occur at low densities and are unable to be effectively studied.

[1] Table source: Revised draft EIS Appendix P: Fauna Connectivity Strategy (WSP, 2024).

The *Terrestrial Vertebrate Fauna Survey Assessment Guidelines for Queensland* (Eyre et al., 2014) will be referenced when planning fauna surveys. Table 6-6 also outlines the MNES and MSES species-specific EPBC and NC Act guidelines and standards (including relevant approved conservation advice, recovery plans, management plans) that are relevant to potential ongoing habitat monitoring during construction and operation phases of the Project.

TABLE 6-6 MNES AND MSES SPECIES-SPECIFIC HABITAT MONITORING GUIDELINES AND STANDARDS

Species	MNES Guidelines	MSES Guidelines
MNES		
Birds		
Regent honeyeater (*Anthochaera Phrygia*)	• Survey Guidelines for Australia's Threatened Birds (DEWHA, 2010)	-
Australasian bittern (*Botaurus poiciloptilus)*	• National Recovery Plan for the Australasian Bittern (*Botaurus poiciloptilus*) (DCCEEW, 2022a) • Survey Guidelines for Australia's Threatened Birds (DEWHA, 2010)	-
Curlew sandpiper (*Calidris ferruginea*)	• Industry guidelines for avoiding, assessing and mitigating impacts on EPBC Act listed migratory shorebird species (DEE, 2017)	

Species	MNES Guidelines	MSES Guidelines
Squatter pigeon (southern) (*Geophaps scripta scripta*)	• Survey Guidelines for Australia's Threatened Birds (DEWHA, 2010)	-
Painted honeyeater (*Grantiella picta*)	-	• Painted honeyeater *Grantiella picta.* Targeted species survey guidelines (Rowland, 2012a)
Swift parrot (*Lathamus discolor*)	• Survey Guidelines for Australia's Threatened Birds (DEWHA, 2010) • National Recovery Plan for the Swift Parrot (*Lathamus discolor*) (CoA, 2019)	-
Australian painted snipe (*Rostratula australis*)	• Approved Conservation Advice for *Rostratula australis* (Australian Painted Snipe) (DSEWPC, 2013) • National Recovery Plan for the Australian Painted Snipe (*Rostratula australis*) (DCCEEW, 2022) • Survey Guidelines for Australia's Threatened Birds (DEWHA, 2010)	-
Mammals		
Spotted-tailed quoll (southeastern mainland population) (*Dasyurus maculatus maculatus)*	• Survey guidelines for Australia's threatened mammals (DSEWPC, 2011)	-
South-eastern long-eared bat (*Nyctophilus corbeni)*	• Survey Guidelines for Australia's Threatened Bats (DEWHA, 2010a)	-
Greater glider (southern and central) (*Petauroides volans*)		• Guide to greater glider habitat in Queensland (Eyre et al., 2022a)
Koala (*Phascolarctos cinereus*)	• National Recovery Plan for the Koala *Phascolarctos cinereus* (combined populations of Queensland, New South Wales and the Australian Capital Territory) (DAWE, 2022) • A review of koala habitat assessment criteria and methods (Youngentob et al., 2021) • Refer to the revised draft EIS Appendix M: Draft Koala management Plan	
Grey-headed flying-fox (*Pteropus poliocephalus)*	• National Recovery Plan for the Grey-headed Flying-fox *Pteropus poliocephalus* (DAWE, 2021) • Survey Guidelines for Australia's Threatened Bats (DEWHA, 2010a)	-

Species	MNES Guidelines	MSES Guidelines
Reptiles		
Five-clawed worm-skink *(Anomalopus mackayi)*	• Survey guidelines for Australia's threatened reptiles (DSEWPC, 2011a) • Draft referral guidelines for the nationally listed Brigalow Belt reptiles (DCCEEW, 2023) • Advice will also be sought from researchers at the University of Southern Queensland, following ongoing surveys for the Project	-
Collared delma (*Delma torquata*)	• Survey guidelines for Australia's threatened reptiles (DSEWPC, 2011a) • Draft referral guidelines for the nationally listed Brigalow Belt reptiles (DCCEEW, 2023) • Advice will also be sought from researchers at the University of Southern Queensland, following ongoing surveys for the Project	-
Yakka skink (*Egernia rugosa*)	• Survey guidelines for Australia's threatened reptiles (DSEWPC, 2011a) • Draft referral guidelines for the nationally listed Brigalow Belt reptiles (DCCEEW, 2023) • Advice will also be sought from researchers at the University of Southern Queensland, following ongoing surveys for the Project	-
Dunmall's snake *(Furina dunmalli)*	• Survey guidelines for Australia's threatened reptiles (DSEWPC, 2011a) • Draft referral guidelines for the nationally listed Brigalow Belt reptiles (DCCEEW, 2023) • Advice will also be sought from researchers at the University of Southern Queensland, following ongoing surveys for the Project	-
Condamine earless dragon (*Tympanocryptis condaminensis)*	• Survey guidelines for Australia's threatened reptiles (DSEWPC, 2011a) • National Recovery Plan (Robertson & Evans, 2009/2012) • Advice will also be sought from researchers at the University of Southern Queensland, following ongoing surveys for the Project	
Fish		

Species	MNES Guidelines	MSES Guidelines
Murray Cod (*Maccullochella peelii)*	• Survey guidelines for Australia's threatened fish (DSEWPC, 2011a)	-
Invertebrates		
Brigalow woodland snail (*Adclarkia cameroni)*	• Conservation Advice *Adclarkia cameroni* brigalow woodland snail (TSSC, 2016) • Expert advice will also be sought from Craig Eddie	-
MSES		
Birds		
Southern whiteface *(Aphelocephala leucopsis)*	• Survey guidelines for Australia's threatened birds (DEWHA 2010)	-
Glossy black cockatoo (south-eastern) (*Calyptorhynchus lathami lathami)*	• Survey Guidelines for Australia's Threatened Birds (DEWHA, 2010)	• Glossy black-cockatoo, *Calyptorhynchus lathami.* Targeted species survey guidelines (Hourigan, 2012)
Brown treecreeper (south-eastern) *(Climacteris picumnus victoriae)*	• Survey Guidelines for Australia's Threatened Birds (DEWHA, 2010)	-
White-throated needletail *(Hirundapus caudacutus)*	• Referral guideline for 14 birds listed as migratory species under the EPBC Act (DoE, 2015) • Species Prolife and Threats Database *Hirundapus caudacutus* – White throated needletail (DCCEEW, 2024a)	-
Diamond firetail *(Stagonopleura guttata)*	• Survey Guidelines for Australia's Threatened Birds (DEWHA, 2010)	-
Fork-tailed swift *(Apus pacificus)*	• Draft referral guideline for 14 birds listed as migratory species under the EPBC Act (DoE, 2015)	-
Sharp-tailed sandpiper *(Calidris acuminata)*	• Industry guidelines for avoiding, assessing and mitigating impacts on EPBC Act listed migratory shorebird species (DEE, 2017)	-
Latham's snipe *(Gallinago hardwickii)*	• Industry guidelines for avoiding, assessing and mitigating impacts on EPBC Act listed migratory shorebird species (DEE, 2017)	-
Satin flycatcher *(Myiagra cyanoleuca)*	• Draft referral guideline for 14 birds listed as migratory species under the EPBC Act (DoE, 2015)	-

Species	MNES Guidelines	MSES Guidelines
Glossy ibis *(Plegadis falcinellus)*	• There are no survey guidelines for glossy ibis, however the survey methods outlined in the Industry guidelines for avoiding, assessing and mitigating impacts on EPBC Act listed migratory shorebird species (DEE, 2017) will be used in lieu of more species-specific information	-
Rufous fantail *(Rhipidura rufifrons)*	• Draft referral guideline for 14 birds listed as migratory species under the EPBC Act (DoE, 2015)	-
Common greenshank *(Tringa nebularia)*	• Industry guidelines for avoiding, assessing and mitigating impacts on EPBC Act listed migratory shorebird species (DEE, 2017)	-
Mammals		
Yellow-bellied glider (south-eastern) (*Petaurus australis australis*)	• Conservation Advice for *Petaurus australis australis* (yellow-bellied glider (south-eastern)) (DAWE, 2022)	• Terrestrial vertebrate fauna survey guidelines for Queensland (Eyre et al. 2022b)
Platypus *(Ornithorhynchus anatinus)*	-	• Terrestrial vertebrate fauna survey guidelines for Queensland (Eyre et al. 2022b)
Short-beaked echidna *(Tachyglossus aculeatus)*	-	• There are no survey guidelines for short-beaked echidna, however the survey methods outlined in the Terrestrial vertebrate fauna survey guidelines for Queensland (Eyre et al. 2022b) will be used in lieu of more species-specific information
Reptiles		
Common death adder *(Acanthophis antarcticus)*	-	• Common death adder, *Acanthophis antarcticus.* Targeted species survey guidelines (Rowland and Ferguson, 2012)
Grey snake *(Hemiaspis damelii)*	• Conservation Advice for *Hemiaspis damelii* (grey snake) (DCCEEW, 2022)	• Grey snake, *Hemiaspis damelii.* Targeted species survey guidelines (Rowland, 2012b)

6.4.2 PERFORMANCE CRITERIA AND CORRECTIVE ACTIONS

Performance criteria have been established for each stage of the Project (Pre-construction and Construction, and Operation) to evaluate the effectiveness of the proposed mitigation and management measures (Table 6-7). Corrective actions and their triggers have also been defined in order to ensure that performance criteria are achieved.

TABLE 6-7 PERFORMANCE CRITERIA, TRIGGERS FOR CORRECTIVE ACTIONS AND CORRECTIVE ACTIONS.

Aspect	Performance indicator	Trigger for corrective action	Corrective actions
Pre-construction and construction			
Habitat loss through clearing	Clearing extents / boundaries and no-go areas always clearly demarcated prior to construction activities.	Demarcation not signed off and approved.	• Delay works until undertaken.
	Construction exclusion fencing always erected prior to clearing works and maintained for the life of the construction stage of the Project.	Construction fencing not signed off and approved.	• Delay works until undertaken.
	Pre-clearance surveys, conducted by a qualified Fauna Spotter Catcher, always implemented prior to vegetation/habitat clearing.	Pre-clearance survey report not submitted and approved.	• Delay works until undertaken.
	Construction schedule prepared in consideration of sensitive areas (e.g., minimising work during the breeding period of threatened fauna within known habitat).	Pre-clearance survey report not submitted and approved.	• Delay works until undertaken.
	No clearing for the Project occurs outside the Project disturbance limits.	A breach in the exclusion fencing by construction activities.	• Stop construction activities in area. • Conduct revegetation in areas, if required. • Repair fencing breach and monitor breached area as per the requirements of the Rehabilitation and Landscaping Management Plan. • Review of sign off/approval process of construction exclusion fencing and demarcation of clearing extents to avoid reoccurrences.

Aspect	Performance indicator	Trigger for corrective action	Corrective actions
Fauna species injury or mortality	A Fauna Spotter Catcher always supervises clearing of remnant and regrowth vegetation, as well as areas containing breeding habitat.	• Area that had a pre-clearance survey did not have a post clearance Fauna Spotter Catcher report submitted. • Fauna encountered without Fauna Spotter Catcher being present.	• Stop construction activities in area. • Review of sign off/approval process of pre-clearance reporting. • Review of process for engaging a Fauna Spotter Catcher. • Construction activities delayed until a Fauna Spotter Catcher arrives and assesses the site.
	Unexpected finds reported according to the Protected Matters unexpected finds procedure.	Unexpected MNES/MSES not reported according to the unexpected finds procedure.	• Stop construction activities in the area. • Implement unexpected finds procedure.
	No impacts to fauna requiring mandated reporting to Commonwealth or State agencies.	• Injury or mortality of MNES/MSES fauna recorded in post clearance Fauna Spotter Catcher report and/or fauna management and incident register. • Increased incidence of injury/mortality recorded in post clearance Fauna Spotter Catcher reports and/or fauna management and incident register.	• Stop construction activities in the area. • Review instances of injury/morality of fauna to determine the activities that are causing the most incidents. • Review pre-clearing and clearing procedures in consultation with Fauna Spotter Catcher and Project Ecologist. • Implement outcomes of the review process prior to recommencing construction activities.
Introduction and spread of weeds, pathogens and pest species	No new weeds introduced inside the Project footprint.	• New weeds recorded during pre-clearance surveys. • New weeds recorded during regular monitoring of the Project footprint. • New weeds recorded during implementation of the Rehabilitation and Landscaping Management Plan.	• Review Biosecurity Management Plan to determine whether current mitigation measures are adequate, particularly procedures for site and vehicle hygiene. • Review Soil Management Plan to determine whether current mitigation measures are adequate, particularly procedures for stockpiling and management of topsoil. • Undertake treatment of new weeds as required.

Aspect	Performance indicator	Trigger for corrective action	Corrective actions
			• Review of worker training to ensure all Project personnel and contractors are aware of their responsibilities regarding weed surveillance.
	No increased spread of existing weeds within the Project disturbance limits.	• Spread of existing weeds recorded during regular monitoring of the Project footprint. • Spread of existing weeds recorded during implementation of the Rehabilitation and Landscaping Management Plan.	• Review Biosecurity Management Plan to determine whether current mitigation measures are adequate, particularly procedures for site and vehicle hygiene. • Review Soil Management Plan to determine whether current mitigation measures are adequate, particularly procedures for stockpiling and management of topsoil. • Implement outcomes of the review process. • Undertake treatment of weeds as required. • Review of worker training to ensure all Project personnel and contractors are aware of their responsibilities regarding weed surveillance.
	No new animal pests introduced inside the Project footprint.	• New animal pests recorded during pre-clearance surveys. • New animal pests recorded during regular monitoring of the Project footprint.	• Review Biosecurity Management Plan to determine whether current mitigation measures are adequate, particularly procedures for site and vehicle hygiene. • Undertake an investigation into the likely source of animal pest introduction, including supply of plantings used for landscaping and rehabilitation, supply of soil used as fill and waste management practices on site. • If necessary, review relevant management plans to determine whether current mitigation measures

Aspect	Performance indicator	Trigger for corrective action	Corrective actions
			are adequate, particularly procedures for management of topsoil (only where soil may have been the source of introduction, e.g., for red fire ants). • Undertake control of animal pests as required. • Review of worker training to ensure all Project personnel and contractors are aware of their responsibilities regarding site hygiene and waste management.
	Animal pests within the Project disturbance limits are appropriately managed.	• Increased sightings/instances of animal pests within the Project footprint.	• Review Biosecurity Management Plan to determine whether current mitigation measures are adequate. • Implement outcomes of the review process. • Undertake control of animal pests as required. • Review of worker training to ensure all Project personnel and contractors are aware of their responsibilities regarding site hygiene and waste management.
	No new plant or animal pathogens introduced inside the Project footprint.	• New pathogens recorded during pre-clearance surveys. • New pathogens recorded during regular monitoring of the Project footprint. • New plant pathogens recorded during implementation of the Rehabilitation and Landscaping Management Plan.	• Review Biosecurity Management Plan to determine whether current mitigation measures are adequate, particularly procedures for site and vehicle hygiene, and hygiene protocols for animal handling. • Undertake an investigation into the likely source of pathogen introduction, including supply of plantings used for landscaping and rehabilitation. • Review Rehabilitation and Landscaping Management Plan to determine whether current hygiene protocols are adequate.

Aspect	Performance indicator	Trigger for corrective action	Corrective actions
			• Undertake treatment of new pathogens, as required. • Review of worker training to ensure all Project personnel and contractors are aware of their responsibilities regarding pathogen surveillance.
	No increased spread of existing pathogens within the Project disturbance limits.	• Spread of existing pathogens recorded during regular monitoring of the Project footprint. • Spread of existing pathogens recorded during implementation of the Rehabilitation and Landscaping Management Plan.	• Review Biosecurity Management Plan to determine whether current mitigation measures are adequate, particularly procedures for site and vehicle hygiene, and hygiene protocols for animal handling. • Undertake an investigation into the likely source of pathogen dispersal, including movement of soil or plant debris used for landscaping and rehabilitation. • Review Rehabilitation and Landscaping Management Plan to determine whether current hygiene protocols are adequate. • Undertake treatment of new pathogens, as required. • Review of worker training to ensure all Project personnel and contractors are aware of their responsibilities regarding pathogen surveillance.
Connectivity	Fauna connectivity measures, such as fencing and fauna crossing structures, are installed in accordance with detailed design specifications.	Inspection of crossing structures and/or fencing by an Ecologist post installation finds faults with the installation.	• Repair/modify structures as required to address any faults with the installation. • Increase onsite supervision by Ecologist(s) during the installation process to avoid future installation errors.
Aquatic habitat degradation	No pollution or degradation recorded within aquatic ecosystems, wetlands or	Water quality monitoring records pollution/degradation of aquatic	• Follow procedure detailed in the Surface Water Management Plan.

Aspect	Performance indicator	Trigger for corrective action	Corrective actions
	vegetation communities adjacent to the Project disturbance footprint.	ecosystems, wetlands or vegetation communities adjacent to the Project disturbance footprint.	• If necessary, review Surface Water Management Plan. • Implement outcomes of the review process.
Operations			
Habitat loss through clearing	Ongoing rehabilitation and landscaping obligations completed as per Rehabilitation and Landscaping Management Plan.	Rehabilitation and landscaping obligations not completed as per Rehabilitation and Landscaping Management Plan.	• Continue and/or undertake supplementary rehabilitation activities as required according to the Rehabilitation and Landscaping Management Plan.
Fauna species injury or mortality	Wildlife-vehicle strikes (involving trains, cars or other vehicles) are rare / infrequent. No injury or death of MNES/MSES fauna recorded in fauna management and incident register due to collisions with trains or other vehicles.	• Wildlife-vehicle strikes (involving trains, cars or other vehicles) are frequent and/or occur regularly (i.e., consistent). • MNES/MSES fauna death and/or injury recorded in fauna management and incident register due to collision or suspected collision with train or other vehicle.	• Check fauna exclusion fencing for damage or faults and repair as required. • Investigate likely location of fauna egress into rail corridor and assess whether additional fauna exclusion fencing or amendments are required. • Identify the fence escape mechanisms in proximity to the incidents and assess whether additional escape mechanisms or amendments are required.
	Ongoing maintenance of fauna management and incident register completed.	Fauna management and incident register not regularly updated.	• Review of worker training to ensure all Project personnel and contractors are aware of their responsibilities regarding reporting of fauna within the rail corridor. • Implement additional training or more regular training/inductions, as required.
Introduction and spread of weeds, pathogens and pest species	Ongoing weed and pest monitoring completed within rail corridor, as per the Operational EMP Biosecurity Management Plan.	Weed and pest monitoring not undertaken as per the Operational EMP Biosecurity Management Plan.	• Immediately undertake weed and pest monitoring within the rail corridor.

Aspect	Performance indicator	Trigger for corrective action	Corrective actions
			• Review monitoring procedure to ensure monitoring takes place as required in the future.
Connectivity	Maintenance and monitoring of fencing and fauna crossing structures completed as per schedule specified within the Wildlife Connectivity Plan.	Maintenance not completed as per schedule specified within the Wildlife Connectivity Plan.	• Immediately undertake monitoring of fencing and fauna crossing structures and undertake any required maintenance as a priority. • Review monitoring procedure to ensure monitoring takes place as required in the future.
	Evidence that fauna, particularly target fauna, are successfully utilising crossing structures as specified within the Wildlife Connectivity Plan.	No evidence of fauna and/or target fauna utilising fauna crossing structures.	• Investigate crossing structures and surrounding habitat to determine whether additional fauna furniture, revegetation or maintenance is required. • Check fauna exclusion fencing leading up to crossing structures for damage or faults and repair as required. • Review monitoring methods and amend as required (e.g., increase survey effort, additional monitoring techniques).
Habitat fragmentation	Rehabilitation of the approaches of fauna crossing structures, are completed and maintained as per the Wildlife Connectivity Plan and Rehabilitation and Landscaping Management Plan.	• Inspection of crossing structures by an Ecologist post construction finds rehabilitation of fauna habitat in the approaches to the fauna crossing structures is insufficient and/or in poor condition. • Rehabilitation of the approaches of fauna crossing structures not completed as per the Wildlife Connectivity Plan and Rehabilitation and	• Consult Ecologist as to additional requirements or modifications needed. • Increase onsite supervision by Ecologist(s) during the rehabilitation process. • Continue and/or undertake supplementary rehabilitation activities as required according to the Wildlife Connectivity Plan and Rehabilitation and Landscaping Management Plan.

Aspect	Performance indicator	Trigger for corrective action	Corrective actions
		Landscaping Management Plan.	

7. AUDIT AND REVIEW

7.1 ENVIRONMENTAL AUDITING

During construction and commissioning, environmental audits will be completed to assess compliance with all applicable environmental requirements, including the imposed conditions and the CEMP. This will include internal audits (an Internal Audit Plan will be developed) and third-party independent audits. Third-party independent audits will be led by a Lead Auditor who has completed Environmental Lead Auditor training (ISO 1400:2015) and has an appropriate level of experience.

Third-party independent audits will be completed on an annual basis during the construction period and will assess compliance with any imposed conditions determined by the Coordinator-General, DCCEEW or as stated in the approval, licence and permit conditions.

Audit reports will summarise the findings of the audits and include corrective actions. The audit results, corrective actions required, and conclusions will be communicated to those responsible for implementing the corrective actions. The audit reports will be made available as required.

7.2 MANAGEMENT PLAN REVIEW

The implementation and effectiveness of the CEMP and Operational EMP Biodiversity Management Plans will be regularly evaluated to ensure:

- Compliance with legal and landholder obligations;
- Issues raised during inspections/monitoring are managed accordingly;
- Any change in the Project scope is managed and communicated;
- Changes in legislative requirements of species are communicated and management strategies are updated accordingly;
- Environmental incidents and non-compliance are being recorded;
- Management strategies are effective, relevant and up to date; and
- The Biodiversity Management Plan accurately and effectively manages the environmental issue.

The Biodiversity Management Plans will undergo six monthly evaluations during the period of construction, then annually during operation. Evaluations will ensure the Biodiversity Management Plans are continually effective in appropriately managing fauna in association with the Project.

The responsibility of carrying out the review of the Biodiversity Management Plans will be in accordance with the roles and responsibilities detailed in Section 4.1.

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