Atlas Stage 3 Gas Project

Significant Species Management Plan

22 March 2024

Project No.: 0639876

The business of sustainability

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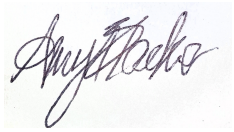
Signature Page

22 March 2024

Atlas Stage 3 Gas Project

Significant Species Management Plan

Matt Davis
Principal Ecologist



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ACRONYMS AND ABBREVIATIONS

Name	Description
ALA	Atlas of Living Australia
AS	Australian Standard
ATW	Access to Work
CCA	Conduct and Compensation Agreements
DES	Department of Environment and Science
DCCEEW	Department of Climate Change, Energy, Environment and Water
EA	Environmental Authority
EMP	Environmental Management Plan
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999*
FDA	Field Development Area
FMP	Fauna Management Plan
GDE	Groundwater Dependent Ecosystems
HSEMS	Health, Safety and Environment Management System
MNES	Matters of National Environmental Significance
MSES	Matters of State Environmental Significance
NC Act	*Nature Conservation Act 1992*
NRM	Natural Resource Management
PL	Petroleum Lease
PMST	Protected Matters Search Tool
QLD	Queensland
RE	Regional Ecosystem
SIG 1.1	Significant Impact Guidelines 1.1 - Matters of National Environmental Significance
SPRAT	Species Profile and Threats Database
SSMP	Significant Species Management Plan
TEC	Threatened Ecological Community
VMP	Vegetation Management Plan
WDRC	Western Downs Regional Council
WoNS	Weeds of National Significance

1 INTRODUCTION

1.1 Project Description

Senex, on behalf of its subsidiaries Senex Assets Pty Ltd and Senex Assets 2 Pty Ltd, proposes to develop, operate, decommission, and rehabilitate new coal seam gas (CSG) wells and associated infrastructure on Petroleum Lease (PL) 445, the northern part of PL209, Authority to Prospect (ATP) 2059 (PL(A) 1127) and parts of PL1037 in the central part of the Surat Basin, Queensland. The project is referred to as the Atlas Stage 3 Gas Project (the 'Project').

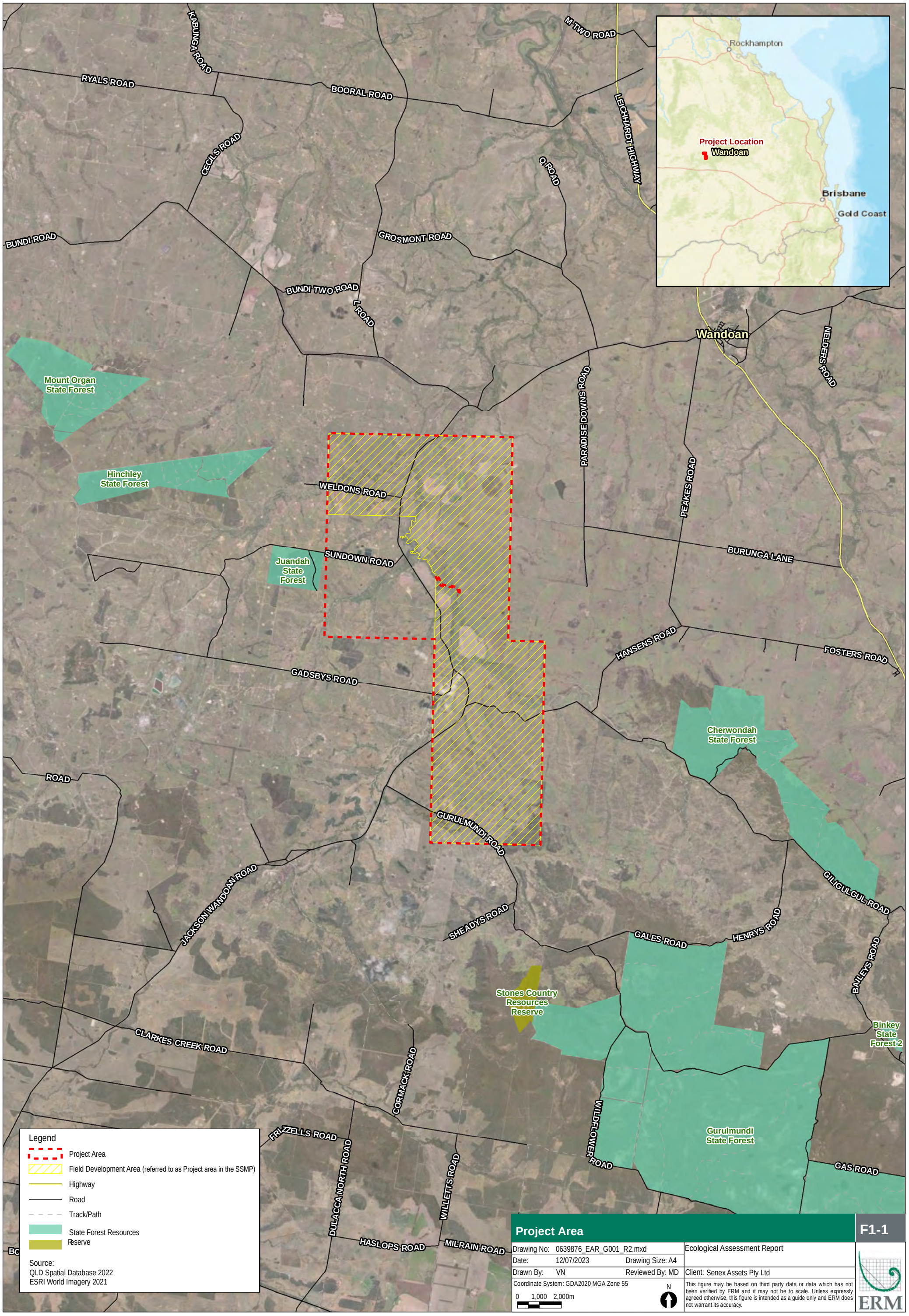
Environmental Resources Management Australia Pty Ltd (ERM) has been engaged by Senex Energy Pty Ltd (Senex) to prepare this Significant Species Management Plan (SSMP). The SSMP describes measures to be implemented during construction and operation of the Project, to mitigate and manage potential impacts to Matters of National Environmental Significance (MNES) protected under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). These MNES are prescribed under Sections 18, 18A, 20 and 20A of the EPBC Act and include Threatened Ecological Communities (TEC), listed threatened species and migratory species.

For the purposes of this SSMP, the term Project Area is the same as what is termed the Field Development Area (FDA) described in the Preliminary Documentation Summary Report. Within the 9,772 ha Project Area, will be a maximum disturbance of 530 ha. In accordance with Senex's Atlas Stage 3 Environmental Constraints Protocol for Planning and Field Development [OPS-ATLS-EN-PLN-001], that disturbance will only occur to land devoid of threatened ecological communities (TECs) and potential habitat for MNES species, however dispersal habitat for Koalas and Southern Squatter Pigeon will be unavoidably impacted.

The Project Area extends Southwest of the township of Wandoan by 10 to 25 km and can be accessed via Jackson-Wandoan Road, Gurulmundi Road, Giligulgul Road, and local roads. The Project Area is situated within the Western Downs Regional Council (WDRC) boundary, southern inland Queensland (Figure 1-1).

The Project has been designed to minimise impacts to MNES TECs and threatened species, including MNES fauna habitats. The Project will involve the development of up to 151 new gas wells and associated well site facilities, gas and water gathering systems for the producing wells, access tracks for operational purposes; brine and produced water storages, borrow pits, and ancillary supporting facilities. The gas field will be progressively developed over a period of approximately 5 – 10 years. The average maximum production rate of the Project is expected to be approximately 60 terajoules per day, although variable potential production rates may be higher at times.

A desktop and field assessment of the biodiversity values across the Project Area identified known, likely and potential presence of listed threated communities and species listed under the EPBC Act. As part of the commitments to avoiding and minimising direct and indirect impacts during construction and operation activities, Senex and its contractors will be required to manage potential impacts to threatened ecological communities and threatened and migratory species.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M TWO ROAD
RYALS ROAD
BOORAL ROAD
LEICHHARDT HIGHWAY
CECILS ROAD
Q ROAD
BUNDI ROAD
GROSMONT ROAD
BUNDI TWO ROAD
L ROAD
Wandoan
NELDERS ROAD
Mount Organ State Forest
PARADISE DOWNS ROAD
Hinchley State Forest
WELDONS ROAD
PEAKES ROAD
Juandah State Forest
SUNDOWN ROAD
BURUNGA LANE
HANSENS ROAD
FOSTERS ROAD
GADSBYS ROAD
Cherwondah State Forest
ROAD
GURULMUNDI ROAD
JACKSON WANDOAN ROAD
SHEADYS ROAD
GALES ROAD
HENRYS ROAD
GILIGULGUL ROAD
BAILEYS ROAD
Stones Country Resources Reserve
Binkey State Forest 2
CLARKES CREEK ROAD
CORMACK ROAD
WILDFLOWER ROAD
Gurulmundi State Forest
FRIZZELLS ROAD
DULACCA NORTH ROAD
WILLETTS ROAD
GAS ROAD
HASLOPS ROAD
MILRAIN ROAD
Rockhampton
Project Location
Wandoan
Brisbane
Gold Coast
Legend
Project Area
Field Development Area (referred to as Project area in the SSMP)
Highway
Road
Track/Path
State Forest Resources Reserve
Source:
QLD Spatial Database 2022
ESRI World Imagery 2021
Project Area
F1-1
Drawing No: 0639876_EAR_G001_R2.mxd
Date: 12/07/2023
Drawing Size: A4
Drawn By: VN
Reviewed By: MD
Coordinate System: GDA2020 MGA Zone 55
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Ecological Assessment Report
Client: Senex Assets Pty Ltd
This figure may be based on third party data or data which has not been verified by ERM and it may not be to scale. Unless expressly agreed otherwise, this figure is intended as a guide only and ERM does not warrant its accuracy.
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1.2 Purpose and Scope

This SSMP describes how Senex will manage potential impacts to significant communities and species associated with the proposed activities for the Project. It is an attachment to the Environmental Management Plan Atlas Stage 3 Gas Project [SENEX-ATLS-EN-PLN-015]. For the purposes of this SSMP 'significant species' are MNES species or communities that:

- Are known to be present;
- Have been assessed as likely to occur; or
- Have the potential to occur within the Project Area due to the presence of suitable habitats.

This SSMP describes:

- Significant species known, likely or potentially present within the Project Area;
- Specific requirements for managing potential impacts to significant species during pre-construction, construction, and operation phases of the Project; and
- Monitoring and reporting requirements.

1.3 Senex Environmental Management Policy

Senex is committed to conducting its operations and activities in an environmentally sound and responsible manner to minimise disturbance to the environment in which it operates by using environmental standards consistent with developments in technology, industry codes of practice and relevant statutory requirements. Senex has a Health, Safety and Environment Management System (HSEMS) that establishes a framework under which environmental management of Senex's activities takes place. It also ensures the identification of environmental impacts and that measures are in place to mitigate, measure and review impacts as well as environmental performance. Senex monitors updates to Federal and Queensland legislation and acts accordingly to keep its documentation in line with current guidance. Activities are planned to minimise disturbance to the environment.

This SSMP forms part of the environmental management procedures established within the HSEMS. Senex will incorporate the relevant management actions into procedures and plans for contractors to comply with its contents.

The following plans and procedures support the SSMP to manage potential impacts to significant species:

- Environmental Management Plan Atlas Stage 3 Gas Project [SENEX-ATLS-EN-PLN-015];
- Atlas Stage 3 Environmental Constraints Protocol for Planning and Field Development [OPS-ATLS-EN-PLN-001];
- Rehabilitation Plan Atlas Stage 3 Gas Project [SENEX-ATLS-EN-PLN-018];
- Queensland Operations Biosecurity Management Plan [SENEX-QLDS-EN-PLN-001];
- Atlas Stage 3 Water Monitoring and Management Plan [SENEX-ATLS-EN-PLN-017];
- ATP 2059 Coal Seam Gas Water Management Plan [SENEX-ATLS-EN-PLN-0013]; and
- PL 445 and PL 209 Coal Seam Gas Water Management Plan [SENEX-ATLS-EN-PLN-0014].

2 ROLES AND RESPONSIBILITIES

Senex is responsible for ongoing management of the Project's activities. All Senex employees and contractors are responsible for conforming to applicable Australian and Queensland laws and regulations, and for conducting work in accordance with permit requirements and this SSMP.

Roles and responsibilities of Senex personnel and contractors in relation to this SSMP are summarised in Table 2-1.

Table 2-1: Roles and Responsibilities for the Project

Role	Responsibilities
Senex Environmental Manager	■ Secure and manage environmental and associated approvals. ■ Overall responsibility for environmental compliance, including monitoring, data collection and reporting. ■ Report incidents to the Department of Environment and Science (DES) and other Government agencies / stakeholders. ■ Ensure resources are available to manage environmental obligations and responsibilities. ■ Ensure that all personnel are competent to perform their assigned duties and have received appropriate training and inductions. ■ Implement an environmental compliance system that includes audits and assurance to help ensure compliance with approval conditions and other regulatory requirements. ■ Maintain environmental management documentation including this SSMP and associated plans and procedures and update documents.
Senex Land Access Manager	■ Secure land access for Senex activities including land access agreements/land access rules or Conduct and Compensation Agreements (CCA) with landholders whose properties will be impacted by Senex activities. ■ Engage with landholders and liaise with Senex Site Supervisor(s) to ensure activities are undertaken in accordance with the Queensland Land Access Code 2016 and conditions of any land access agreements/land access rules or CCAs. ■ Compile and distribute Access to Work (ATW) documentation prior to commencing activities on site.
Senex Site Supervisors (Drilling, Completions, Civil Construction etc.)	■ Represent Senex on site. ■ Responsible for ensuring this SSMP and other relevant environmental procedures are implemented on site, including any site-specific requirements identified during the planning phase. ■ Ensure that Senex staff and contractors comply with regulatory requirements including all relevant Approval conditions and requirements of the ATW. ■ Induct the Contractor Site Supervisor into relevant requirements of the Environmental Authority (EA) and EPBC Act approval, SSMP and supporting plans and procedures applicable to their activities on site. ■ Ensure all site visitors are inducted appropriately. ■ Ensure toolbox and other safety talks adequately address environmental matters to be considered on site as relevant to the work being undertaken including those identified in the ATW (e.g., property-specific weed hygiene requirements).

Role	Responsibilities
	■ Ensure that the Contractor Site supervisor is resourced to adequately supervise the work being conducted on site. ■ Ensure activities do not harm or disturb cultural heritage objects or areas of significance. ■ Ensure that the requirements under any native title agreement are adhered to. Ensure compliance with landholder agreements or CCA conditions as defined in the ATW. ■ Ensure vehicle and machinery weed washdown requirements are complied with as specified in this EMP and supporting procedures and plans. ■ Empower all Project staff to stop work when the potential for environmental harm is perceived. ■ Report to the Senex Environmental Manager on environmental matters and provide all relevant reporting and monitoring documentation. ■ Report to the Land Access Manager on landholder and property matters.
Contractor Site Supervisor	■ Adequately identify and address any risks associated with the Contractor's activities prior to commencing and develop a construction methodology that has due regard for identified risks. ■ Ensure that appropriate training and inductions in the requirements of this SSMP, EA conditions and other regulatory requirements as relates to their activities have been carried out by Contractor's personnel. ■ Ensure that Contractor personnel are adequately supervised. ■ Implement this SSMP on site, including any site-specific requirements identified in Site Environmental Requirements documents, the ATW or as directed by the Senex Site Supervisor. ■ Ensure all activities are carried out in accordance with the requirements set out in the SSMP, EA conditions and as specified in other relevant documents including tender documentation and contract with Senex. ■ Immediately notify the Senex Site Supervisor of any incidents and non-compliances with the EA, this SSMP, supporting plans or procedures. ■ Report to the Senex Site Supervisor as instructed and provide all reporting and monitoring information to the Senex Site Supervisor. ■ Ensure that monitoring records are collected and retained. ■ Empower all project staff to stop work when the potential for environmental harm is perceived. ■ Implement a program of internal environmental audit against this EMP and supporting plans and procedure.

Role	Responsibilities
Contractor Personnel	■ Undertake training and induction to competently undertake activities on the Project Area. ■ Carry out all activities in compliance with this SSMP identified in planning, the ATW or as directed by the Contractor Site Supervisor and/or Senex Site Supervisor. ■ Immediately notify the Contractor Site Supervisor of any incidents and non-compliances this SSMP.
Senex Environment Team and/or Field Environment Representative	■ Assist the Senex Site Supervisor in ensuring that all petroleum activities including those undertaken by Contractors are conducted in accordance with the SSMP. ■ Promote environmental awareness amongst the workforce and hold site meetings on environmental matters. ■ Assist the Senex Site Supervisor in providing training in the form of toolbox talks and pre-works meetings on environmental matters. ■ Notify the Senex Site Supervisor and Environment Manager immediately of any environmental incidents and non–compliances from the EA conditions, the SSMP and other associated plans and procedures, and liaise with the Construction Site Supervisor to investigate and report on the incident or noncompliance. ■ Ensure that all records, environmental approvals, and permits are managed, maintained, and stored as appropriate and copies of the SSMP are available. ■ Co-ordinate implementing rehabilitation plans and programs for the Project Area. ■ Undertake monitoring in accordance with this SSMP, supporting plans and procedures and Approval conditions as directed by the Senex Environment Manager. ■ Complete Environmental Audits as directed by the Environment Manager.
Fauna Spotter / Catcher	■ Hold a valid Queensland Fauna Spotter/Catcher and Rehabilitation permit issued by DES under the *Nature Conservation Act 1992* (NC Act). ■ Responsible for the storing, transportation, and relocation of habitat features (i.e., hollows) to recipient sites. ■ Responsible for assessing the Project Area and advising when it is safe to commence clearing activities. ■ Responsible for implementing the most appropriate measures to avoid direct impacts to MNES flora and fauna. ■ Daily inspections of trenches and removal of trapped fauna.

3 KNOWN, LIKELY AND POTENTIAL LISTED THREATENED COMMUNITIES AND SPECIES

A description of the significant species that are known, likely or have the potential to occur in the Project Area, and their habitats are provided below. The information contained in this section has been developed from various sources describing the field-verified ecological values of the Project Area, including:

- Atlas Stage 3 Gas Project Terrestrial and Aquatic Ecology Assessment Report (ERM, 2023);
- Broadscale Ecological Assessment Report (BOOBOOK, 2022); and
- Ooline (*Cadellia pentastylis*) and threatened flora survey Memo (Attexo, 2023).

The likelihood of occurrence approach refines the desktop generated list using site-specific information and specific-species habitat information obtained from field surveys. Desktop sources are indicative only and likelihood rankings, particularly regarding the presence of specific habitat requirements, are conservative. The assessment ranks the likelihood of the species occurring within the Project Area through analysis of species distribution information and records in the Project Area and a 10 km buffered area of the Project Area, known as the 'Locality', as well as the presence of specific habitat attributes as identified through the desktop analysis and field surveys. The criteria applied are outlined in Table 3-1 with a copy of likelihood of occurrence provided in Appendix A.

Table 3-1: Likelihood of Occurrence Criteria

	Preferred habitat exists	Suitable habitat exists[2]	Habitat does not exist[3]
Recent[1] records within the Project Area	Known	Known	Known
Recent records in the Locality[4]	Likely	Potential	Unlikely
No records within the Locality, but the Project Area is within known distribution	Potential	Unlikely	Unlikely
No records in the Locality, and the Project Area is outside of distribution	Unlikely	Unlikely	Unlikely

1. *Recent records are those that have been recorded in the last 20 years.*
2. *Habitat may be considered suitable, but not preferred because: some desired habitat features may be present, but not all; habitat may have poor connectivity; or habitat may be known to be disturbed.*
3. *Based on sources reviewed and/or field survey results.*
4. *'Locality' refers to a 10 km^2 buffer around the Project Area and is inclusive of the Project Area.*

3.1 Threatened Ecological Communities

Field survey confirmed the presence of two listed TECs within the Project Area, which were:

- Brigalow (*Acacia harpophylla* dominant and codominant) – Endangered under the EPBC Act; and
- Poplar Box grassy woodland on alluvial plains – Critically Endangered under the EPBC Act.

Additional detail on the extent, location, and condition of these TECs within the Project Area is provided below, with maps showing the location of these TECs provided in Figure 3-1. The Project will not result in any direct impacts to any TECs, therefore, only management of indirect impacts will be considered in this SSMP.

3.1.1 Brigalow (*Acacia harpophylla* Dominant and Co-Dominant)

The field surveys conducted have confirmed 17 patches of Brigalow TEC within the Project Area, varying in size from 0.14 ha to 44.93 ha. This includes six patches of regrowth (13.0 ha) and 11 patches of remnant (82.75 ha). The Brigalow TEC (RE 11.9.5 and 11.9.5a) occurs along the rolling downs landforms that persists throughout the Project Area, with existing larger clusters around the plateau within the south. Additionally, 14 patches of Brigalow vegetation (RE 11.9.5; total 56.21 ha) had failed to meet the criteria for TEC recognition as *Acacia harpophylla* was either absent or subdominant, or with the patch being less than 0.5 ha in size, or with exotic perennial vegetation comprising at least 50% of total vegetation cover within the patch (BOOBOOK, 2022). The total ground-truthed Brigalow TEC in the Project Area is 95.8 ha and is presented on Figure 3-1.

The Conservation Advice (DoE, 2013) cites all patches that meet the key diagnostic characteristics and condition threshold, as well as the buffer zones (particularly where these are native vegetation), are considered areas critical to the survival of the community. The buffer zone is defined as the area that lies immediately outside the edge of a patch but is not part of the ecological community (DoE, 2013).

The Conservation Advice and related recovery plans and threat abatement plans (DoE, 2013) lists threats to the Brigalow TEC to include factors that may reduce extent or cause decline in condition. This includes clearing, fire, invasive flora species (such as Buffel Grass, Rhodes Grass and Green Panic Grass), pest animal disturbance (such as feral pigs, goats, cane toads, cats and foxes), and native animal disturbance (such as the noisy miner), inappropriate grazing regimes and climate change.

3.1.2 Poplar Box Grassy Woodland on Alluvial Plains

The field surveys conducted have confirmed 10 patches of Poplar Box TEC within the Project Area. All existing areas of Poplar Box TEC comprising of remnant vegetation of RE 11.3.2 which includes three patches assessed at Category B (Good Quality) and the other seven patches assessed as Category C (Moderate Quality).

Within the Project Area, the 10 patches of Poplar Box TEC vary from 0.03 ha to 9.6 ha in size, with all occurring within floodplains in the north, and some patches extending past the Project Area boundaries. Additionally, 14 patches of regrowth and remnant Poplar Box woodland along alluvial plains (RE 11.3.2) was assessed and failed to meet the criteria for TEC recognition. All but one of the non-TEC patches were smaller than 5 ha (including consideration of parts of patches that extended across the Project Area boundary) and the ground stratum of these patches were generally dominated by exotic weeds (BOOBOOK, 2022). The total Poplar Box TEC is 32.3 ha and is presented on Figure 3-1.

WELDONS ROAD
PARADISE DOWNS ROAD
BURUNGA LANE
SUNDOWN ROAD
BAKERS ROAD
Juandah State Forest
GADSBYS ROAD
JACKSON WANDOAN ROAD
GILIGULGUL ROAD
GURULMUNDI ROAD

Legend

Project Area ('Field Development Area' in the Preliminary Documentation)

TEC

Brigalow

Poplar Box grassy woodland on alluvial plains

Highway

Road

Track/Path

Source:
QLD Spatial Database 2022
ESRI World Imagery 2021

Threatened Ecological Communities within the Project Area

F3-1

Drawing No:	0639876_SSMP_G026_R0.mxd		Ecological Assessment Report
Date:	26/07/2023	Drawing Size: A4	
Drawn By:	SP	Reviewed By: MT	Client: Senex Assets Pty Ltd

Coordinate System: GDA2020 MGA Zone 55

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3.2 Listed Threatened Species

3.2.1 Listed Threatened Species Known or Likely to Occur

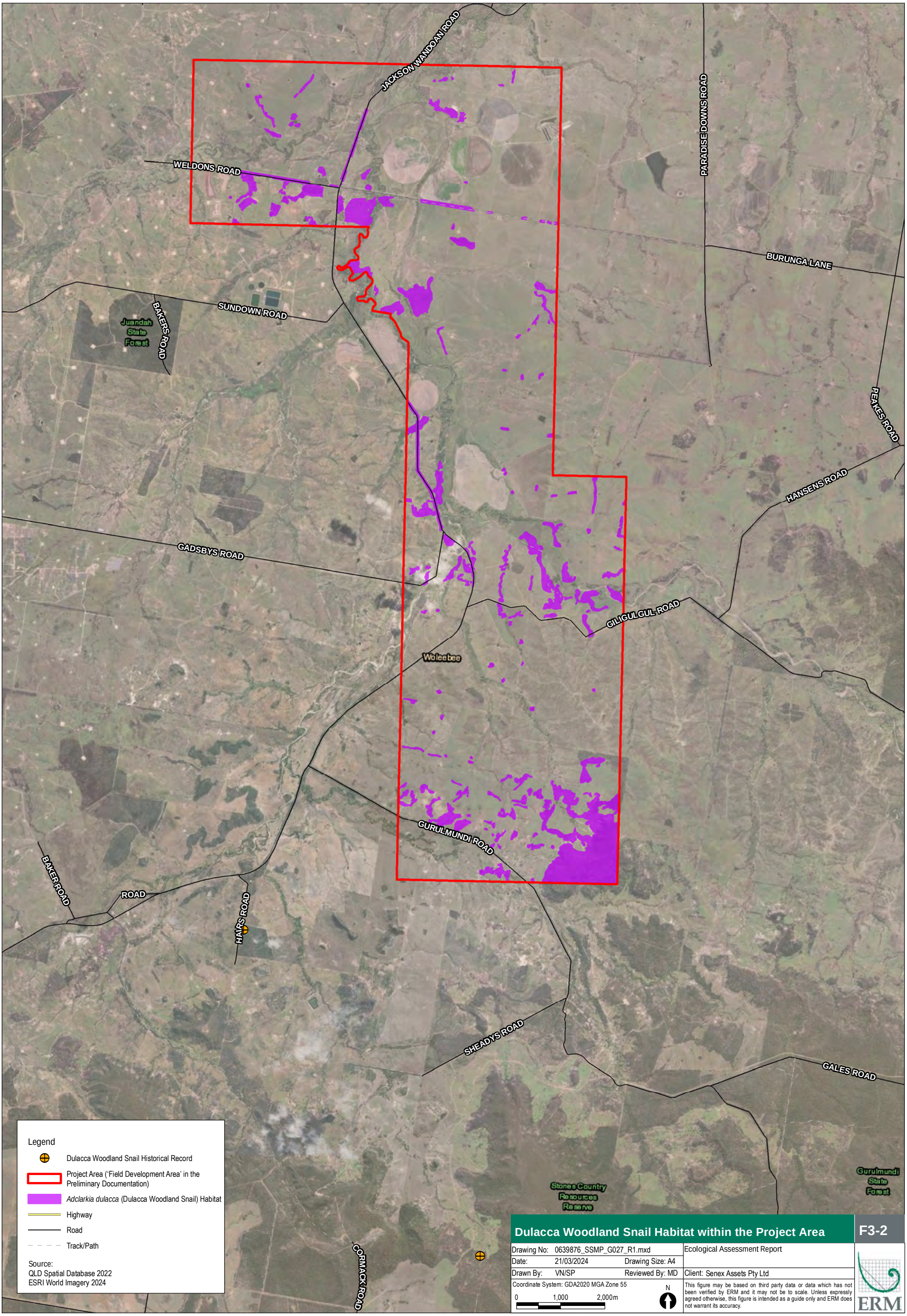
Table 3-2 below details the listed threatened species that are known or likely to occur within the Project Area (BOOBOOK, 2022 & Attexo, 2023), based on a likelihood of occurrence assessment (which included field verification of habitats). Habitat mapping for these species is provided from Figure 3-2 to Figure 3-6.

Table 3-2: EPBC Act Listed Threatened Species Known or Likely to Occur in the Project Area

Scientific Name	Common Name	EPBC Act Status	Total Habitat in Project Area	Vegetation/Habitat Group/s
Known to Occur				
Cadellia pentastylis	Ooline	Vulnerable	■ 118.7 ha of known Ooline habitat. ■ Known to occur from field survey observations.	Ooline habitat: ■ Acacia woodlands dominated by Brigalow (Acacia harpophylla). ■ Eucalypt dominated woodlands mainly of *Eucalyptus crebra, E. populnea* and *E. melanophloia*. ■ Riparian and wetland Eucalypt woodlands dominated by *E. tereticornis*. ■ Eucalypt open forest dominated by *E. populnea*. Area of potential occurrence: ■ Cleared exotic pasture used for grazing.
Petauroides volans	Greater Glider (southern and central)	Endangered	■ 528 ha. ■ Known to occur from field survey observations.	■ Callitris and Eucalypt dominated woodlands. ■ Eucalypt dominated woodlands mainly of *Eucalyptus crebra, E. populnea* and *E. melanophloia*. ■ Riparian and wetland Eucalypt woodlands dominated by *E. tereticornis*. ■ Eucalypt open forest dominated by *E. populnea*.

Scientific Name	Common Name	EPBC Act Status	Total Habitat in Project Area	Vegetation/Habitat Group/s
Hirundapus caudacutus	White-throated Needletail	Vulnerable and Migratory	■ 0 ha mapped as a likely flyover visitor only. ■ Known to occur from field survey observations.	■ No habitat mapped, flyover visitor only.
Likely to Occur				
Calyptorhynchus lathami lathami	South-eastern Glossy Black-cockatoo	Vulnerable	■ 1,003 ha. ■ Likely to occur from historical record in the Project Area. No observations in field surveys.	■ All remnant and regrowth vegetation of most broad terrestrial broad habitat types particularly those dominated by Eucalypt species with large hollow bearing trees, along with remnant and regrowth RE with potential feed trees (*Casuarinaceae* spp.). ■ Potential foraging habitat is located within acacia regrowth, eucalypt regrowth, mixed acacia and eucalypt regrowth and eucalypt and acacia paddock trees (if paddock trees are *Allocasuarina* spp. and *Casuarina* spp.).
Phascolarctos cinereus	Koala	Endangered	■ 698.5 ha foraging and breeding habitat and 9,072.6 ha dispersal habitat. ■ Likely to occur from historical records and scratches/scats observed during field surveys.	Foraging and breeding habitat: ■ Acacia woodlands dominated by Brigalow (*Acacia harpophylla*). ■ Callitris and Eucalypt dominated woodlands. ■ Eucalypt dominated woodlands mainly of *Eucalyptus crebra, E. populnea* and *E. melanophloia*. ■ Riparian and wetland Eucalypt woodlands dominated by *E. tereticornis*. Dispersal habitat: ■ Cleared exotic pasture used for grazing.

Scientific Name	Common Name	EPBC Act Status	Total Habitat in Project Area	Vegetation/Habitat Group/s
				■ Irrigated pastures and cropping. ■ Acacia regrowth. ■ Eucalypt regrowth. ■ Mixed acacia and eucalypt regrowth.
Adclarkia dulacca	Dulacca Woodland Snail	Endangered	■ 666.3 ha. ■ Likely to occur from historical record in the Project Area. No observations in field surveys.	■ Acacia woodlands dominated by Brigalow (*Acacia harpophylla*). ■ Eucalypt dominated woodlands mainly with *Eucalyptus crebra* and *E. populnea.* ■ Low ecological value habitat types of acacia regrowth, eucalypt regrowth, mixed acacia and eucalypt regrowth and paddock trees where microhabitat (abundant leaf litter and woody debris) is present.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PARADISE DOWNS ROAD
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BURUNGA LANE
SUNDOWN ROAD
BAKERS ROAD
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PEAKES ROAD
HANSENS ROAD
GADSBYS ROAD
GILIGULGUL ROAD
Woleebee
GURULMUNDI ROAD
BAKER ROAD
ROAD
HAYS ROAD
SHEADYS ROAD
GALES ROAD
Gurulmundi State Forest
Stones Country Resources Reserve
CORMACK ROAD
Legend
Dulacca Woodland Snail Historical Record
Project Area ('Field Development Area' in the Preliminary Documentation)
Adclarkia dulacca (Dulacca Woodland Snail) Habitat
Highway
Road
Track/Path
Source:
QLD Spatial Database 2022
ESRI World Imagery 2024
Dulacca Woodland Snail Habitat within the Project Area
F3-2
Drawing No: 0639876_SSMP_G027_R1.mxd
Date: 21/03/2024
Drawing Size: A4
Drawn By: VN/SP
Reviewed By: MD
Coordinate System: GDA2020 MGA Zone 55
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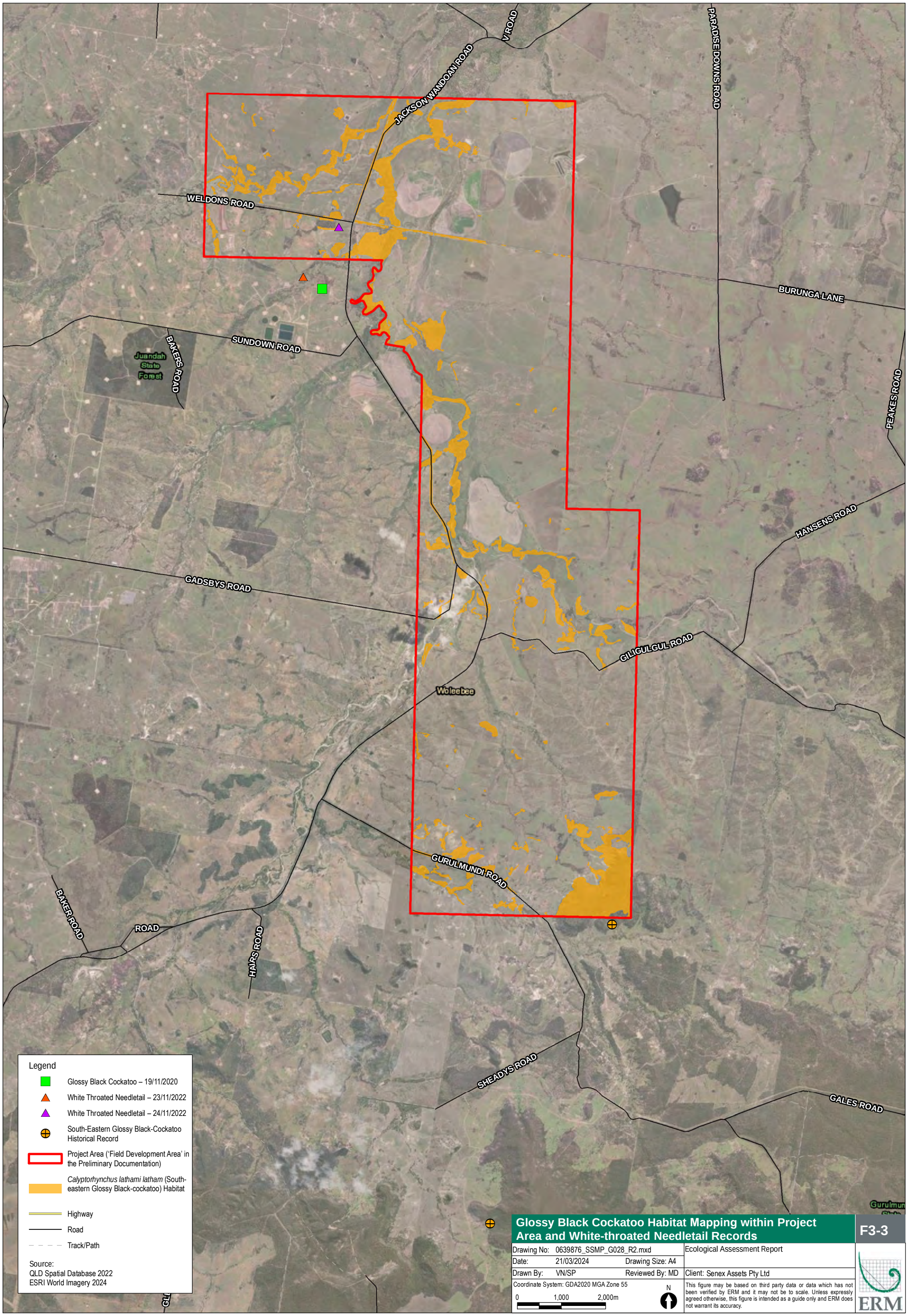
V ROAD
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SUNDOWN ROAD
BAKERS ROAD
Juandah State Forest
PEAKES ROAD
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GADSBYS ROAD
GILIGULGUL ROAD
Woleebee
GURULMUNDI ROAD
BAKER ROAD
ROAD
HAYRS ROAD
SHEADYS ROAD
GALES ROAD
Legend
Glossy Black Cockatoo – 19/11/2020
White Throated Needletail – 23/11/2022
White Throated Needletail – 24/11/2022
South-Eastern Glossy Black-Cockatoo Historical Record
Project Area ('Field Development Area' in the Preliminary Documentation)
Calyptorhynchus lathami latham (South-eastern Glossy Black-cockatoo) Habitat
Highway
Road
Track/Path
Source:
QLD Spatial Database 2022
ESRI World Imagery 2024
Glossy Black Cockatoo Habitat Mapping within Project Area and White-throated Needletail Records
F3-3
Drawing No: 0639876_SSMP_G028_R2.mxd
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Reviewed By: MD
Client: Senex Assets Pty Ltd
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This figure may be based on third party data or data which has not been verified by ERM and it may not be to scale. Unless expressly agreed otherwise, this figure is intended as a guide only and ERM does not warrant its accuracy.
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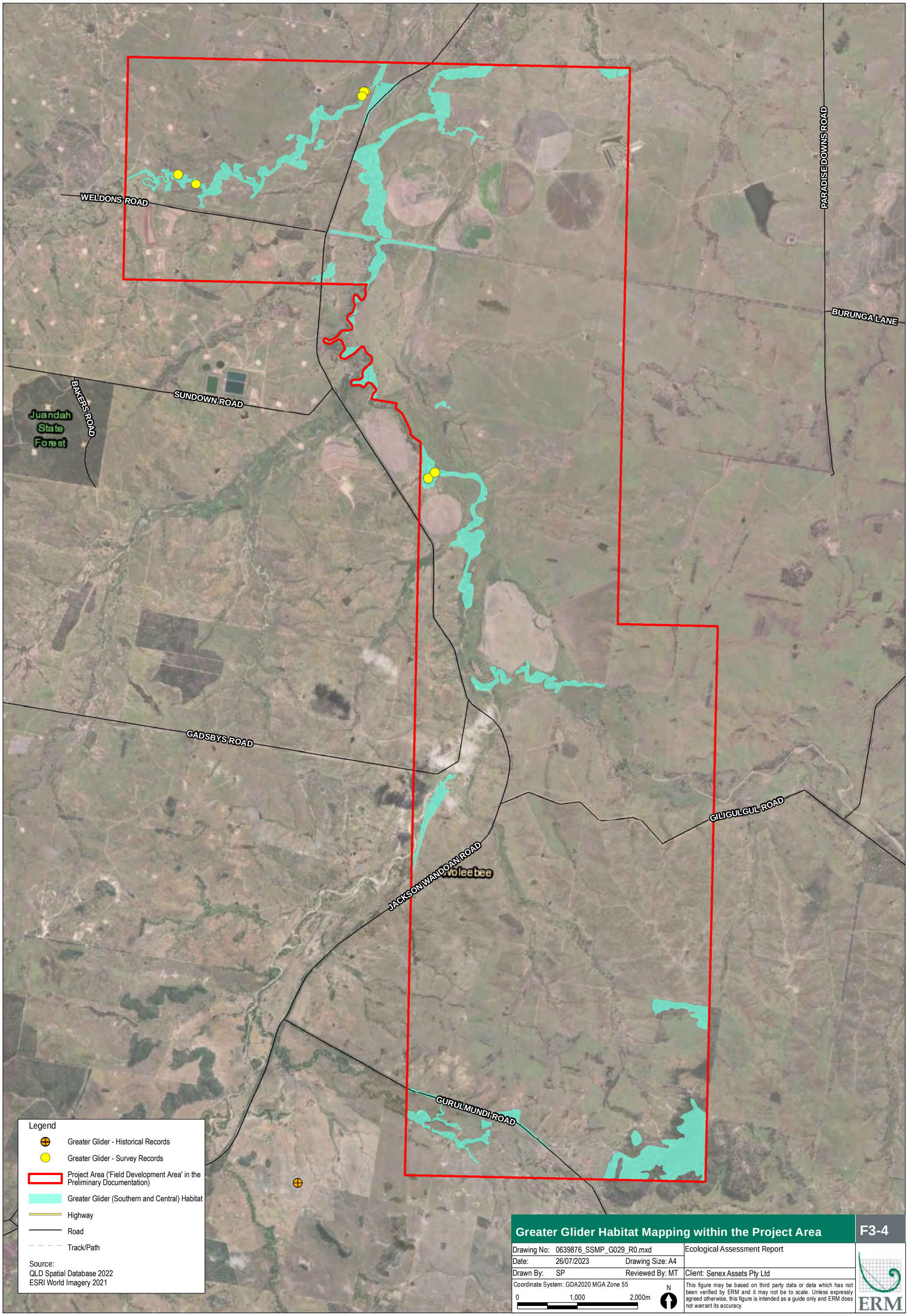

Greater Glider Habitat Mapping within the Project Area

F3-4

Drawing No:	0639876_SSMP_G029_R0.mxd		Ecological Assessment Report
Date:	26/07/2023	Drawing Size: A4	
Drawn By:	SP	Reviewed By: MT	Client: Senex Assets Pty Ltd

Coordinate System: GDA2020 MGA Zone 55

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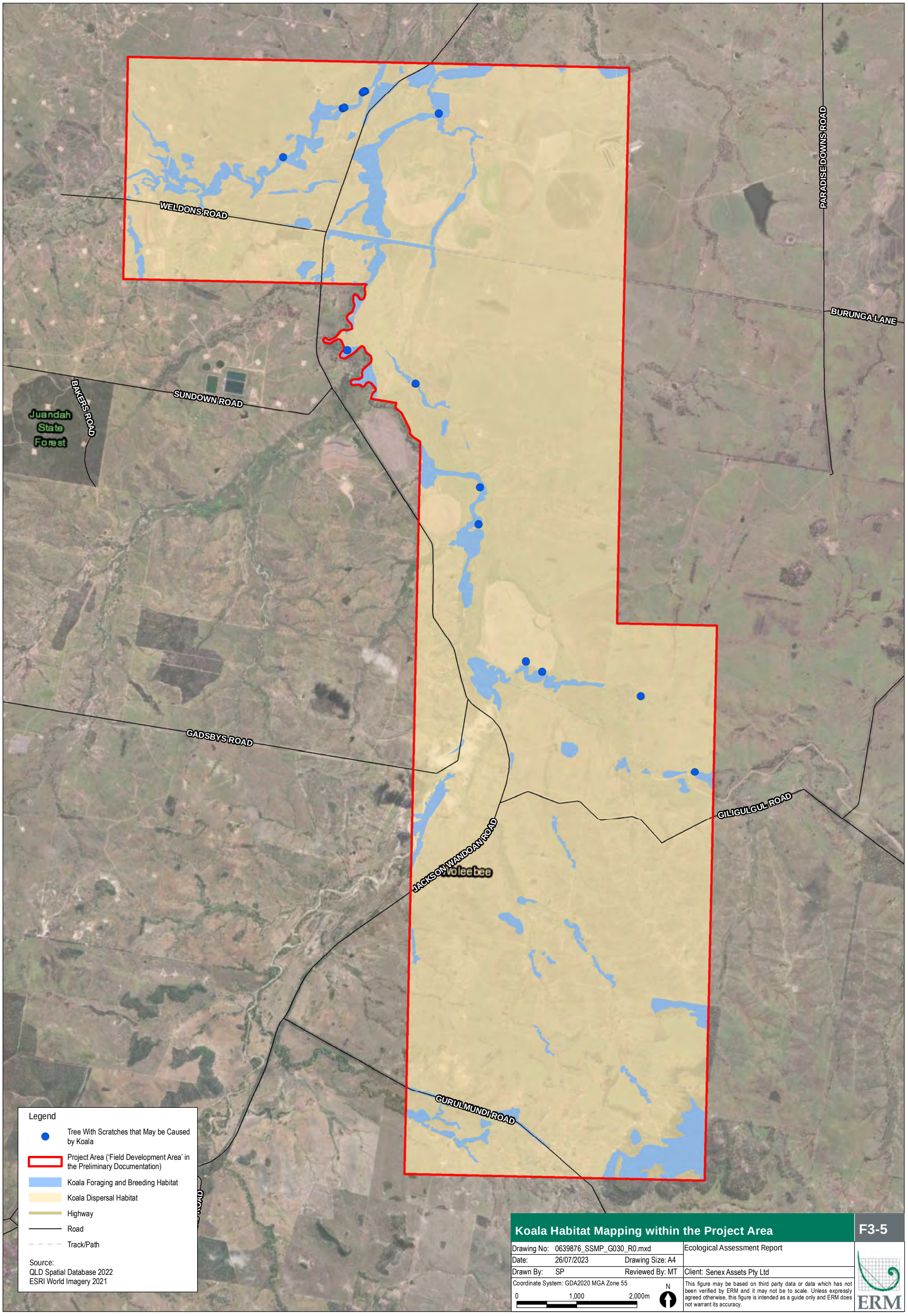
WELDONS ROAD
PARADISE DOWNS ROAD
BURUNGA LANE
SUNDOWN ROAD
BAKERS ROAD
Juandah State Forest
GADSBYS ROAD
JACKSON WANDOAN ROAD
GILIGULGUL ROAD
GURULMUNDI ROAD
Legend
Tree With Scratches that May be Caused by Koala
Project Area ('Field Development Area' in the Preliminary Documentation)
Koala Foraging and Breeding Habitat
Koala Dispersal Habitat
Highway
Road
Track/Path
Source:
QLD Spatial Database 2022
ESRI World Imagery 2021
Koala Habitat Mapping within the Project Area
F3-5
Drawing No: 0639876_SSMP_G030_R0.mxd
Date: 26/07/2023
Drawing Size: A4
Drawn By: SP
Reviewed By: MT
Coordinate System: GDA2020 MGA Zone 55
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Ecological Assessment Report
Client: Senex Assets Pty Ltd
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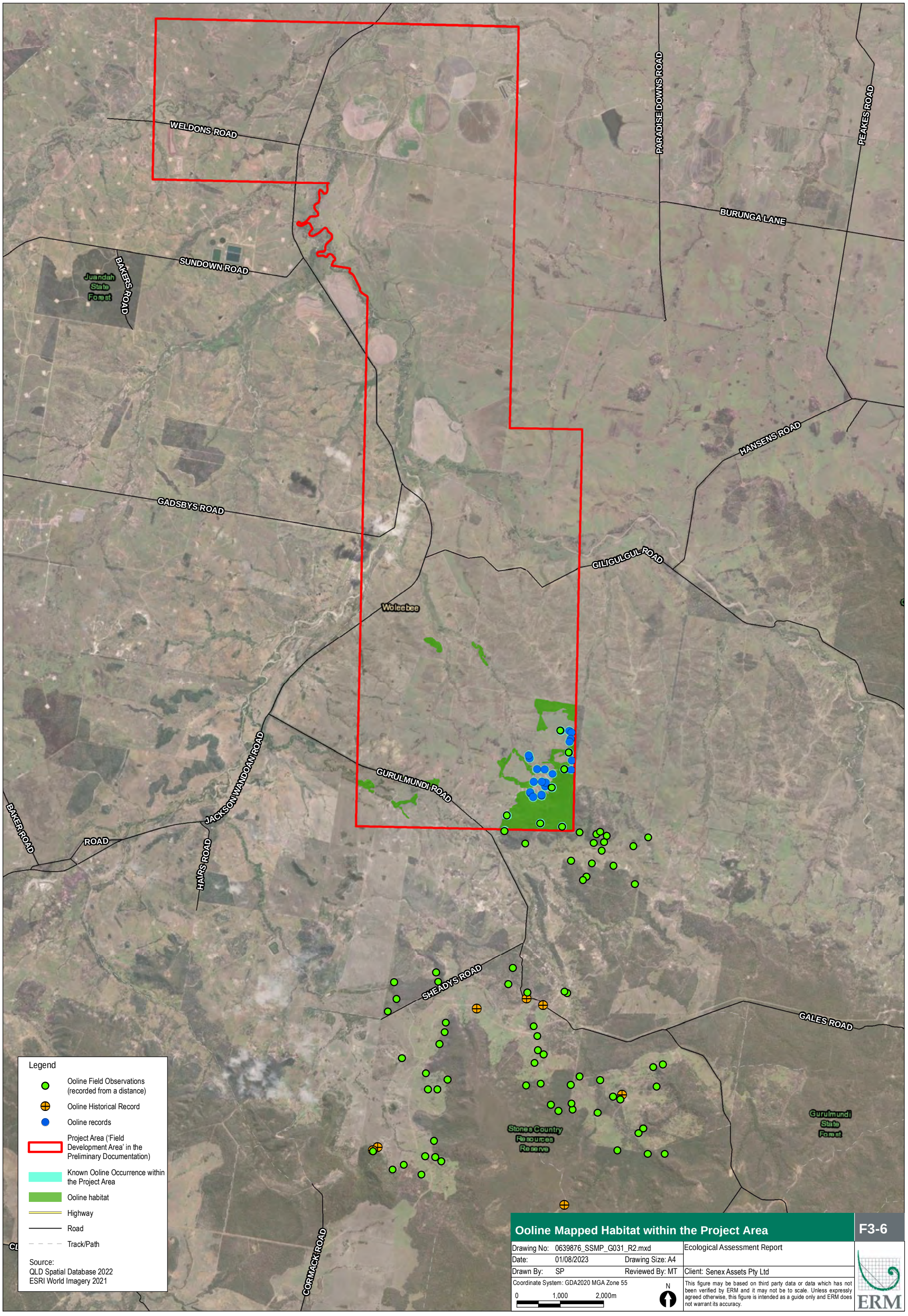
WELDONS ROAD
PARADISE DOWNS ROAD
PEAKES ROAD
BURUNGA LANE
SUNDOWN ROAD
BAKERS ROAD
Juandah State Forest
HANSENS ROAD
GADSBYS ROAD
GILIGULGUL ROAD
Woleebee
GURULMUNDI ROAD
JACKSON WANDOAN ROAD
BAKER ROAD
ROAD
HAIRS ROAD
SHEADYS ROAD
GALES ROAD
Gurulmundi State Forest
Stones Country Resources Reserve
CORMACK ROAD
Legend
Ooline Field Observations (recorded from a distance)
Ooline Historical Record
Ooline records
Project Area ('Field Development Area' in the Preliminary Documentation)
Known Ooline Occurrence within the Project Area
Ooline habitat
Highway
Road
Track/Path
Source:
QLD Spatial Database 2022
ESRI World Imagery 2021
Ooline Mapped Habitat within the Project Area
F3-6
Drawing No: 0639876_SSMP_G031_R2.mxd
Date: 01/08/2023
Drawing Size: A4
Drawn By: SP
Reviewed By: MT
Coordinate System: GDA2020 MGA Zone 55
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Ecological Assessment Report
Client: Senex Assets Pty Ltd
This figure may be based on third party data or data which has not been verified by ERM and it may not be to scale. Unless expressly agreed otherwise, this figure is intended as a guide only and ERM does not warrant its accuracy.
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3.2.2 Listed Threatened Flora Species with Potential to Occur

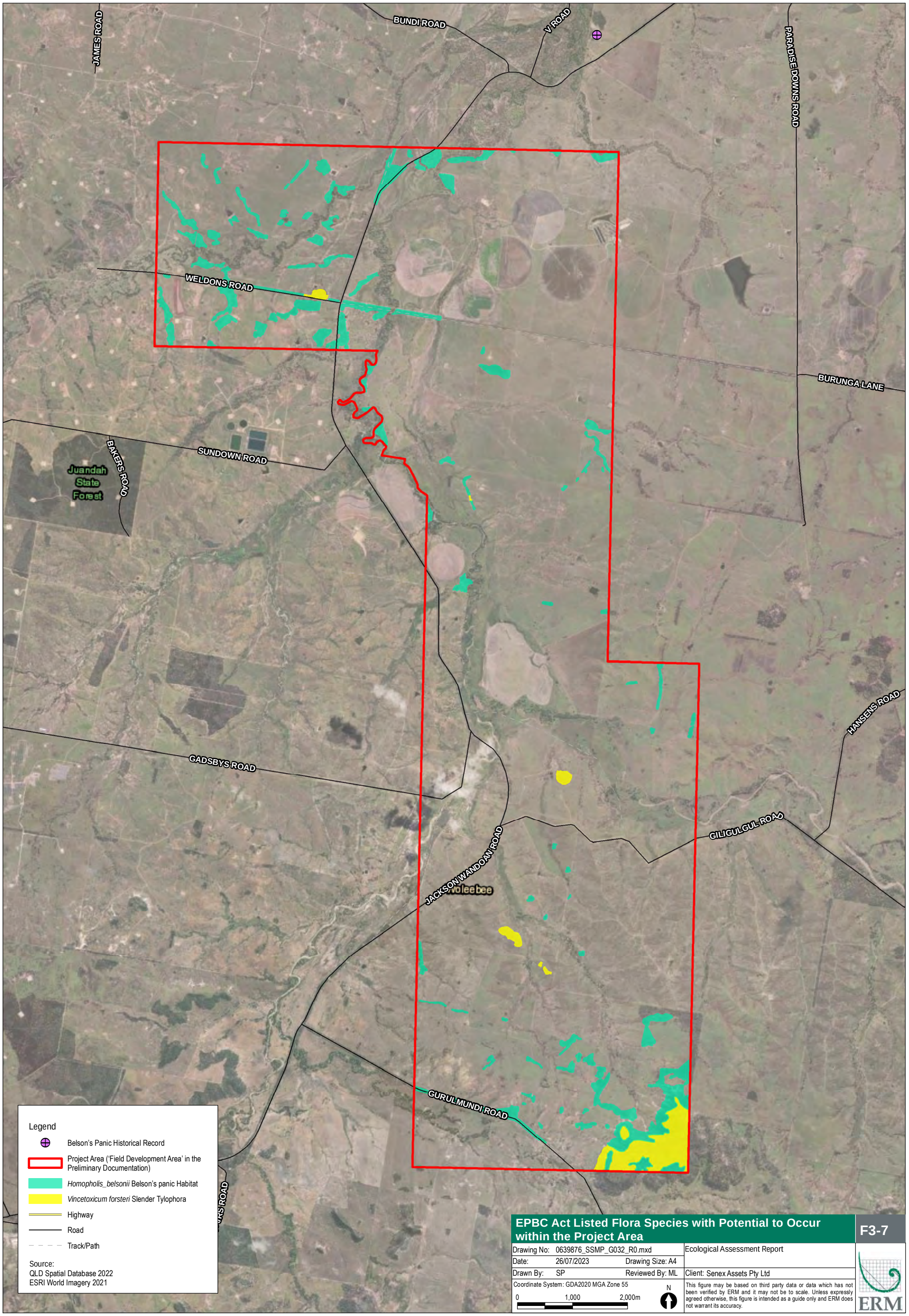
Two listed threatened terrestrial flora species, Belson's Panic (*Homopholis belsonii*) and Slender Tylophora (*Vincetoxicum forsteri*), have been assessed as having the potential to occur within the Project Area (Appendix A). Although these species were not recorded during field surveys of the Project Area, the Project Area overlaps with these species' distributions and suitable habitat has been assessed as present within the Project Area, and thus, these species are considered potentially to occur as a precautionary measure.

Belson's Panic and Slender Tylophora are listed as Vulnerable and Endangered under the EPBC Act, respectively.

Within the Project Area, potential mapped habitat for Belson's Panic totals 366.3 ha and includes:

- Eucalypt dominated woodlands mainly of *Eucalyptus crebra*, *E. populnea* and *E. melanophloia*; and
- Acacia woodlands dominated by Brigalow (*Acacia harpophylla*).

Potential Slender Tylophora mapped habitat within the Project Area totals 122.7 ha and includes Eucalypt dominated woodlands mainly of *E. crebra, and E. melanophloia*. The Project Area contains a total of 366.3 ha of potential habitat for Belson's Panic. Senex has committed to avoiding all areas confirmed as Slender Tylophora or Belson's Panic habitat. Senex has also committed to avoiding or, if necessary, relocating or reinstating any individual Belson's Panic (grass). Senex has committed to avoiding any individual Slender Tylophora plants (should any be found to occur within proposed disturbance footprints). In accordance with the precautionary principle, all 'potential habitat' for Belson's Panic and Slender Tylophora has been mapped (Figure 3-7).


JAMES ROAD
BUNDI ROAD
V ROAD
PARADISE DOWNS ROAD
WELDONS ROAD
BURUNGA LANE
SUNDOWN ROAD
BAKERS ROAD
Juandah State Forest
HANSENS ROAD
GADSBYS ROAD
JACKSON WANDOAN ROAD
GILIGULGUL ROAD
GURULMUNDI ROAD
Legend
Belson's Panic Historical Record
Project Area ('Field Development Area' in the Preliminary Documentation)
Homopholis_belsonii Belson's panic Habitat
Vincetoxicum forsteri Slender Tylophora
Highway
Road
Track/Path
Source:
QLD Spatial Database 2022
ESRI World Imagery 2021
EPBC Act Listed Flora Species with Potential to Occur within the Project Area
F3-7
Drawing No: 0639876_SSMP_G032_R0.mxd
Ecological Assessment Report
Date: 26/07/2023
Drawing Size: A4
Drawn By: SP
Reviewed By: ML
Client: Senex Assets Pty Ltd
Coordinate System: GDA2020 MGA Zone 55
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This figure may be based on third party data or data which has not been verified by ERM and it may not be to scale. Unless expressly agreed otherwise, this figure is intended as a guide only and ERM does not warrant its accuracy.
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3.2.3 Listed Threatened Terrestrial Fauna Species with Potential to Occur

A total of 14 EPBC Act listed threatened terrestrial fauna species have been assessed as having the potential to occur within the Project Area as a result of the likelihood of occurrence presented in Appendix A. In essence, because parts of these species' distributions overlap with the Project Area, their presence cannot be ruled out. This is despite no signs or observations of these species within the Project Area during field surveys. In accordance with the precautionary principle, 'potential habitat' for the 14 species has been mapped and shown in Figure 3-8 and Figure 3-9 for bird species, Figure 3-10 for mammal species and Figure 3-11 for reptiles.

Table 3-3 lists all EPBC Act listed threatened terrestrial species that have been assessed as having the potential to occur within the Project Area and describes the potential habitat that has been mapped for each species.

Table 3-3: EPBC Act Listed Threatened Species with Potential to Occur within the Project Area

Scientific Name	Common Name	EPBC Act Status	Potential Habitat Mapped within the Project Area*
Birds			
Rostratula australis	Australian Painted Snipe	E, Mi	69.7 ha of potential habitat is present within the Project Area. Potential habitat includes small areas of ephemeral wetland habitat within the Project Area; however, these only periodically provide temporary refuges for this species. These areas correspond with riparian with riparian woodlands. This aligns with the broad habitat type of Riparian and wetland Eucalypt woodlands dominated by *E. tereticornis*.
Grantiella picta	Painted Honeyeater	V	272.1 ha of potential habitat is present within the Project Area. Potential habitat comprises remnant and regrowth communities with abundant Acacia and Casuarina hosts of Mistletoes. Potential habitat comprises larger contiguous areas of remnant and regrowth woodland and open forest, more specifically with a multi-layered shrubby understorey which the species prefers. This is made up of broad habitat type Eucalypt dominated woodlands mainly of *E. crebra, E. populnea* and *E. melanophloia*.
Geophaps scripta scripta	Squatter Pigeon (southern subspecies)	V	164.3 ha of breeding and foraging habitat and 316 ha of dispersal habitat (up to 2.1 ha of dispersal habitat to be cleared) is present within the Project Area. Potential habitat remains in the southern part of the Project Area (south of Giligulgul road) in grassy woodland with open areas for foraging and is made up of all broad habitat types excluded Acacia woodlands and cleared exotic pasture north of Giligulgul Road.
Aphelocephala leucopsis	Southern Whiteface	V	938.5 ha of potential habitat is present within the Project Area. Potential habitat the species will utilise almost all habitats present within the Project Area, excluding any cleared grazed land and riparian vegetation.

Scientific Name	Common Name	EPBC Act Status	Potential Habitat Mapped within the Project Area*
Climacteris picumnus victoriae	Brown Treecreeper (south-eastern)	V	272.1 ha of potential habitat is present within the Project Area Potential habitat exists as small patches of suitable Eucalyptus woodland/ forest habitat occurs near several roads, Jackson-Wandoan, Gurulmundi, and Weldons.
Stagonopleura guttata	Diamond Firetail	V	1,287.4 ha of potential habitat is present within the Project Area. Potential habitat exists as any Eucalyptus woodlands/ forests throughout the Project Area. Species also occurs in Acacia dominant areas. Additionally, Eucalyptus and Acacia regrowth areas and lightly timbered areas containing paddock trees, only where there is high grass cover or dense shrub cover is considered habitat The presence of isolated paddock trees in areas of cleared, managed or low grass and shrub cover are unlikely to provide habitat for Diamond Firetail.
Mammals			
Nyctophilus corbeni	Corben's Long-eared Bat	V	259.6 ha of potential habitat is present within the Project Area. Potential habitat is made up of all broad habitat types excluding the cleared exotic pasture and small isolated fragments, narrow corridors and the largely cleared landscape north of Giligulgul Road.
Dasyurus hallucatus	Northern Quoll	E	226.7 ha of potential habitat is present within the Project Area. Potential habitat comprises contiguous areas of remnant and regrowth woodland and forest within 5 km of cliffs and rocky scarps and connected to these refuges by continuous native vegetation. This includes all broad habitat types excluding cleared exotic pasture.
Petaurus australis australis	Yellow-bellied Glider (south-eastern subspecies)	V	145.8 ha of potential habitat is present within the Project Area. Potential habitat is comprised of large contiguous areas of remnant only Eucalypt woodland and open forests, including some riparian dominated woodlands. This is because the species requires large hollow-bearing trees for dens and preferred feed tree species (selected Eucalypts).
Reptiles			
Delma torquata	Collared Delma	V	259.7 ha of potential habitat is present within the Project Area. Potential habitat comprises large logs, rocky outcrops and abundant woody debris occurs in the large contiguous area of forest and woodland associated with the escarpment and plateau in the south-eastern corner of the Project Area. This includes all broad habitat types with the above microhabitat features, excluding cleared exotic pasture.

Scientific Name	Common Name	EPBC Act Status	Potential Habitat Mapped within the Project Area*
Furina dunmalli	Dunmall's Snake	V	259.7 ha of potential habitat is present within the Project Area. Potential habitat comprises large logs, rocky outcrops and abundant woody debris occurs in the large contiguous area of forest and woodland associated with the escarpment and plateau in the south-eastern corner of the Project Area. This includes all broad habitat types with the above microhabitat features, excluding cleared exotic pasture.
Egernia rugosa	Yakka Skink	V	228 ha of potential habitat is present within the Project Area. Potential habitat is comprised of larger contiguous areas of remnant and regrowth woodland and open forest. The species requires loamy soils with large logs, accumulations of woody debris and/or rocky outcrops. This includes all broad habitat types with the above microhabitat features, excluding cleared exotic pasture and riparian Eucalypt woodlands.
Anomalopus mackayi	Five-clawed worm-skink	V	209.6 ha of potential habitat is present within the Project Area. Limited suitable habitat in the form of Acacia woodlands with microhabitat features including cracking clay soils, self-mulching friable basalt soils and woody debris are present within the Project Area. There is no delineation between breeding, dispersal, and foraging habitat for this species.
Hemiaspis damelii	Grey Snake	E	431.2 ha of potential habitat is present within the Project Area. Potential habitat is present in Brigalow and Belah are in the north and far South-eastern parts of the Project Area. Additionally, low ecological value habitat types including acacia regrowth, eucalypt regrowth, mixed acacia and eucalypt regrowth and paddock trees have the potential to provide habitat for the species where gullies and floodplains are present, as well as ephemeral wetlands and creek lines where cracking clay soils are present.

Status listing per EPBC: E = Endangered; V= Vulnerable; Mi =Migratory.

For the full reasoning for the likelihood of occurrence for such species, refer to Appendix A.

WELDONS ROAD
PARADISE DOWNS ROAD
BURUNGA LANE
BAKERS ROAD
SUNDOWN ROAD
Juandah State Forest
GADSBYS ROAD
JACKSON WANDOAN ROAD
GILIGULGUL ROAD
GURULMUNDI ROAD
HAIRS ROAD

Legend

- Project Area ('Field Development Area' in the Preliminary Documentation)
- Squatter Pigeon Dispersal Habitat
- Squatter Pigeon Habitat
- Australian Painted Snipe Habitat
- Diamond Firetail Habitat
- Highway
- Road
- Track/Path

Source:
QLD Spatial Database 2022
ESRI World Imagery 2024

Potential Habitat for EPBC Act Listed Threatened Fauna with Potential to Occur in the Project Area - Birds (Part 1)

F3-8

Drawing No:	0639876_SSMP_G033_R1.mxd		Ecological Assessment Report
Date:	21/03/2024	Drawing Size: A4	
Drawn By:	VN/SP	Reviewed By: MD	Client: Senex Assets Pty Ltd

Coordinate System: GDA2020 MGA Zone 55

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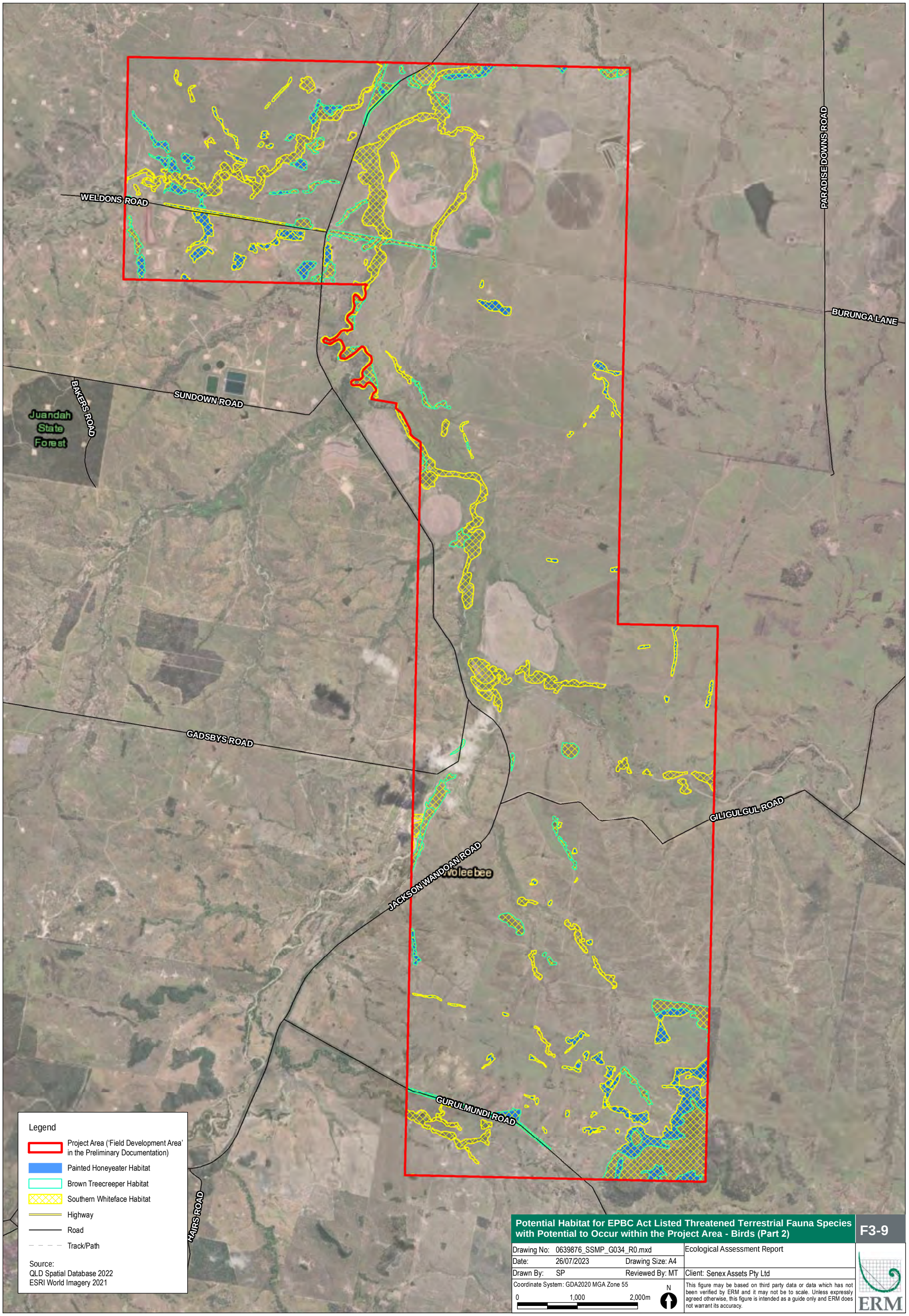
WELDONS ROAD
PARADISE DOWNS ROAD
BURUNGA LANE
BAKERS ROAD
SUNDOWN ROAD
Juandah State Forest
GADSBYS ROAD
JACKSON WANDOAN ROAD
GILIGULGUL ROAD
GURULMUNDI ROAD
HAIRS ROAD
Legend
Project Area ('Field Development Area' in the Preliminary Documentation)
Painted Honeyeater Habitat
Brown Treecreeper Habitat
Southern Whiteface Habitat
Highway
Road
Track/Path
Source:
QLD Spatial Database 2022
ESRI World Imagery 2021
Potential Habitat for EPBC Act Listed Threatened Terrestrial Fauna Species with Potential to Occur within the Project Area - Birds (Part 2)
F3-9
Drawing No: 0639876_SSMP_G034_R0.mxd
Ecological Assessment Report
Date: 26/07/2023
Drawing Size: A4
Drawn By: SP
Reviewed By: MT
Client: Senex Assets Pty Ltd
Coordinate System: GDA2020 MGA Zone 55
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WELDONS ROAD
PARADISE DOWNS ROAD
BURUNGA LANE
SUNDOWN ROAD
BAKERS ROAD
Juandah State Forest
GADSBYS ROAD
JACKSON WANDOAN ROAD
GILIGULGUL ROAD
GURULMUNDI ROAD
HAIRS ROAD

Legend

- Project Area ('Field Development Area' in the Preliminary Documentation)
- Corben's Long-eared Bat Habiatat
- Northern Quoll Habitat
- Yellow-bellied Glider Habiatat
- Highway
- Road
- Track/Path

Source:
QLD Spatial Database 2022
ESRI World Imagery 2021

Potential Habitat for EPBC Act Listed Threatened Terrestrial Fauna Species with Potential to Occur within the Project Area - Mammals

F3-10

Drawing No:	0639876_SSMP_G035_R0.mxd		Ecological Assessment Report
Date:	26/07/2023	Drawing Size: A4	
Drawn By:	SP	Reviewed By: MT	Client: Senex Assets Pty Ltd

Coordinate System: GDA2020 MGA Zone 55

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WELDONS ROAD
PARADISE DOWNS ROAD
BURUNGA LANE
SUNDOWN ROAD
BAKERS ROAD
Juandah State Forest
GADSBYS ROAD
JACKSON WANDOAN ROAD
GILIGULGUL ROAD
GURULMUNDI ROAD
HAIRS ROAD

Legend

- Project Area ('Field Development Area' in the Preliminary Documentation)
- Collared Delma Habitat
- Yakka Skink Habitat
- Dunmall's Snake Habitat
- Five-clawed Worm-skink Habitat
- Highway
- Road
- Track/Path
- Grey Snake Habitat

Source:
QLD Spatial Database 2022
ESRI World Imagery 2021

Potential Habitat for EPBC Act Listed Threatened Fauna with Potential to Occur in the Project Area - Reptiles

F3-11

Drawing No:	0639876_SSMP_G036_R1.mxd		Ecological Assessment Report
Date:	21/03/2024	Drawing Size: A4	
Drawn By:	VN	Reviewed By: MD	Client: Senex Assets Pty Ltd

Coordinate System: GDA2020 MGA Zone 55

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3.3 Migratory Species

3.3.1 Listed Migratory Species Known or Likely to Occur

Two EPBC Act listed migratory species, the White-throated Needletail (also listed as Vulnerable and also covered in Section 3.2.1) and Fork-tailed Swift have been considered as known and likely to occur within the Project Area respectively.

The White-throated Needletail is a largely aerial species when on migration through Australia, only occasionally stopping to roost in Eucalypt forests (Higgins, 1999). A flock of eight birds were observed flying low through the Project Area but were not observed to land or roost. As a result, it is considered unlikely there will be a significant impact. It should be noted that this species is also listed as Vulnerable under the EPBC Act, however due to its aerial nature, it is also unlikely to be significantly impacted by Project activities.

The Fork-tailed Swift is almost exclusively aerial and occur mostly over inland plans and sometimes above foothills and coastal areas (Higgins, 1999). The Fork-tailed Swift was not observed during field surveys, and potential foraging habitat was assessed to occur over dry open habitats, where the species would likely fly aerially over, therefore, habitat mapping was not required or prepared for the Fork-tailed Swift.

3.3.2 Listed Migratory Species with Potential to Occur

Six listed migratory species have been determined as having the potential to occur within the Project Area (likelihood of occurrence found in Appendix A). There were no signs or observations of the species within the Project Area based on targeted field investigations across the field survey events using survey techniques aligned with survey guidelines, including:

- Survey guidelines for Australia's threatened birds: Guidelines for detecting birds listed as threatened under the EPBC Act (Department of Environment, Water, Heritage and the Arts [DEHWA], 2017);
- Referral guidelines for 14 birds listed as migratory species under the EPBC Act (DoE, 2015); and
- Industry guidelines for avoiding, assessing, and mitigating impacts on EPBC Act listed migratory shorebird species (DoEE, 2017).

The potential occurrence conclusion for these species was therefore based off presence of suitable habitat only, and/or the presence of records in the adjoining areas. Potential habitat for these species is largely associated with waterbodies and drainage features (predominately farm dams), that may occasionally be used. Therefore, even though no records for these species occur within the Project Area, they have been conservatively concluded as potentially occurring based on adjoining area records and/or the presence of habitat requirements.

The migratory species that have the potential to occur and their habitat within the Project Area are listed in Table 3-4. These include species that just have the potential to fly aerially overhead, and species, such as the common sandpiper, Latham’s Snipe and Sharp-tailed Sandpiper, that have the potential to stop over within the Project Area in very limited suitable habitat (ephemeral wetlands on drainage lines and farm dams) which are mapped in Figure 3-8.

Table 3-4: EPBC Act Listed Migratory Species with Potential to Occur within the Project Area

Scientific Name	Common Name	EPBC Act Status	Potential Habitat within the Project Area
Actitis hypoleucos	Common Sandpiper	Mi	■ Potential for individuals to occur in the Project Area. However, there is very limited suitable habitat in the Project Area (ephemeral wetlands on drainage lines and farm dams), and this would only support occasional transient visitors.
Gallinago hardwickii	Latham's Snipe	Mi	■ Potential for individuals to occur in the Project Area. However, there is very limited suitable habitat in the Project Area (ephemeral wetlands on drainage lines and farm dams), and this would only support occasional transient visitors.
Rhipidura rufifrons	Rufous Fantail	Mi	■ There is some limited potential habitat present in the form of remnant and non-remnant woodlands within the Project Area.
Myiagra cyanoleuca	Satin Flycatcher	Mi	■ There is some limited potential habitat present in the form of remnant and non-remnant woodlands within the Project Area.
Calidris acuminata	Sharp-tailed Sandpiper	Mi	■ Potential for individuals to occur in the Project Area. However, there is very limited suitable habitat in the Project Area (ephemeral wetlands on drainage lines and farm dams), and this would only support occasional transient visitors.
Cuculus optatus	Oriental Cuckoo	Mi	■ There is limited areas of potential suitable remnant woodlands and non-remnant patches of native vegetation habitat, within the Project Area.

Status listing per EPBC: E=Endangered, V=Vulnerable and Mi = Migratory.

For the full reasoning for the likelihood of occurrence conclusions for these species, refer to Appendix A.

3.4 Weeds of National Significance

Assessments conducted by BOOBOOK Ecological Consulting (BOOBOOK, 2022), utilising desktop searches of the Queensland Government WildNet database found six introduced flora species listed as Weeds of National Significance (WoNS) and listed under the Queensland *Biosecurity Act 2014* are known to occur within 10 km of the Project Area (Table 3-5). Three of these species were recorded during the survey effort, as shown through bold text in Table 3-5.

Category 3 restricted invasive species under the *Biosecurity Act 2014* must not be given away, sold or released into the environment. The proponent must take reasonable and practical measures to minimise the biosecurity risks associated with dealing with lantana, known as a general biosecurity obligation. Local government biosecurity plans will need to be consulted to determine any local measures that will be adopted for management and included into the Project Biosecurity Management Plan.

The Australian Weeds Strategy (2017-2027) provides information on the best practices for management of WoNS, including prevention and early detection of weeds and the minimisation of the impact of established weeds (Invasive Plants and Animals Committee, 2016). Such principles from the Australian Weed Strategy should be considered as part the Project Biosecurity Management Plan.

Table 3-5: Weeds of National Significance and State Listed Weeds within the Project Area

Scientific Name	Common Name	WoNS/ Biosecurity Act Status	Comments
Parthenium hysterophorus	Parthenium Weed	WoNS, Cat. 3 Restricted Matter	■ Potentially occurring within the Project Area. Previously recorded within the locality.
Senecio madagascariensis	Fireweed	WoNS, Cat. 3 Restricted Matter	■ Potentially occurring within the Project Area. Previously recorded within the adjoining areas (DES, 2022a).
Anredera cordifolia	Madeira Vine	WoNS, Cat. 3 Restricted Matter	■ Potentially occurring within the Project Area. Previously recorded within the adjoining areas (DES, 2022a).
Opuntia aurantiaca	Tiger Pear	WoNS, Cat. 3 Restricted Matter	■ Detected during field surveys at moderate densities in Brigalow woodland. The closest records in ALA (2022) are over 45 km away, around Yuleba North, Barakula and Taroom. No previous records in WildNet from the Project Area (DES, 2022a).
Opuntia stricta	Common Pest Pear	WoNS, Cat. 3 Restricted Matter	■ Previously recorded within the adjoining areas (DES, 2022a). Detected in field surveys throughout the Project Area at low densities.
Opuntia tomentosa	Velvety Tree Pear	WoNS, Cat. 3 Restricted Matter	■ Previously recorded within the adjoining areas (DES, 2022a). Detected in field surveys throughout the Project Area at low densities.

4 PRE-CONSTRUCTION MANAGEMENT MEASURES

4.1 Relevant Significant Species

There are no on-ground activities planned during pre-construction that will result in impacts to significant species, however, design aspects will consider potential impacts to significant species.

4.2 Potential Impacts

There are no on-ground activities planned during pre-construction that will result in impacts to significant species or their habitats.

4.3 Management Measures and Performance Criteria

Management measures to minimise impacts to significant communities and species during construction activities are based on the mitigation hierarchy:

- Avoid direct and indirect adverse impacts;
- Mitigate and manage any unavoidable direct and indirect adverse impacts; and
- Remediate and rehabilitate impacted areas to promote long-term recovery.

Senex operates all activities under the Atlas Stage 3 Environmental Constraints Protocol for Planning and Field Development [OPS-ATLS-EN-PLN-001]. This will be implemented to ensure no unexpected impacts to threatened species occurs. The Atlas Stage 3 Environmental Constraints Protocol for Planning and Field Development [OPS-ATLS-EN-PLN-001] outlines the following areas:

- 'No-go areas' – Threatened ecological communities and MNES species habitats (excluding Koala and Southern Squatter Pigeon dispersal habitat), Ooline plant records and a 10 m buffer and, if any are found to be present in the Project Area, Slender Tylophora plant records and a 10 m buffer and populations of Dulacca Woodland Snail;
- High constraint area – Buffer Zone (10 m buffer around all No-go areas); and
- Low constraint area – Koala dispersal habitat. Previously cleared areas with non-remnant vegetation with limited potential to contain MNES species and their respective habitats.

As part of the Atlas Stage 3 Environmental Constraints Protocol for Planning and Field Development [OPS-ATLS-EN-PLN-001], further ecological field assessments will be undertaken during the pre-clearance surveys to identify any threatened flora and fauna within and adjoining proposed disturbance areas. The findings of the pre-clearance surveys will be used to confirm and /or update the constraints mapping.

The document provides guidance for infrastructure siting to consider, among other aspects, the selection of preferential locations aimed at managing potential environmental impacts. This is the primary mechanism to achieving further avoidance and minimisation of impacts to significant species. Broadly, the Atlas Stage 3 Environmental Constraints Protocol for Planning and Field Development [OPS-ATLS-EN-PLN-001] includes:

- Desktop environmental constraints analysis – involves review of GIS mapping layers relating to the proposed infrastructure locations. Depending on the nature of constraints locations may be revised to avoid or minimise disturbance.
- Site surveys – once the preferred location is identified site surveys are undertaken to confirm suitability of the location. Suitability considerations include landholder requirements, constructability, environmental features (such as significant species) and cultural heritage clearance. Site surveys are documented in a Survey Report.
- Post-survey environmental constraints analysis – survey results are used to further refine the infrastructure locations.

As Senex have no planned activities during the pre-construction phase that will result in impacts, the driving performance indicator is no adverse, measured impacts to the environment during pre-construction.

5 CONSTRUCTION MANAGEMENT MEASURES

5.1 Relevant Significant Species

Relevant significant species that have been assessed as known, likely or potential to occur within the Project Area that have the potential to be impacted during construction phases are detailed in Table 5-1.

Table 5-1: MNES with Potential to be Impacted during Construction

Known Presence	
TECs	
Brigalow (*Acacia harpophylla* dominant and codominant)	Poplar Box grassy woodland on alluvial plains
Threatened Flora Species	
Ooline	
Threatened Fauna Species	
Greater Glider (southern and central)	White-throated Needletail
Migratory Species	
White-throated Needletail	
Weeds of National Significance	
Tiger Pear	Common Prickly Pear
Velvety Prickly Pear	

Likely Presence	
Threatened fauna species	
Dulacca Woodland Snail	South-eastern Glossy Black-cockatoo
Koala	
Migratory Species	
Fork-tailed Swift	

Potential Presence	
Threatened Flora Species	
Belson's Panic	Slender Tylophora
Threatened Fauna Species	
Australian Painted Snipe	Painted Honeyeater

Potential Presence	
Southern Whiteface	Brown Treecreeper (south-eastern)
Southern Squatter Pigeon	Diamond Firetail
Northern Quoll	Corben's Long-eared Bat
Yellow-bellied Glider (south-eastern)	Five-clawed worm-skink
Collared Delma	Yakka Skink
Dunmall's Snake	Grey Snake
Migratory Species	
Sharp-tailed Sandpiper	Common Sandpiper
Latham's Snipe	Satin Flycatcher
Rufous Fantail	Oriental Cuckoo

5.2 Construction Potential Impacts

Activities associated with the Project have the potential to cause both direct and indirect impacts to MNES, with the level of impact depending on the type and location of the activity proposed.

As previously described, the Project activities include the development of up to 151 gas wells and associated well site facilities; gas and water gathering systems for the producing wells; access tracks for operational purposes; brine and produced water storage, borrow pits; and ancillary supporting facilities.

Risks to biodiversity values associated with these activities include:

- Clearing of native vegetation and habitat for threatened and migratory species and threatened ecological communities;
- Introduction and/or spread of weed species;
- Disturbance or displacement to fauna species from foraging or roosting habitat, or breeding places;
- Degradation of threatened species habitats or TEC from dust deposition, soil erosion or accidental release of hazardous materials;
- Habitat fragmentation;
- Inhibiting the ability of ecological communities or species to adapt and survive predicted climate change effects (for example through impeding migration pathways or inhibiting access to refuge areas); and
- Fauna injury during construction activities and movement of machinery/vehicles.

These potential impacts are further described in Table 5-2.

The majority of the Project Area is already disturbed (8,887.3 ha of the 9,772 ha area is non-remnant vegetation) and the total maximum disturbance limit will be up to 530 ha and is located to avoid remnant vegetation (potential habitat for listed threatened species).

Table 5-2: Potential Impacts to MNES in the Project Area

Potential Impact	Stage of Development	Relevance to the Project
Clearing of native vegetation and habitat for threatened and migratory species and threatened ecological communities, leading to disturbance or displacement of fauna species from foraging or roosting habitat, or breeding place.	Construction	Senex has committed to not clearing any areas confirmed as MNES TECs or areas confirmed as potential habitat for MNES threatened species, except for Koala and Southern Squatter Pigeon dispersal habitat (being, 530 ha and 2.1 ha respectively, of previously cleared land). The areas of potential habitat for MNES that are known, likely or have the potential to occur within the Project Area are: ■ Australian Painted Snipe – 69.7 ha; ■ Belson's Panic – 366.3 ha; ■ Brown Treecreeper (south-eastern) – 272.1 ha; ■ Collared Delma – 259.7 ha; ■ Common Sandpiper – 29.5 ha; ■ Corben's Long-eared Bat – 259.6 ha; ■ Diamond Firetail – 1,287.4 ha; ■ Dulacca Woodland Snail – 666.3 ha; ■ Dunmall's Snake – 259.7 ha; ■ Five-clawed Worm-skink – 209.6 ha; ■ Fork-tailed Swift – aerial only (no impacts); ■ Grey Snake – 431.2 ha; ■ Greater Glider (southern and central) – 528 ha; ■ Koala – 698.5 ha foraging and breeding habitat and 9,072.6 ha of dispersal habitat (up to 530 ha of dispersal habitat to be cleared); ■ Latham's Snipe – 29.5 ha; ■ Northern Quoll – 226.7 ha; ■ Ooline – 118.7 ha habitat (no impact to 118.7 ha of habitat and surveys will be done in all areas of proposed disturbance to enable avoidance to all stands and isolated trees (if present)); ■ Oriental Cuckoo – 896.7 ha; ■ Painted Honeyeater – 272.1 ha; ■ Rufous Fantail – 604.2 ha; ■ Satin Flycatcher – 687.5 ha; ■ Sharp-tailed Sandpiper – 29.5 ha; ■ Slender Tylophora – 122.7 ha; ■ South-eastern Glossy Black-cockatoo– 1,003 ha; ■ Southern Squatter Pigeon – 164.3 ha of breeding and foraging habitat, and 316 ha of dispersal habitat; ■ Southern Whiteface – 938.5 ha; ■ White-throated Needletail – aerial only (no impacts); ■ Yakka Skink – 228 ha; and ■ Yellow-bellied Glider (south-eastern) – 145.8 ha.

Potential Impact	Stage of Development	Relevance to the Project
		The maximum area to be disturbed represents a small portion of the overall Project Area (4.3%). A maximum of 5.8% of the previously cleared Koala dispersal habitat and 0.7% of previously cleared Southern Squatter Pigeon dispersal habitat will be disturbed. Areas of potential habitat for Ooline will be surveyed and only disturbed after surveys for individual plants have been completed. The final disturbance footprint will avoid impacts to any areas confirmed as MNES TECs or areas confirmed as habitat for MNES threatened species (except for Koala and Southern Squatter Pigeon dispersal habitat) and further refinements will be made in accordance with the implementation of the Atlas Stage 3 Environmental Constraints Protocol for Planning and Field Development [OPS-ATLS-EN-PLN-001]. This is further discussed in Section 5. The Project is not expected to create a significant impact on a MNES TEC or listed threatened species as the Project will be developed on previously disturbed land, and TECs and potential habitat for MNES listed threatened species, except for Koala and Southern Squatter Pigeon dispersal habitat, will be avoided.
Degradation of threatened species habitats or threatened ecological communities as a result of dust, erosion or accidental release of hazardous materials (indirect impacts).	Construction, Operation and Decommissioning	Disturbances from construction, operation, and decommissioning, such as noise and dust, have the potential to negatively impact adjacent vegetation communities and habitats. Noise disturbances have the potential to influence breeding, roosting or foraging behaviour of native fauna. Studies suggest that the consistency of noise is more important than volume, with irregular and unpredictable noise being more disruptive to wildlife (Jones et al. 2015), as may be emitted during construction. For the general native fauna community, individuals may relocate to adjacent areas during times of noise disturbance. It is noted that noise associated with the Project principally relates to well drilling which on average is completed in 3 days per well. Dust generated by vehicle and machinery movements has the potential to smother vegetation directly adjacent to the works and inhibit plant growth and palatability for native fauna. There are measures available to limit dust generation and dispersion. Without suitable mitigation, dust deposition resulting from the Project's construction activities has the potential to lead to degradation of fauna habitat. Additionally, reduced vegetation cover can lead to restricted fauna movement between foraging and breeding habitat. Unmanaged dust can lead to the smothering of native vegetation and an increase in invasive flora within the area. Increased erosion within the Project Area has the potential to lead to the loss of topsoil and soil fertility, in turn reducing native

Potential Impact	Stage of Development	Relevance to the Project
		plant species within the area due to reduced optimal soil conditions if not suitably controlled. Erosion can further lead to an increase of invasive plants on disturbed soils or result in a decrease in ecosystem biodiversity. Erosion has the potential to impact aquatic ecosystems with increased sediment runoff, leading to a reduction in habitat quality for aquatic species. Additionally, soil erosion contributes to longer ecosystem recovery times following soil disturbance. The accidental release of hazardous materials (including chemical contaminants, metals, machinery and equipment fluids etc.) could result in air and water pollution, and soil contamination. Such impacts affect wildlife behaviours directly and indirectly. Direct impacts of hazardous materials include changes in species physiology, behaviour, reproduction and/or survival. The release of chemicals into aquatic environments results in habitat degradation of wetland and river systems, and poor fish health or death. The disturbance footprint will be designed to limit the number of watercourse crossings, and all remnant vegetation will be avoided. The existing aquatic habitat features within the Project Area are generally heavily disturbed drainage features. Given the limited extent, water features relative to the Project Area and the typically dry nature of the area, impacts are expected to be minimal. However, there are measures detailed within the Environmental Management Plan Atlas Stage 3 Gas Project [SENEX-ATLAS-EN-PLN-015] to limit erosion and potential sedimentation during rainfall events that produce runoff and overland flows. The Project is unlikely to degrade species habitat as Senex will implement appropriate erosion and sediment controls, implement robust environmental monitoring, and implement appropriate environmental management measures. The Project will also avoid MNES TECs and potential habitat for MNES threatened species (except for Koala and Southern Squatter Pigeon dispersal habitat).
Introduction and/or spread of weed species (indirect impacts).	Construction, Operation and Decommissioning	The Project Area is predominantly cleared land for agricultural purposes. The production wells will be located in cleared land, avoiding all potential habitat for MNES threatened species (except for Koala and Southern Squatter Pigeon dispersal habitat), and with appropriate weed management measures implemented throughout the Project lifecycle, the Project is unlikely to impact the vegetation communities present. Weeds have the potential to increase the frequency and intensity of fires, by degrading the landscape and reducing tree densities. However, the risk of this impact to occur within the Project Area is negligible with the implementation of stringent weed washdown procedures, and the Project Area being

Potential Impact	Stage of Development	Relevance to the Project
		predominantly cleared land for agriculture. Therefore, there will be no impact on fire frequency. Uncontrolled transport and operation for construction vehicles and machinery has the potential to introduce invasive weeds to the Project Area, and as such, management measures, including weed seed hygiene will be implemented to minimise these risks. Management measures will be implemented throughout the clearing, construction and operational phases of the Project to minimise the introduction of weed species within the Project Area. The majority of the Project Area and surrounding area is cleared, pastoral property and introduced flora are common. Three Weeds of National Significance (WoNS) species were recorded within the Project Area: tiger pear, common pest pear and velvety tree pear. Three additional species are considered potential to occur due to records within the buffered Project Area: parthenium weed, fireweed and madeira vine. Two additional species prescribe as Category 3 restricted matters under the *Biosecurity Act 2014*, Harrisia Cactus and Mother-of-millions; and three other weeds of management interest, willows cactus, African Lovegrass and Brazilian Nightshade, were detected within the Project Area during field surveys. With the implementation of appropriate weed management and monitoring measures, as well as the avoidance of MNES TECs and potential habitat for MNES threatened species (except for Koala and Southern Squatter Pigeon dispersal habitat) the Project is unlikely to have a significant impact on the introduction and/or spread of weed species within the Project Area.
Fauna injury during construction, operation and decommissioning activities and movement of machinery/vehicles.	Construction, operation and decommissioning	The operation of vehicles and machinery within the Project Area has potential to lead to direct mortality or injury of resident fauna. Peak traffic period will be during the construction period with operational vehicle movements likely to be minimal. It is noted that well pad construction generally involves small crews with minimal truck movements and drill crews travel to site and stay on site whilst drilling. While many fauna groups are highly mobile (e.g., birds) and are likely to move when machinery and vehicles approach, other less mobile groups (e.g., reptiles and amphibians) are more vulnerable to this impact. Similarly, there will be trenches excavated during construction and as required for maintenance of underground infrastructure which provides a trapping hazard for some fauna groups (e.g., amphibians, small reptiles, small mammals). During Project construction, operation and decommissioning there will be an increase in vehicle and machinery traffic

Potential Impact	Stage of Development	Relevance to the Project
		throughout the Project Area, although this is considered a temporary impact. The Project will implement effective vehicle management measures (i.e., reduced speed limits, limited traffic during operation etc.) to minimise the risk of fauna injury or mortality from vehicles and machinery. Additionally, the Project will adopt management measures to minimise the risk of trapped fauna within trenches (e.g., egress points and daily inspections of all open excavated trenches). A qualified fauna spotter catcher will conduct a search immediately prior to clearing of woody vegetation for the presence of fauna species. With the appropriate management measures implemented, it is considered unlikely the Project will have a significant impact on fauna through injury and mortality.
Habitat fragmentation.	Construction	The Project Area is located in a largely cleared landscape with limited tracts of vegetation to facilitate ecosystem connectivity. Dispersal opportunities within the remainder of the Project Area are largely restricted to riparian areas, primarily in association with Wandoan and Woleebee Creeks. The cleared, non-remnant areas are considered likely to impede dispersal for most (less common) reptiles, amphibians, small ground mammals and arboreal mammals, with the exception of the Koala. The ability for Koalas (and birds) to disperse across the broader landscape will remain during construction, due to phased development in smaller discrete work packs. Well pad size (typically 0.6 ha) and distance between pads and flexibility in their locations as well as flexibility in the alignment of gathering so that gathering right-of ways will cross watercourses perpendicularly. Also, as the majority of the Project Area is made up of previously cleared land, the disturbance footprint will be able to be designed to avoid almost all vegetated corridors with high dispersal opportunity. Consequently, the Project is unlikely to have a substantial impact on connectivity and fragmentation.
Inhibiting the ability of ecological communities or species to adapt and survive predicted climate change effects.	Construction and Operation	Climate change is a listed threatening process for many ecological communities and species as the associated increase in temperature increases the potential for bushfires to occur. Additionally, temperature changes limit available habitat through removal of optimal conditions. Potential impacts include impeding migration pathways or inhibiting access to refuge areas for listed species or restricting areas for threatened ecological community succession. The Project is not predicted to exacerbate these potential impacts of climate change as Project infrastructure has been designed to avoid all forested areas, MNES, TECs, and potential habitat for MNES threatened species (except for Koala and Southern Squatter Pigeon dispersal habitat), including all important fauna movement corridors along Wandoan Creek and Woleebee Creek.

Potential Impact	Stage of Development	Relevance to the Project
Loss of habitat, or degradation in vegetation quality from impacts associated with changes to groundwater hydrology.	Construction and Operation	Groundwater Dependent Ecosystems (GDEs) have been mapped and identified within and adjoining the Project Area. These GDEs occur within the riparian zones of Woleebee Creek and utilise alluvial sources of groundwater. There is a potential for the drilling and gas extraction activities to impact on GDEs during construction and operation phases. Reaches of Woleebee Creek within the PL 209 area were assessed during the Senex field verification program in June/July 2018 (KCB, 2018). The assessment was conducted during the dry season and no flow was observed within the area surveyed. Pools of water were encountered in the lower reaches of Woleebee Creek which were considered to be rainfall derived surface water, based on their non-clear appearance and field water quality (547 µS/cm). The field verification identified that there is unlikely to be significant baseflow provided to this creek, however it is likely that during some periods, groundwater levels in the alluvium will rise into the sandy base of the creek. The field verification also concluded that based on the difference between the alluvial groundwater and surface water major ion chemistry signatures, and groundwater chemistry signatures from the Surat Basin units, groundwater within the alluvium is not considered to be sourced by the underlying Surat Basin units (Westbourne Formation or Springbok Formation). Nonetheless, Senex have committed to ongoing monitoring of groundwater as there remains a level of uncertainty about connectivity between the alluvium and the Springbok Formation close to the northern boundary of the Project. Terrestrial GDEs mapped in the vicinity of the Project Area (DES, 2018) are also considered to source groundwater from the shallow alluvium, rather than the underlying Surat Basin units. However no significant impacts to GDEs are likely to occur as a result of the Project (KCB, 2024).
Changes to Water Quality and Chemical Contamination.	Construction, Operation and Decommissioning	A chemical risk assessment was undertaken on 59 drilling chemicals, a total of 47 drilling fluids are proposed to be used at the Project. This includes chemicals for drilling, drilling completion and workover, exploration and core holes, and abandonment. The risk to MNES receptors from drilling fluids was determined both prior to, and following, mitigation and management measures. The risk assessment concluded that the likelihood for a drilling fluid to adversely affect an MNES is unlikely to highly unlikely. This is due to the proposed controls that will be implemented during drilling and the protocols in place if a spill should occur. The overall risk to MNES from chemical contamination has been assessed as low significance to insignificant. Further information can be found in the Chemical Risk Assessment report (KCB 2024) which includes a detailed risk assessment for Tier 2 and 3 chemicals.

Potential Impact	Stage of Development	Relevance to the Project
Changes to Hydrological Regime.	Construction and Operation	Potential impacts to the ephemeral watercourses are associated with the general construction and day to day operations of the Project's surface facilities. No discernible impacts to surface water and associated aquatic systems are predicted as a result of Project development. The Project does not include any: ■ Planned discharge to, or abstraction from, the surface water systems; or ■ Surface water diversions There are no surface water users identified within the vicinity or immediately downstream of the Project. Therefore, no impacts to third-party surface water users are predicted as a result of the Project development. Further information can be found in the EPBC Water Resource Impact Assessment Report (KCB 2023) that provides detail on the hydrological regime, and an impact assessment on water resources.

5.3 Management Measures and Performance Criteria

Management and mitigations measures are included in Table 5-3 below. This table identifies what management measures are specific to EPBC Act listed threatened species, which are either grouped or referred to directly.

Table 5-3: Management and Mitigation Measures Relevant to Construction

Potential Impacts	Relevant Stage	Key Management Measures	Relevant Species
Clearing of native vegetation and habitat for threatened and migratory species and threatened ecological communities, leading to disturbance or displacement to fauna species from foraging or roosting habitat, or breeding places	Construction	■ The Atlas Stage 3 Environmental Constraints Protocol for Planning and Field Development [OPS-ATLS-EN-PLN-001] for constraints planning and field development will be implemented.	All EPBC Act listed threatened flora and fauna, and migratory species, with a likelihood to occur identified in Table 5-1.
		■ Vegetation will not be cleared unless authorised under a Senex ATW permit. The ATW will be approved prior to any vegetation clearance or disturbance occurring.	All EPBC Act listed threatened flora and fauna, and migratory species, with a likelihood to occur identified in Table 5-1
		■ All infrastructure will be located in pre-disturbed areas of land.	All EPBC Act listed threatened flora and fauna, and migratory species, with a likelihood to occur identified in Table 5-1.
		■ Where the gathering infrastructure crosses Woleebee Creek within PL 1037 the pipeline will be constructed using horizontal directional drilling method to avoid the requirement to clear vegetation and habitats in these locations. Crossings outside of PL 1037 may not use horizontal directional drilling (HDD) but will be located to avoid all potential MNES threatened species habitat (except for Koala and Southern Squatter Pigeon dispersal habitat).	All EPBC Act listed threatened flora and fauna, and migratory species, with a likelihood to occur identified in Table 5-1.
		Targeted surveys will be undertaken, up to 12 months prior to construction, for individual plants of threatened flora species Ooline, Slender Tylophora and Belson's Panic, so that disturbance is: ■ Avoided for Ooline;	Threatened flora species with a likelihood to occur, namely Belson's Panic, Slender Tylophora and Ooline.

Potential Impacts	Relevant Stage	Key Management Measures	Relevant Species
		■ Avoided for Slender Tylophora, if found to be present in the disturbance footprint, ■ Avoided, or individual plants relocated or reinstated for Belson's Panic (grass) if found to occur in the disturbance footprint.	Targeted surveys will inform the presence/absence of threatened flora species within the proposed disturbance footprints.
		■ Habitat assessment will be undertaken, up to 12 months prior to construction, for threatened fauna where infrastructure is proposed, and habitat may be present.	All EPBC Act listed threatened flora and fauna, and migratory species, with a likelihood to occur identified in Table 5-1. Habitat assessments will inform any potential foraging, breeding, roosting and/or dispersal habitat for threatened fauna species and minimise disturbance to important areas (all MNES fauna habitat will be avoided except for Koala and Southern Squatter Pigeon dispersal habitat).
		■ Ecological surveys will be undertaken, up to 12 months prior to construction, for threatened and migratory fauna species so that disturbance can be avoided, if they are found to occur in the disturbance footprint.	All EPBC Act listed threatened flora and fauna, and migratory species, with a likelihood to occur identified in Table 5-1. Active surveys will inform the presence/absence of threatened fauna species to avoid the detected individuals and minimise potential disturbance (all MNES fauna habitat will be avoided except for Koala and Southern Squatter Pigeon dispersal habitat).
		■ Identified microhabitat features (e.g., hollow logs, woody debris, clumps of leaf litter around woody debris) will be avoided or relocated outside the disturbance footprint using standard techniques. This will include stockpiling microhabitat features, such as large logs, rocks or tree stumps for translocation into adjacent areas or retained habitats. Translocation of	All EPBC Act listed threatened flora and fauna, and migratory species, with a likelihood to occur identified in Table 5-1. The avoidance or relocation of important habitat features will retain fauna habitats or

Potential Impacts	Relevant Stage	Key Management Measures	Relevant Species
		hollow logs will be undertaken using excavators or other machinery under the direct supervision of the fauna spotter catcher.	provide new habitat in an area outside of the disturbance footprint (where habitat is similar).
		Clearing will be conducted in a sequential manner and in a way that directs escaping wildlife away from the clearing activities and into adjacent natural areas. This will be achieved through: ■ Ensuring that clearing is staged and timed to provide a break between clearing events. ■ Maintaining appropriate habitat links, or trees retained as stepping stones, are maintained from the clearing site to adjacent natural areas. ■ Ensuring that any clearing occurs in the direction of retained habitat, adjacent habitat or local corridors to ensure wildlife is not isolated in an island of vegetation.	All EPBC Act listed threatened flora and fauna, and migratory species, with a likelihood to occur identified in Table 5-1. Sequential clearing provides fauna time to move freely to adjacent habitats outside of the disturbance footprint.
		■ Clearing activities will avoid trees that contain mistletoe contributing >3% of canopy cover.	Painted Honeyeater Retaining / avoiding mistletoe species within the Project Area will limit disturbance to important foraging habitat for the Painted Honeyeater.
		Where habitat trees (particularly those with hollows, cracks and crevices where animals live, breed or shelter) or hollow logs (including live and dead standing) are unavoidable and are to be removed, the following management measures will be implemented: ■ Clearly mark the habitat tree to be removed and/or retained by differentiating with coloured flagging tape or equivalent; ■ Hollows will be reinspected and gently tapped on the tree trunk to scare fauna from hollows (if fauna are still present); ■ Following felling activities, hollows will be re-inspected to ensure no fauna are trapped or injured as a result of the clearing works;	Greater glider (southern and central), Yellow-bellied Glider (south-eastern), Brown Treecreeper (south-eastern), south-eastern Glossy Black Cockatoo, Southern Whiteface, White-throated Needletail, Corben's Long-eared Bat, Northern Quoll and Yakka Skink. Inspection of hollows and stockpiles prior to works minimises the potential harm to species occupying the habitats.

Potential Impacts	Relevant Stage	Key Management Measures	Relevant Species
		■ Trees are to be felled into the disturbance footprint to avoid damaging adjacent vegetation; ■ Logs from felled habitat trees are to be distributed in area of vegetation where they are retained and do not present a fire hazard; ■ Any stockpiles of vegetation left for over 12 hours will be inspected before mulching, if mulching is being used in that location; ■ Any displaced fauna (uninjured) will be relocated to a suitable, previously identified recipient site; and ■ Hollows are to be stored and transported safely by a fauna spotter catcher, to a previously identified recipient site, using appropriate methods.	The relocation of hollows to a suitable recipient site will provide suitable habitat for fauna outside of the disturbance footprint.
		■ Any injured animals (native or introduced) will be taken to receive veterinary care immediately or the animal is reported to RSPCA on 1300 ANIMAL (1300 264 625). Once recovered, native animals will be relocated to an area of similar habitat in proximity to the disturbance area.	All injured fauna (if any). All injured fauna is cared for appropriately to minimise further harm or death.
		■ All clearing and construction staff and fauna spotter catchers onsite will always have a two-way radio on hand to effectively communicate the observation of fauna or potential risks and/or injuries.	All EPBC Act listed threatened flora and fauna, and migratory species, with a likelihood to occur identified in Table 5-1. This management measure provides effective communication whilst within the Project Area and minimises potential harm to fauna.
		■ Gathering infrastructure and access track clearing widths will be limited to 18 m for gathering (24 m for trunklines) . Post construction gathering and trunklines will be rehabilitated except for access tracks which will not exceed 6m width.	Threatened and migratory fauna species with a likelihood to occur. Minimising gathering infrastructure and access tracks will minimise the amount of clearing and disturbance to habitats.

Potential Impacts	Relevant Stage	Key Management Measures	Relevant Species
		■ To prevent unnecessary land and vegetation disturbance, vehicles and equipment will be retained within the approved work zone.	All EPBC Act listed threatened flora and fauna, and migratory species, with a likelihood to occur identified in Table 5-1. This will prevent any unnecessary land and vegetation disturbance as well as minimise impacts to flora and fauna.
		■ 'No-go' and high constraint areas will be GPS located and/or clearly marked e.g., with signage, bunting, flagging tape	All EPBC Act listed threatened flora and fauna, and migratory species, with a likelihood to occur identified in Table 5-1. No-go areas will minimise any potential harm to flora and fauna species with appropriate signage and tape.
Degradation of threatened species habitats or threatened ecological communities as a result of dust, erosion or accidental release of hazardous materials (indirect impacts)	Construction	■ A qualified fauna spotter catcher will conduct a search immediately prior to clearing of woody vegetation for the presence of fauna species. Where fauna is detected, the spotter catcher will assess and implement the most appropriate method to avoid or minimise impacts on that fauna as a result of clearing.	All EPBC Act listed threatened flora and fauna, and migratory species, with a likelihood to occur identified in Table 5-1. A fauna spotter catcher will assess the Project Area and advise once it is safe to commence clearing activities. If fauna are encountered, the fauna spotter catcher will implement the most appropriate measures to avoid direct impacts to the species.
		■ Staff and contractors will be made aware through general site induction and training of the potential to impact the environment and mitigation and management measures to be implemented and followed.	All EPBC Act listed threatened flora and fauna, and migratory species, with a likelihood to occur identified in Table 5-1. Appropriate inductions and trainings will enable staff to understand the risks and impacts to the environment and fauna as a result of negligence.

Potential Impacts	Relevant Stage	Key Management Measures	Relevant Species
		■ Vehicles, plant, and machinery will comply with site-specific speed limits to minimise dust generation.	All EPBC Act listed threatened flora and fauna, and migratory species, with a likelihood to occur identified in Table 5-1. Dust impacts as a result of vehicles, plant and machinery have potential to implicate fauna health and lead to severe heart and respiratory issues. The implementation of dust suppression methods will minimise the chance of health implications to fauna.
		■ Sediment and erosion control to be managed in accordance with the Rehabilitation Plan Atlas Stage 3 Gas Project [SENEX-ATLS-EN-PLN-018] and the Contractor's erosion and sediment control procedures.	All EPBC Act listed threatened flora and fauna, and migratory species, with a likelihood to occur identified in Table 5-1. Where fauna habitat is impacted by sediment runoff and erosion, control measures will be put in place to minimise impacts.
		■ Appropriate erosion and sediment control measures are to be installed at watercourse crossing points to adequately stabilise soils to prevent erosion as per the Queensland Erosion and Sediment Control Procedure [SENX-QLDS-EN-PRC-003].	Threatened and migratory fauna species with a likelihood to occur along waterways and in riparian habitats. Where fauna habitat located along waterways and within riparian vegetation will potentially be impacted by erosion and sedimentation, control measures will be put in place to minimise impacts.
		■ Construction period in waterways will be minimised, and managed in accordance with relevant *Queensland Accepted development requirements for operational work that is constructing or raising waterway barrier works*.	All EPBC Act listed threatened flora and fauna, and migratory species, with a likelihood to occur identified in Table 5-1.

Potential Impacts	Relevant Stage	Key Management Measures	Relevant Species
			This management measure minimises disturbance to waterways and habitats along waterways.
		■ Construction activities will not interfere or block natural drainage e.g., disturbing channel contours.	All EPBC Act listed threatened flora and fauna, and migratory species, with a likelihood to occur identified in Table 5-1. This management measure minimises disturbance to fauna habitats.
Habitat fragmentation	Construction	■ Felled vegetation windrows to have fauna movement breaks constructed/inserted at no greater than 50 m linear intervals.	Koala and Southern Squatter Pigeon. This management measure prevents windrows being a barrier to Koala and Southern Squatter Pigeon dispersal across disturbed landscapes.
		■ Infrastructure will be located by avoiding, then minimise isolating, fragmenting, edge effects or dissecting tracts of native vegetation.	All EPBC Act listed threatened flora and fauna, and migratory species, with a likelihood to occur identified in Table 5-1. This management measure minimises disturbance to fauna habitats.
		■ Pipeline infrastructure will maximise co-location with other infrastructure (i.e., access tracks).	All EPBC Act listed threatened flora and fauna, and migratory species, with a likelihood to occur identified in Table 5-1. This management measure minimises disturbance to fauna habitats.
		■ Gathering infrastructure will mostly occur in low ecological value land and gathering infrastructure corridor widths will be minimised in regrowth native vegetation and waterway crossings.	All EPBC Act listed threatened flora and fauna, and migratory species, with a likelihood to occur identified in Table 5-1.

Potential Impacts	Relevant Stage	Key Management Measures	Relevant Species
			This management measure minimises disturbance to fauna habitats.
		■ Gathering lines are all below ground.	All EPBC Act listed threatened flora and fauna, and migratory species, with a likelihood to occur identified in Table 5-1. This management measure minimises disturbance to fauna habitats.
		■ RoW rehabilitated to 6 m wide access track post construction and all rehabilitated at end of project (unless landholder requests an access track to be retained for ongoing use purposes).	All EPBC Act listed threatened flora and fauna, and migratory species, with a likelihood to occur identified in Table 5-1. This management measure minimises disturbance to fauna habitats. Rehabilitated areas will provide additional habitat for threatened species.
Inhibiting the ability of ecological communities or species to adapt and survive predicted climate change effects (for example through impeding migration pathways or inhibiting access to refuge areas)	Construction and Operation	■ All infrastructure will be located in pre-disturbed areas of land or low ecological value land.	All EPBC Act listed threatened flora and fauna, and migratory species, with a likelihood to occur identified in Table 5-1. Locating infrastructure in pre-disturbed areas will minimise impacts and overall disturbance to pristine areas and flora and fauna habitats.
		■ The Atlas Stage 3 Environmental Constraints Protocol for Planning and Field Development [OPS-ATLS-EN-PLN-001] for constraints planning and field development contains specific measures to avoid habitat fragmentation and will be implemented.	All EPBC Act listed threatened flora and fauna, and migratory species, with a likelihood to occur identified in Table 5-1. Correct implementation of the Atlas Stage 3 Environmental Constraints Protocol for Planning and Field Development [OPS-ATLS-EN-PLN-001] will minimise clearing and

Potential Impacts	Relevant Stage	Key Management Measures	Relevant Species
			effects of habitat fragmentation and therefore minimise impacts to flora and fauna.
		■ Where the gathering infrastructure crosses Woleebee Creek within PL 1037, the pipeline will be constructed using horizontal directional drilling method to avoid impeding this extant wildlife corridor.	All EPBC Act listed threatened flora and fauna, and migratory species, with a likelihood to occur identified in Table 5-1. This management measure minimises disturbance to the existing wildlife corridor and fauna habitats within the immediate vicinity.
		■ RoW widths will be minimised at waterway crossings and in accordance with the Atlas Stage 3 Environmental Constraints Protocol for Planning and Field Development [OPS-ATLS-EN-PLN-001].	All EPBC Act listed threatened flora and fauna, and migratory species, with a likelihood to occur identified in Table 5-1. This management measure minimises disturbance to fauna habitats.
		■ Areas which are not required for ongoing operational purposes will be reinstated.	All EPBC Act listed threatened flora and fauna, and migratory species, with a likelihood to occur identified in Table 5-1. Reinstatement of areas to their previous condition (or better) will positively impact fauna and provide habitats where otherwise potentially disturbed.
Fauna injury during construction activities and movement of machinery/vehicles	Construction	■ Excavations and trenches will be inspected for trapped fauna daily during construction.	All EPBC Act listed threatened fauna, and migratory species, with a likelihood to occur identified in Table 5-1, particularly ground-dwelling species. Fauna entrapment may lead to severe health effects (e.g., heat stroke, starvation, and dehydration) and potentially death. Daily

Potential Impacts	Relevant Stage	Key Management Measures	Relevant Species
			inspections will allow for any trapped animals to be safely removed from the trench by a fauna spotter catcher.
		■ Measures to prevent fauna entrapment and facilitate escape will be implemented within open trenches (i.e., hessian sacks, fauna escape ramps etc.).	All EPBC Act listed threatened fauna, and migratory species, with a likelihood to occur identified in Table 5-1, particularly ground-dwelling species. The implementation of escape measures will allow trapped fauna (if any) to escape trenches.
		■ A qualified fauna spotter catcher will conduct a search immediately prior to clearing of woody vegetation for the presence of fauna species. Where fauna is detected, the spotter catcher will assess and implement the most appropriate method to avoid or minimise impacts on that fauna as a result of clearing.	All EPBC Act listed threatened fauna, and migratory species, with a likelihood to occur identified in Table 5-1. This management measure minimises harm to fauna as a result of clearing activities.
		■ Restricted zones will be established around breeding places / nests that have become active after construction has commenced as per identification by the site personnel including environmental representatives.	All EPBC Act listed threatened fauna, and migratory species, with a likelihood to occur identified in Table 5-1. This management measure minimises harm to breeding fauna and nests.
		■ During construction, trees with koalas are clearly flagged with a specific colour or design of flagging tape (or equivalent) and the on-site fauna spotter catcher is alerted.	Koala This management measure minimises harm to Koalas, occupying habitat trees, during clearing activities. This further indicates the tree is not to be removed until Koalas have self-relocated.

Potential Impacts	Relevant Stage	Key Management Measures	Relevant Species
		■ Night-time vehicle movements on site will only be undertaken by exception.	Koala This management measure minimises harm (particularly direct injury from vehicle collision) to Koalas.
Introduction and/or spread of weed species	Construction	■ Implementation of the Senex Biosecurity Management Plan Queensland Operations (SENEX-QLDS-EN-PLN-001) and Senex Queensland Weed Hygiene Procedure (SENEX-QLD-EN-PRC-023) which includes requirements for weed washdowns, certification and record keeping for all Project vehicles and machinery. ■ Project development will be planned to minimise vehicle, plant and equipment movements between properties that would otherwise require weed washdowns and certification prior to those movements.	All EPBC Act listed threatened flora and fauna, and migratory species, with a likelihood to occur identified in Table 5-1, that are impacted by invasive flora and/or fauna species. This management measure minimises the introduction and/or of invasive species within the Project Area.
		■ Access to a landholder's property will not occur unless authorised under a Senex ATW permit. Site specific weed management requirements will be defined prior to access to any property or work site. ■ Weed management and control methods will depend upon the location, weed species identified, the degree of the infestation, relevant landholder agreement or conduct and compensation agreements provisions, and local, state and national regulatory requirements.	All EPBC Act listed threatened flora and fauna, and migratory species, with a likelihood to occur identified in Table 5-1 that are impacted by invasive flora and/or fauna species.
		■ Imported material able to transport weed seed will be assessed to ensure they are free of contamination, disease and invasive weeds. Landowner approval may also be required for imported soils and gravel.	All EPBC Act listed threatened flora and fauna, and migratory species, with a likelihood to occur identified in Table 5-1 that are impacted by invasive flora and/or fauna species.
		■ Hygiene and biosecurity measures to minimise the introduction and/or spread of myrtle rust (caused by the fungus *Austropuccinia psidii*) in the Project Area are enforced through vehicle washdown procedures. Wash down areas will be clearly marked. Vehicles entering the Project site will	Koalas, Greater Glider (southern and central) and Yellow-bellied Glider (south-eastern)

Potential Impacts	Relevant Stage	Key Management Measures	Relevant Species
		need to comply with the biosecurity protocols in place to prevent the introduction of pathogens known to affect eucalypt trees.	This management measure minimises the introduction and/or of myrtle rust within the Project Area.
		■ Project development will be planned to minimise vehicle, plant and equipment movement between properties that would otherwise require weed washdowns and certification prior to those movements.	All EPBC Act listed threatened flora and fauna, and migratory species, with a likelihood to occur identified in Table 5-1 that are impacted by invasive flora and/or fauna species. This management measure minimises the introduction and/or of invasive species within the Project Area.
		■ Vehicle access will be restricted in areas containing weed infestations. Any identified infestation will be controlled / treated using appropriate / weed-specific controls, during construction to minimise risk of spread and exposure of equipment to weed propagules.	All EPBC Act listed threatened flora and fauna, and migratory species, with a likelihood to occur identified in Table 5-1 that are impacted by invasive flora and/or fauna species. This management measure minimises the introduction and/or of invasive species within the Project Area.
		■ All vehicles will possess an up-to-date Weed Hygiene Declaration.	All EPBC Act listed threatened flora and fauna, and migratory species, with a likelihood to occur identified in Table 5-1 that are impacted by invasive flora and/or fauna species.
		■ Access tracks and operational assets will be maintained to be free of declared or significant weeds to avoid contamination of vehicles and machinery.	This management measure minimises the introduction and/or of invasive species within the Project Area.

Potential Impacts	Relevant Stage	Key Management Measures	Relevant Species
		■ Onsite waste disposal strategies (particularly for food wastes) that will not encourage the presence of pest fauna will be implemented as per Section 5.3.6 and the Senex Waste Management Plan.	All EPBC Act listed threatened flora and fauna, and migratory species, with a likelihood to occur identified in Table 5-1 that are impacted by invasive flora and/or fauna species.
		■ Weekly onsite inspections of site infrastructure / equipment for resident pest fauna and establishment of a register for pest sightings	This management measure minimises the introduction and/or of invasive species within the Project Area.
		■ In restricted zones, vehicles will reduce speed and thoroughfare will be limited to critical site-specific construction activities. Alternative routes will be utilised for all other project traffic.	All EPBC Act listed threatened flora and fauna, and migratory species, with a likelihood to occur identified in Table 5-1 that are impacted by invasive flora and/or fauna species.

Senex have developed the Environmental Management Plan Atlas Stage 3 Gas Project [SENEX-ATLS-EN-PLN-015] that describes how Senex will manage potential environmental impacts associated with conducting gas production activities and to ensure compliance with EA conditions, industry guidelines and regulatory requirements. The relevant environmental controls are described below.

5.3.1 Housekeeping

5.3.1.1 General Environmental Management Controls

- Site inductions and pre-start meetings will be held for all personnel attending the work site. The information discussed will include flora and fauna management issues at the site and any specific requirements;
- No firearms, traps, nets, or pets permitted on site or in camp;
- Feeding of domestic or native animals is not permitted;
- Personnel will remain within areas approved for operations (cleared work zones) and not drive off approved access tracks or enter exclusion areas or 'no-go' zones;
- All rubbish and waste materials including cigarette butts are to be disposed of in the appropriate bins, or in the absence of bins, removed daily from site. All personnel are responsible for ensuring that sites remain litter free; and
- Adequate and properly maintained firefighting equipment will be present on site and potential ignition sources controlled.

5.3.2 Pests and Weeds (Invasive Species)

5.3.2.1 Management Measures

- Activities will be planned so that movement of vehicles, plant, machinery and equipment avoid moving between properties, corridors or areas with weed infestations;
- A biosecurity plan has been developed for the Project (Queensland Operations Biosecurity Management Plan [SENEX-QLDS-EN-PLN-001]). Site specific weed management requirements will be defined prior to access to any property or work site and outlined in the ATW, to be followed by all staff and contractors;
- Imported material able to transport weed seed will be assessed to ensure they are free of contamination, disease and invasive weeds. Landowner approval may also be required for imported soils and gravel;
- Vehicle hygiene procedures will be implemented where risk of weed introduction or spread is identified;
- Pest and weed management control activities will be undertaken on Senex work sites, as required by Senex; and
- Weed management and control methods will depend upon the location, weed species present, the degree of the infestation, relevant landholder agreement or CCA provisions, and local, state and national regulatory requirements.

5.3.2.2 Performance Criteria

- No spread of declared or high priority pest flora or fauna species within or in proximity to Senex activities;
- Weed species managed in accordance with CCAs, *Land Access Code 2016 requirements*, *Biosecurity Act 2014* and other regulatory requirements, and relevant Senex supporting procedures and plans; and
- A weed monitoring program will be developed to provide opportunity for early detection of weed outbreaks or new areas of establishment.

5.3.3 Chemical and Fuel Storage

5.3.3.1 Management Measures

To minimise the impacts of a chemical or fuel spill to surface or groundwater the following measures will be implemented:

- All fuel, oil and chemicals are to be stored, transported and handled in accordance appropriate standards including AS 3780:2008 – The storage and handling of corrosive substances, AS 1940:2004 – The storage and handling of flammable and combustible liquids, AS 3833:2007 – Storage and handling of mixed classes of dangerous goods in packaged and intermediate bulk containers.
- Storage areas will be sealed, bunded, and adequately ventilated.
- Storage and refuelling areas will be located away from watercourses, sensitive areas and any source of ignition as determined by the Senex Site Supervisor.
- Containment bunds and/or sumps will be drained periodically of accumulated rainwater to prevent overflow and subsequent pollution of the surrounding land and watercourses.
- In addition, the following monitoring and reporting will be undertaken:
- All chemical, oil and fuel storage areas are to be inspected at least weekly for temporary storage, and monthly for permanent storage areas during the operating phase by the Contractor Site Supervisor and/or the Senex Site Supervisor.
- All spills are to be contained immediately and managed through the Senex Spill Response procedure (see Environmental Management Plan Atlas Stage 3 Gas Project [SENEX-ATLS-EN-PLN-015]).
- Emergency events will be managed in accordance with the contingency procedures in the Project Atlas Emergency Response Plan [SENEX-QLDS-ER-PLN-001].
- Incident details will be recorded immediately and notified through the Senex Incident reporting systems, reported and investigated.

5.3.3.2 Performance Criteria

- No uncontrolled release of chemicals, oil or fuel is to occur to the environment; and
- All chemicals, oil and fuel handled, stored and effectively contained, and transported appropriately and in accordance with relevant Australian Standards (AS) and Australian Dangerous Good Codes.

5.3.4 Water Management

5.3.4.1 Management Measures

A number of mitigation and management measures are planned to limit the impact to waterways and riparian ecosystems. These include:

- **Site Selection** – During field planning for site selection, watercourse crossings are avoided where practicable because of environmental impacts (including impacts such as fragmentation and disruption of flows), and their associated additional construction requirements, including erosion and sediment control and monitoring. Existing watercourse crossings will be utilised to minimise land disturbance and impacts to riparian vegetation and associated habitat.

- **Construction Planning** – Overall, construction activities will not interfere or block natural drainage. Stormwater will be diverted around disturbed areas or will be allowed to pass through the sites in a controlled manner and at non-erosive flow velocities. Watercourse crossing points will be adequately stabilised to prevent erosion and the RoW construction period when working in waterways will be minimised.
- **Erosion and Sediment Control** – Works on site will not commence until any relevant Contractor erosion and sediment control procedures have been approved and implemented. Erosion and sediment control structures will be inspected, in accordance with the relevant erosion and sediment control procedures or plan to ensure they are working effectively.
- **Rehabilitation** – The scale of the initial disturbance for construction is planned to be 18 m wide for RoWs. This width will be reduced during the operating phase to a nominal area that will be rehabilitated directly over the pipeline to maintain pipeline integrity, and a 6 m access track will be maintained to access wells and infrastructure. Within the life of the well field, RoWs through watercourses may be rehabilitated sooner than the gas field life, depending on their location and the well's operational life.

To minimise the impacts on water quality in surface watercourses and wetlands during construction and operation, the following measures will be implemented:

- Petroleum activities within any wetland area or watercourse will be carried out in accordance with an approved ATW. Watercourse crossings will be limited to those strictly necessary for construction or operation of infrastructure and only at locations approved in the ATW.
- Any waterway barrier works (works that pose a barrier to water flow) will be undertaken in accordance with the "*Accepted development requirements for operational work that is constructing or raising waterway barrier works*" (DAF 2018) and only be undertaken where authorised under an ATW.
- Appropriate erosion and sediment control measures are to be installed at watercourse crossing points to adequately stabilise soils to prevent erosion and as per the Queensland Erosion and Sediment Control Procedure [SENEX-QLDS-EN-PRC-003].
- 'No-go' and high constraint areas will be GPS located and clearly marked.
- Construction activities will be managed to minimise interference with overland flow paths.

5.3.4.2 Performance Criteria

- No contaminants directly or indirectly released to water;
- Erosion and sediment control measures will be installed according to relevant plan and working effectively; and
- No accidental or uncontrolled release of water to waterways or drainage lines.

5.3.5 Emergency and Incident Response

5.3.5.1 Management Measures

In the event of an environmental incident:

- Personnel who observe an environmental incident including a spill are required to immediately notify the Contractor Site Supervisor who will then notify the Senex Site Supervisor.
- In the event of a chemical, oil or fuel spill, the spill will be contained and cleaned up as outlined in the Senex Spill Response procedure (see Environmental Management Plan Atlas Stage 3 Gas Project [SENEX-ATLS-EN-PLN-015]).
- Contractors are required to have in place procedures for spill response which are in accordance with the Senex Spill Response Plan and will include details requirements for:

- Minimising release;
- Containing spilled material;
- Raising the alarm and response;
- Locations of spill kits; and
- Management of contaminated material if necessary.

- Any spills will be assessed by the Senex Site Supervisor, supported by the Senex Environment Manager to determine appropriate remediation options such as the removal of contaminated material.
- Incident reports are required to contain information required by the Senex Safety Management Plan and Incident Reporting and Investigation Procedure [SENEX-CORP-HS-PRC-004].
- Emergency Response drills will be performed in accordance with the Project Atlas Emergency Response Plan [SENEX-QLDS-ER-PLN-001] to ensure readiness and identify opportunities for improvement.
- For linear infrastructure – construction or maintenance activities in wetlands or a watercourse will be required to be carried out under the authorisation of an ATW and as per specific approval by the Senex environment representative to ensure approval conditions are met.

5.3.5.2 Performance Criteria

- All emergencies on site managed in accordance with the Project Atlas Emergency Response Plan [SENEX-QLDS-ER-PLN-001];
- All incidents are reported, notified, and investigated in accordance with the Senex Incident Management Procedure [SENEX-CORP-HS-PRC-004]; and
- All spills are managed in accordance with the Senex Spill Response Plan [SENEX-CORP-ER-PLN-006].

5.3.6 Waste Management

5.3.6.1 Management Measures

- All waste generated will be stored, handled and transported in accordance with the Senex Waste Management Procedure QLD [SENEX-QLDS-EN-PRC-022] and appropriate standards/regulatory requirements;
- All wastes will be transported in covered or sealed containers to prevent the loss of waste materials during transport;
- All sites will be kept free from litter;
- Waste material (including domestic waste) will be collected and stored in covered bins to prevent loss and scavenging by animals;
- Green waste will be used on site for either rehabilitation or sediment and erosion control or both;
- Release of treated sewage effluent of greywater will be:
  - To a designated (fenced and signed) area;
  - Not result in pooling of run-off or aerosols or spray drift or vegetation die-off; and
  - The contaminated release area will be kept vegetated with ground cover (not weeds).

5.3.6.2 Performance Criteria

- Contaminants not directly or indirectly released to land;

- Waste is appropriately managed to avoid or minimise the potential for:
  - Release of hazardous waste to land or waters either through inappropriate waste disposal or accidental release;
  - Inadequate waste management leading to inappropriate disposal or inadequate re-use and recycling; or
  - Impacts to the environment, land use or well-being of people resulting from inappropriate storage, handling, or disposal of waste.
- Waste is managed at all Senex sites in accordance with the waste and resource management hierarchy and the waste and resource management principles under the Environmental Protection Regulation 2019 and the *Waste Reduction and Recycling Act 2011.*

5.3.7 Flora Management

5.3.7.1 Management Measures

- No more than 12 months prior to undertaking activities that result in significant disturbance of land in areas of native vegetation, an ecological survey will be undertaken by a suitably qualified person;
- Vegetation will not be cleared unless authorised under a Senex ATW permit. The ATW will be approved prior to any vegetation clearance or disturbance occurring;
- All infrastructure will be located in pre-disturbed areas of land to avoid all areas of potential MNES habitat (excluding Koala and Southern Squatter Pigeon dispersal habitat) and minimise disturbance to native vegetation;
- Avoid, then minimise, the clearing of mature trees;
- Cleared vegetation/green waste not used on-site for rehabilitation and/or sediment erosion should be stockpiled to facilitate re-spreading or salvaging;
- No vehicles or equipment are to move outside the cleared work zone to prevent unnecessary land and vegetation disturbance; and
- ‘No-go’ and high constraint areas will be GPS located and clearly marked e.g., bunting, flagging tape.

5.3.7.2 Performance Criteria

- No clearing any areas confirmed as MNES TECs or areas confirmed as potential habitat for MNES threatened species, except for Koala and Southern Squatter Pigeon dispersal habitat (up to 530 ha and 2.1 ha respectively, all of which is previously cleared land);
- No clearing is undertaken without appropriate authorisation and approvals; and
- Clearing of vegetation and protected plants is in accordance with relevant permits or exemptions issued under the EPBC Act approval conditions, NC Act and relevant EA conditions.

5.3.8 Fauna Management

5.3.8.1 Management Measures

- A preliminary desktop assessment will be conducted to identify the likelihood of habitat features to support fauna, particularly threatened species;
- Pre-clearing surveys to be carried out to identify and mark any potential denning, roosting, or breeding trees have the potential to be utilised by the Greater Glider or South-eastern Glossy Black-cockatoo, with impacts to these trees to be avoided;

- If impacts to potential denning, roosting or breeding trees suitable for Greater Glider or South-eastern Glossy Black-cockatoo cannot be avoided, the hollow is to be inspected by the fauna spotter catcher using direct observation or cameras to determine that the hollow is not in use;
- Where identified habitat features (e.g., tree hollows, hollow logs, woody debris, clumps of leaf litter around woody debris) cannot be avoided and it is practical to do so, the habitat feature will be relocated outside the disturbance footprint using standard techniques;
- Temporary fencing will be installed around construction sites and areas (pits/voids) that present hazards to stock or fauna;
- Vegetation clearing will be undertaken in a sequential manner to direct fauna towards adjacent habitat and not into other hazardous areas;
- Felled vegetation windrows will have fauna movement breaks constructed/inserted at no greater than 50 m linear intervals;
- A qualified fauna spotter catcher will conduct a search immediately prior to clearing of woody vegetation for the presence of fauna species. Where fauna is detected, the spotter catcher will assess and implement the most appropriate method to avoid or minimise impacts on that fauna as a result of clearing. The fauna spotter catcher methodology for best-practise and humane treatment of fauna on site includes:
  - All animal handling is to be undertaken by a suitably qualified and experienced person.
  - Sequential clearing will be utilised to assist fauna in relocating to nearby habitat on their own accord.
  - All fauna interactions throughout the Construction Phase are to be recorded including; capture/release locations, time and date of interaction, species identification, sex, age class, health condition, outcome of interaction and any significant details of situation.
  - If any fauna is to sustain injury, it will be handed over to appropriate wildlife carer personnel or veterinary clinic within 24 hours and correct Senex personnel notified.
  - In best case scenario if fauna can be left to relocate of their own accord, they should be allowed to do so.
- Fauna will be allowed to move off on their own accord. Where this does not occur and immediate access is required, a fauna spotter catcher will be contacted to relocate the animal;
- The Koala Encounter Procedure (see below) will be followed in the instance that any Koalas are observed or recorded within areas to be disturbed;
- Natural vegetation buffers along creeks shall not be disturbed unless authorised under an ATW;
- Vehicle speed limits (including maximum 40 km/hr when off public roads) will apply throughout construction;
- Where activities impose barriers to the movement of fauna for extended period of time, reasonable measures will be implemented to facilitate fauna movement around or through active work areas;
- Any waterway barrier works (works that pose a barrier to water flow and fish movement) will be undertaken in accordance with the "*Accepted development requirements for operational work that is constructing or raising waterway barrier works*" (DAF 2018) and only be undertaken where authorised under an ATW;
- Measures to prevent fauna entrapment and facilitate escape will be implemented within open trenches.
- Excavations and trenches will be inspected for trapped fauna on a daily basis, within two hours of sunrise and prior to backfilling or laying pipe;

- The amount of artificial lighting and the number of hours' lights are operational will be minimised; and
- The following list are steps to be implemented specifically for the Koala. It is noted that these will only apply where a Koala is present, and includes:
  - Monitoring to occur of any Koala with a high risk of entering the vicinity of the job front to occur throughout the construction phase.
  - Each morning prior to works the 'clearing team' will meet to discuss and understand the measures needed to be taken regarding Koalas. The fauna spotter catcher will assess if any Koalas are in present danger of clearing works that day, and for all stages of clearing.
  - If any Koala is present or have the likelihood of entering clearing front, restricted work measures should be in place, to allow safe movement away from the work area.
  - Clearing of trees will be carried out in stages that allow Koalas in the area being cleared enough time to move out of the clearing site without human intervention.
  - Ensuring that between each stage and the next there is at least one period of 12 hours that starts at 6 p.m. on a day and ends at 6am on the following day, during which no trees are cleared in that site.
  - That no tree in which a Koala is present, and no tree with a crown overlapping a tree in which a Koala is present, is cleared.
  - If a Koala is not injured or ill but refuses to move from the clearing area on its own accord after two days, the fauna spotter catcher can choose to liaise with Senex, with this resulting in contact being made with the Queensland Government to negotiate appropriate methods for removal and relocation.
  - If an animal is incapable of moving from the clearing area due to injury or illness and it is in direct harm from clearing equipment, it will be captured by a qualified fauna spotter catcher and either relocated into suitable habitat or taken for medical assistance.

5.3.8.1.1 Koala Encounter Procedure

Management of any observed Koalas will need to follow additional procedures in accordance with current Queensland regulatory guidelines. Table 5-4 below correlates to the following legislation in regard to encountering Koala on site, treating sick/injured Koala and relocation of Koala:

- Code of Practice Care of Sick, Injured or Orphaned Protected Animals in Queensland - *Nature Conservation Act 1992*;
- Nature Conservation (Koala) Conservation Plan 2017;
- Koala-sensitive Design Guideline - A guide to Koala-sensitive design measures for planning and development activities;
- Operation policy – Release of rehabilitated Koalas and the take and release of Koalas in imminent danger; and
- Nature Conservation (Animals) Regulation 2020.

Table 5-4: Koala Encounter Procedure in Accordance with Relevant Guidelines

Procedure	Guidance Suggestions
Encountering Koala	■ Clearing of Koala habitat trees (outside of breeding and foraging habitat areas) is carried out in a way that ensures Koalas occupying the area that is being cleared have enough time to move out the area being cleared without human intervention. ■ The clearing will be carried out in stages. ■ Between each stage and the next there is at least one period of 12 hours (starting at 6pm on a day and ending at 6am on the following day) during which no trees are cleared on the site. ■ If a Koala is in a tree, that tree is not to be cleared. If the crown of a tree overlaps with a tree that a Koala is in, that tree is not to be cleared.
Treating sick/injured Koala	■ DES is the agency responsible for the assessment and licensing of individuals and organisations for the purposes of wildlife rehabilitation. ■ Contact to be made with DES or a person who holds a permit that specifically provides for the rehabilitation of Koalas. ■ A person who rescues a protected animal, but is not a licensed rehabilitator, will surrender it to a licensed rehabilitator or conservation officer within 72 hours of taking the animal into care as stated in section 56 (2) of the *Nature Conservation (Animals) Regulation 2020.* ■ The principles surrounding injury/illness of Koala include; A duty of care, avoiding harm, avoiding risk to human health and safety, relieving suffering and taking fair, reasonable and appropriate measures.
Relocation of Koala	■ An appropriately qualified person may take an apparently healthy Koala from the wild when it is found to be in clear and imminent danger. ■ The Koala should be released back to its prescribed natural habitat. If a Koala is to be released outside its prescribed natural habitat, the appropriately qualified person is to apply for approval. ■ The release is in accordance with procedures outlined in the *Code of Practice Care of Sick, Injured or Orphaned Protected Animals in Queensland - Nature Conservation Act 1992.*

5.3.8.2 Performance Criteria

- No clearing any areas confirmed as MNES TECs or areas confirmed as potential habitat for MNES threatened species, except for Koala and Southern Squatter Pigeon dispersal habitat (up to 530 ha and 2.1 ha respectively, all of which is previously cleared land);
- No damage or destruction of Koala trees within the construction footprint, where there is an occupying Koala or tree crown overlapping a tree with an occupying Koala;
- No damage to potential fauna microhabitat features within MNES mapped potential habitat, including tree hollows, hollow logs, woody debris and clumps of leaf litter surrounding woody debris as these are common denning, roosting and/or breeding features to MNES mammals, birds, reptiles and invertebrates.
- No injury, entrapment or death of fauna or domestic stock, as a result of Senex's activities; and
- No introduction of new declared weed species, as a result of Senex's activities.

Additional to management measures identified in the sections above, the outcomes of the Atlas Stage 3 Environmental Constraints Protocol for Planning and Field Development [OPS-ATLS-EN-

PLN-001] and avoidance planning will be implemented and used to inform the management measures during construction.

5.4 Monitoring and Corrective Actions

The monitoring actions in Table 5-5 will be implemented. These actions are in addition to those included in the Environmental Management Plan Atlas Stage 3 Gas Project [SENEX-ATLS-EN-PLN-015].

Table 5-5: Construction Monitoring and Corrective Actions

Monitoring Activity	Potential impact if not monitored	Environmental Outcomes	Timing	Corrective Action
Monitor for evidence of vehicles leaving designated areas and machinery operating outside of designated areas.	■ Destruction of wildlife habitat. ■ Injury to wildlife. ■ Unnecessary damage to the environment.	■ Destruction of wildlife habitat and injury to wildlife is minimised. ■ Unnecessary damage to vegetation is avoided.	■ Daily onsite observations.	Trigger: ■ Vehicles operate outside designated areas. Action: ■ Reinforce during site toolbox / induction meetings.
Monitor clearing activities	■ Vegetation clearing outside of designated areas.	■ Preservation of vegetation within the Project Area ■ No impact to vegetation beyond the designated clearing area.	■ Daily inspections of clearing area during clearing events	Trigger: ■ Clearing outside the designated clearing areas. Action: ■ Cease work and report the incident. Incident details will be recorded immediately and notified through the Senex Incident reporting systems, reported and investigated. Begin remedial activities immediately, such as rehabilitation in accordance with the Rehabilitation Plan Atlas Stage 3 Gas Project [SENEX-ATLS-EN-PLN-018]. ■ Reporting on clearing that has occurred to MNES habitat outside the clearance limits to the Senex Environmental Manager.

Monitoring Activity	Potential impact if not monitored	Environmental Outcomes	Timing	Corrective Action
Inspect active breeding places	■ Damage to breeding habitats. ■ Injury to actively breeding fauna.	■ Injury to fauna is minimised. ■ No death to fauna. ■ Harm to active breeding places is minimised.	■ Daily inspections of clearing area during clearing events	Trigger: ■ Native fauna injuries due to clearing activities. Action: ■ Take the injured fauna to a veterinarian.
Inspect trenches and/or other excavations prior to commencement of works for trapped fauna	■ Fauna entrapment, leading to dehydration, starvation, stress, increased predation, exposure to inclement weather.	■ Injury to fauna is minimised.	■ Daily inspections of trenches when open and clearing area during clearing events	Trigger: ■ Fauna is trapped within trenches and/or excavations. Action: ■ Have the fauna spotter catcher take the animal to a veterinarian or release if uninjured. ■ Implement a process to avoid entrapments in future, e.g. bolstering escape methods for open trenches, exclusion barriers to trenches, backfilling trenches before nighttime. ■ Trenches and/or excavations are checked daily prior to commencement of works and relocated to suitable nearby habitat by a fauna spotter catcher.
Assess dust deposition on vegetation within and adjoining the construction area.	■ Adverse impacts to flora and fauna from dust deposition.	■ Dust levels are kept to a minimum.	■ Monthly inspections during construction period.	Trigger: ■ Visual dust deposition on vegetation Action: ■ Increase frequency of road watering where necessary.

Monitoring Activity	Potential impact if not monitored	Environmental Outcomes	Timing	Corrective Action
	■ Adverse impacts to air pollution from dust generation.			■ Provide cover on soil stockpiles that are proposed to be exposed for a prolonged period. ■ Review and reduce vehicle speed limits.
Conduct checks on vehicles and machinery to ensure they hold a valid and up-to-date Weed Hygiene Declaration	■ Introduction and spread of new declared weeds into the construction areas.	■ No new declared weed infestations. ■ Control of existing weed infestations.	■ Daily inspections during the construction phase.	Trigger: ■ Weed hygiene has not been performed or certified. Action: ■ Prevent vehicle and materials access on site if they have not been certified as weed free.
Monitor for new weed infestations.	■ New weed infestations arise in the construction areas.	■ Environmental harm is minimised. ■ Prevent the introduction or spread of weed infestations.	■ Daily / weekly project vehicle checks during construction	Trigger: ■ Weed infestations not recorded properly and new weed infestations arise. Action: ■ Implement a control program for any new infestation identified in the construction area to prevent further spread. ■ All weed species to be recorded in a detailed register. ■ Assess weed records monthly for detailed requirements. ■ Assess control program monthly for effectiveness.

Monitoring Activity	Potential impact if not monitored	Environmental Outcomes	Timing	Corrective Action
Inspect spill kits to ensure they contain correct materials. Inspect on-site machinery and equipment for any leaks / releases. Inspect construction areas for signs of soil contamination.	■ Environmental harm due to machinery / equipment leaks. ■ Soil contamination. ■ Spills not appropriately cleaned.	■ No adverse soil contamination. ■ No faulty or leaking machinery or equipment.	■ Monthly inspections during construction period.	Trigger: ■ Spillages, leaks, or soil contamination. Action: ■ Incident details will be recorded immediately and notified through the Senex Incident reporting systems, reported and investigated. ■ Remediate areas of contamination. ■ Replenish spill kits.
Inspect on site erosion and sediment control devices in areas of potential MNES	■ Adverse erosion and sediment runoff in areas of potential MNES habitat. ■ Faulty erosion and sediment control devices.	■ No increased erosion and sediment runoff in areas of potential MNES habitat. ■ No damage to erosion and sediment control devices.	■ Daily / weekly during construction periods.	Trigger: ■ Faulty erosion and sediment control devices. Action: ■ Repair and/or modify erosion and sediment control devices if they have failed / not working correctly. ■ Install new or additional erosion and sediment control measures where soil erosion or sediment release is evident.

6 OPERATIONS MANGEMENT MEASURES

Senex have developed the Environmental Management Plan Atlas Stage 3 Gas Project [SENEX-ATLS-EN-PLN-015] that describes how Senex will manage potential environmental impacts associated with conducting gas production activities and to ensure compliance with EA conditions, industry guidelines and regulatory requirements. The relevant environmental controls are described below.

6.1 Relevant Significant Species

Relevant significant species that have been assessed as known, likely or potential to occur within the Project Area that have the potential to be impacted during operation phases are detailed in Table 6-1.

Table 6-1: MNES with Potential to be Impacted during Operation

Known Presence	
TECs	
Brigalow (*Acacia harpophylla* dominant and codominant)	Poplar Box grassy woodland on alluvial plains
Threatened Flora Species	
Ooline	
Threatened Fauna Species	
Greater Glider	White-throated Needletail
Migratory Species	
White-throated Needletail	
Weeds of National Significance	
Tiger Pear	Common Prickly Pear
Velvety Prickly Pear	

Likely Presence	
Threatened Fauna species	
Dulacca Woodland Snail	South-eastern Glossy Black-cockatoo
Koala	
Migratory Species	
Fork-tailed Swift	

Potential Presence	
Threatened Flora Species	
Belson's Panic	Slender Tylophora
Threatened Fauna Species	
Australian Painted Snipe	Painted Honeyeater
Southern Whiteface	Brown Treecreeper (south-eastern)
Southern Squatter Pigeon	Diamond Firetail
Northern Quoll	Corben's Long-eared Bat
Yellow-bellied Glider (south-eastern)	Five-clawed worm-skink
Collared Delma	Yakka Skink
Dunmall's Snake	Grey Snake
Migratory Species	
Sharp-tailed Sandpiper	Common Sandpiper
Latham's Snipe	Satin Flycatcher
Rufous Fantail	Oriental Cuckoo

6.2 Operation Potential Impacts

Potential impacts to significant species include:

- Indirect impacts to adjacent habitat areas as a result of noise, dust, runoff and erosion, including impacts to downstream environments;
- Noise disturbances have the potential to influence breeding, roosting or foraging behaviour of native fauna;
- Direct mortality or injury to native fauna during operational activities including maintenance; and
- Indirect impacts to adjacent habitat areas as a result of an introduction or spread or weed and pest species.

6.3 Management Measures and Performance Criteria

Management measures and associated Performance Criteria to be implemented during the Project operational phases are provided in the sections below.

6.3.1 Housekeeping

As for construction. Refer to Section 5.3.1.

6.3.2 Pests and Weeds (Invasive Species)

6.3.2.1 Management Measures

- Project development will be planned to minimise vehicle, plant and equipment movements between properties that would otherwise require weed washdowns and certification prior to those movements;

- Ongoing monitoring of weed invasions is required and adaptive management activities will continue in the operational phase of the Project; and
- All operations will follow the Queensland Weed Hygiene Procedure [SENEX-QLD-EN-PRC-023].

6.3.2.2 Performance Criteria

- No spread of declared or high priority pest plants or fauna species within or in proximity to Senex activities; and
- Weeds managed in accordance with CCAs, *Land Access Code 2010* requirements, *Biosecurity Act 2014* and other regulatory requirements, and relevant Senex supporting procedures and plans.

6.3.3 Chemical and Fuel Storage

6.3.3.1 Management Measures

- All fuel, oil and chemicals are to be stored, transported, and handled in accordance appropriate standards including AS 3780:2008 – The storage and handling of corrosive substances, AS 1940:2004 – The storage and handling of flammable and combustible liquids, AS 3833:2007 – Storage and handling of mixed classes of dangerous goods in packaged and intermediate bulk containers;
- Bulk fuel tanks stored outside a bunded area will be contained within a self-bunded (double skinned) tank with safety valves;
- Appropriate spill response equipment will be available on site and/or with vehicles, and regularly maintained;
- Containment bunds and/or sumps will be drained periodically of accumulated rainwater to prevent overflow and subsequent pollution of the surrounding land and watercourses.
- To minimise the impacts of a chemical or fuel spill to surface or groundwater the following measures will be implemented:
  - All fuel, oil and chemicals are to be stored, transported and handled in accordance appropriate standards including AS 3780:2008 – The storage and handling of corrosive substances, AS 1940:2004 – The storage and handling of flammable and combustible liquids, AS 3833:2007 – Storage and handling of mixed classes of dangerous goods in packaged and intermediate bulk containers.
  - Storage areas will be sealed, bunded, and adequately ventilated.
  - Storage and refuelling areas will be located away from watercourses, sensitive areas and any source of ignition as determined by the Senex Site Supervisor.
  - Containment bunds and/or sumps will be drained periodically of accumulated rainwater to prevent overflow and subsequent pollution of the surrounding land and watercourses.
- In addition, the following monitoring and reporting will be undertaken:
  - All chemical, oil and fuel storage areas are to be inspected at least weekly for temporary storage, and monthly for permanent storage areas during the operating phase by the Contractor Site Supervisor and/or the Senex Site Supervisor.
  - All spills are to be contained immediately and managed through the Senex Spill Response procedure (see Environmental Management Plan Atlas Stage 3 Gas Project [SENEX-ATLS-EN-PLN-015]).
  - Emergency events will be managed in accordance with the contingency procedures in the Project Atlas Emergency Response Plan [SENEX-QLDS-ER-PLN-001].

- Incident details will be recorded immediately and notified through the Senex Incident reporting systems, reported and investigated.

6.3.3.2 Performance Criteria

- No uncontrolled release of chemicals, oil or fuel is to the environment; and
- All chemicals, oil and fuel handled, stored and effectively contained, and transported appropriately and in accordance with relevant Australian Standards (AS) and Australian Dangerous Good Codes.

6.3.4 Water Management

6.3.4.1 Management Measures

Several mitigation and management measures are planned to limit the impact to waterways and riparian ecosystems. These include:

- *Maintenance Planning* – Overall, maintenance activities will not interfere or block natural drainage. Stormwater will be allowed to pass through the sites in a controlled manner and at non-erosive flow velocities.
- *Erosion and Sediment Control* – Works on site will not commence until any relevant Contractor erosion and sediment control procedures have been approved and implemented. Erosion and sediment control structures will be inspected, in accordance with the relevant erosion and sediment control procedures or plan to ensure they are working effectively.
- *Rehabilitation* – The scale of the initial disturbance for construction is planned to be 18 m wide for RoWs. This width will be reduced during the operating phase to a nominal area that will be rehabilitated directly over the pipeline to maintain pipeline integrity, and a 6 m access track will be maintained to access wells and infrastructure. Within the life of the well field, RoWs through watercourses may be rehabilitated sooner than the gas field life, depending on their location and the well's operational life.

To minimise the impacts of water quality in surface watercourses and wetlands during construction and operation, the following measures will be implemented:

- Petroleum activities within any wetland area or watercourse will be carried out in accordance with an approved ATW. Watercourse crossings will be limited to those strictly necessary for construction or operation of infrastructure and only at locations approved in the ATW.
- Any waterway barrier works (works that pose a barrier to water flow) will be undertaken in accordance with the "*Accepted development requirements for operational work that is constructing or raising waterway barrier works*" (DAF 2018) and only be undertaken where authorised under an ATW.
- Appropriate erosion and sediment control measures are to be installed at watercourse crossing points to adequately stabilise soils to prevent erosion and as per the Queensland Erosion and Sediment Control Procedure [SENEX-QLDS-EN-PRC-003].
- 'No-go' and high constraint areas will be GPS located and clearly marked.

Construction activities will be managed to minimise interference with overland flow paths.

6.3.4.2 Performance Criteria

- No unauthorised release of contaminants directly or indirectly to water;
- No accidental or uncontrolled release of water to waterways or drainage lines;

- Erosion and sediment control measures will be installed according to relevant plan and working effectively; and
- No use of pipeline wastewater or produced water on site except in accordance with the conditions of approval.

6.3.5 Emergency and Incident Response

6.3.5.1 Management Measures

In the event of an environmental incident:

- Personnel who observe an environmental incident including a spill are required to immediately notify the Contractor Site Supervisor who will then notify the Senex Site Supervisor.
- In the event of a chemical, oil or fuel spill, the spill will be contained and cleaned up as outlined in the Senex Spill Response Plan.
- Contractors are required to have in place procedures for spill response which are in accordance with the Senex Spill Response Plan [SENEX-CORP-ER-PLN-006] and will include details requirements for:
  - Minimising release;
  - Containing spilled material;
  - Raising the alarm and response;
  - Locations of spill kits; and
  - Management of contaminated material if necessary.
- Any spills will be assessed by the Senex Site Supervisor supported by the Senex Environment Manager to determine appropriate remediation options such as the removal of contaminated material.
- Incident reports are required to contain information required by the Safety Management Plan and Incident Reporting and Investigation Procedure [SENEX-CORP-HS-PRC-004].
- Emergency Response drills will be performed to ensure readiness and identify opportunities for improvement.
- Clean stormwater will be diverted around disturbed land.
- For linear infrastructure – construction or maintenance activities in wetlands or a watercourse will be required to be carried out under the authorisation of an ATW and under the supervision of a Senex environment representative to ensure conditions of the EA are achieved.

6.3.5.2 Performance Criteria

- All emergencies on site will be managed in accordance with the Project Atlas Emergency Response Plan [SENEX-QLDS-ER-PLN-001];
- All incidents are reported, notified and investigated in accordance with the Environmental Incident and Safety Management Procedures and Incident Reporting and Investigation Procedure [SENEX-CORP-HS-PRC-004]; and
- All spills are managed in accordance with the Senex Spill Response Plan.

6.3.6 Waste Management

6.3.6.1 Management Measures

- All waste generated will be stored, handled and transported in accordance with the Project Atlas Waste Management Procedure and appropriate standards/regulatory requirements;
- All sites will be kept free from litter;
- Items of general waste are not to be disposed of in sumps or pits;
- Waste material (including domestic waste) will be collected and stored in covered bins to prevent loss and scavenging by animals;
- All waste materials that will be removed from site will be removed once activities are completed; and
- Only licensed waste contractors may collect, transport and dispose of waste from the site.

6.3.6.2 Performance Criteria

- Contaminants not directly or indirectly released to land;
- Waste is appropriately managed to avoid or minimise the potential for:
  - Release of hazardous waste to land or waters either through inappropriate waste disposal or accidental release;
  - Inadequate waste management leading to inappropriate disposal or inadequate re-use and recycling; or
  - Impacts to the environment, land use or well-being of people resulting from inappropriate storage, handling or disposal of waste.
- Waste is managed at all Senex sites through implementation of the SENEX-QLDS-EN-PRC-022 Waste Management Procedure.

6.3.7 Flora Management

6.3.7.1 Management Measures

- No vehicles or equipment are to move outside the approved work area to prevent unnecessary land and vegetation disturbance; and
- ‘No-go’ and high constraint areas will be GPS located and clearly marked e.g., bunting, flagging tape.

6.3.7.2 Performance Criteria

- Native vegetation retained onsite remains undisturbed throughout operation.

6.3.8 Fauna Management

6.3.8.1 Management Measures

- If left open overnight, active work areas, pits, sumps and other areas hazardous to fauna and stock will be fenced or covered to prevent access;
- Utilise a fauna spotter catcher for operational or maintenance activities which require woody vegetation to be cleared.
- Vehicle speed limits (including maximum 40 km/hr when off public roads) will apply throughout operation.

6.3.8.2 Performance Criteria

- No damage to or destruction of areas confirmed as MNES, TECs or areas confirmed as potential habitat for MNES threatened species, except for Koala and Southern Squatter Pigeon dispersal habitat (530 ha and 2.1 ha respectively, of previously cleared land); and
- No injury, entrapment or death of wildlife or domestic stock, as a result of Senex's activities.

6.4 Monitoring and Corrective Actions

The monitoring actions in Table 6-2 will be implemented. These actions are in addition to those included in the Environmental Management Plan Atlas Stage 3 Gas Project [SENEX-ATLS-EN-PLN-015].

Table 6-2: Operational Monitoring and Corrective Actions

Monitoring Activity	Potential impact if not monitored	Environmental Outcomes	Timing	Corrective Action
Monitor for evidence of vehicles leaving designated construction and operation areas.	■ Destruction of wildlife habitat. ■ Injury to wildlife. ■ Unnecessary damage to the environment.	■ Destruction of wildlife habitat and injury to wildlife is avoided. ■ Unnecessary damage to vegetation is avoided.	■ Daily onsite observations.	Trigger: ■ Vehicles operating outside of the designated operation areas. Action: ■ Flag / delineate impacted areas as no-go areas; ■ Reinforce communication and retrain operational workers about restrictions to working within designated areas; and ■ Report impacts to MNES habitat / species if any has occurred.
Conduct checks on vehicles and machinery to ensure they hold a valid and up-to-date Weed Hygiene Declaration	■ Introduction of declared weeds into the operation area.	■ No new declared weed infestations.	■ Weekly inspections during the operations phase.	Trigger: ■ Weed hygiene has not been performed or certified. Action: ■ Prevent vehicle and materials access on site if they have not been certified as weed free.
Monitor for new weed infestations.	■ Introduction and spread of weed infestations within the operation area.	■ No new declared weed infestations.	■ Daily / weekly onsite obligations.	Trigger: ■ New weed infestations within the operation area. Action: ■ Implement a control program for any new infestation identified in the construction and operation area to prevent further spread.

Monitoring Activity	Potential impact if not monitored	Environmental Outcomes	Timing	Corrective Action
Inspect spill kits to ensure they contain correct materials. Inspect on-site machinery and equipment for any leaks / releases. Inspect construction areas for signs of soil contamination.	■ Spills not appropriately cleaned. ■ Environmental harm due to machinery and equipment leaks. ■ Soil contamination.	■ No faulty or leaking equipment or machinery. ■ No adverse soil contamination.	■ Monthly inspections during operational period.	Trigger: ■ Spillages, leaks or soil contamination. Action: ■ Determine the cause of the release and put in place new process / procedure as appropriate. ■ Remediate areas of contamination. ■ Replenish spill kits.
Inspect any stabilised areas in MNES habitat for any instability, erosion or lack of cover	■ Site instability. ■ Erosion and sediment runoff in MNES habitat.	■ All MNES habitats are stabilised with no erosion or sediment runoff.	■ Quarterly during operational period.	Trigger: ■ Site instability. Action: ■ Commence remedial actions to ensure site remains stable

7 DECOMMISSIONING MANAGEMENT MEASURES

Following Project construction and operation, the decommissioning stage will involve the progressive decommissioning and rehabilitation of wells, as well as the rehabilitation of unused access tracks disturbed drainage lines and ground cover vegetation.

Management and mitigation measures to be referenced to in the decommissioning stage are as follows, (and further detailed in **Table 7-1**):

- Rehabilitation of the wells will be in accordance with the Queensland Code of Practice for Constructing and abandonment of petroleum wells and associated bores in Queensland (Department of Natural Resources, Mines and Energy (Version 2), 16 December 2019);
- Decommissioned wells are to be rehabilitated progressively throughout the Project life;
- All well pads will be rehabilitated to the condition of the adjoining land;
- Any access tracks not required for use by the landholder will be rehabilitated to the condition of the adjoining land;
- Rehabilitated areas are to be regularly monitored and maintained (where necessary) in accordance with the Rehabilitation Plan Atlas Stage 3 Gas [SENEX-ATLS-EN-PLN-018];
- Disturbed areas are to be rehabilitated in accordance with the Rehabilitation Plan Atlas Stage 3 Gas [SENEX-ATLS-EN-PLN-018] and the requirements of the EA;
- Surface drainage lines, ground cover vegetation is to be re-established, and disturbed land is to be reprofiled to the original contours;
- All vehicles are to operate within their designated areas only, all vehicle movements are to be monitored throughout the decommissioning stage; and
- All vehicles and machinery will hold a valid and up-to-date Weed Hygiene Declaration.

Table 7-1: Decommissioning Monitoring and Corrective Actions

Monitoring Activity	Potential impact if not monitored	Environmental Outcomes	Timing	Corrective Action
Monitor for evidence of vehicles leaving designated areas and machinery operating outside of designated areas.	■ Destruction of wildlife habitat. ■ Injury to wildlife. ■ Unnecessary damage to vegetation is avoided.	■ Destruction of wildlife habitat and injury to wildlife is minimised.	■ Daily onsite observations.	Trigger: ■ Vehicles operate outside designated areas. Action: ■ Flag / delineate impacted areas as no-go areas; ■ Report impacts to MNES habitat / species if any has occurred.
Conduct checks on vehicles and machinery to ensure they hold a valid and up-to-date Weed Hygiene Declaration.	■ Introduction of declared weeds into the operation area.	■ No new declared weed infestations.	■ Weekly inspections during the operations phase.	Trigger: ■ Weed hygiene has not been performed or certified. Action: ■ Prevent vehicle and materials access on site if they have not been certified as weed free.
All well pads will be rehabilitated to the condition of the adjoining land	■ Land degradation ■ Site instability ■ Introduction or spread of declared weeds.	■ Unrequired land is rehabilitated to the condition of the adjoining land.	■ Weekly inspections during rehabilitation.	Trigger: ■ Disturbed land with an increase in weed infestations. Action: ■ Commence remedial actions to ensure ground cover is re-established with local species.
Decommissioned wells are to be rehabilitated progressively throughout	■ Land degradation ■ Site instability	■ Unrequired land is rehabilitated to the	■ Weekly inspections during rehabilitation.	Trigger:

Monitoring Activity	Potential impact if not monitored	Environmental Outcomes	Timing	Corrective Action
the Project life. Rehabilitation of the wells will be in accordance with the Queensland Code of Practice for Constructing and abandonment of petroleum wells and associated bores in Queensland (Department of Natural Resources, Mines and Energy (Version 2), 16 December 2019).	■ Introduction or spread of declared weeds.	condition of the adjoining land.		■ Disturbed land with an increase in weed infestations. Action: ■ Commence remedial actions to ensure ground cover is re-established with local species; and ■ Conduct weed control.
Rehabilitate access tracks not required for use by the landholder, to the condition of the adjoining land.	■ Land degradation ■ Site instability ■ Introduction or spread of declared weeds.	■ Unrequired land is rehabilitated to the condition of the adjoining land.	■ Weekly inspections during rehabilitation.	Trigger: ■ Disturbed land with an increase in weed infestations. Action: ■ Conduct weed control; ■ Commence remedial actions to ensure ground cover is re-established with local species.
Surface drainage lines are to be re-established.	■ Site instability. ■ Erosion and sediment runoff in MNES habitat.	■ Project Area is stabilised with no erosion or sediment runoff.	■ Weekly inspections during rehabilitation.	Trigger: ■ Site instability. Action: ■ Commence remedial actions to ensure site remains stable.

Monitoring Activity	Potential impact if not monitored	Environmental Outcomes	Timing	Corrective Action
All disturbed ground cover vegetation are to be re-established.	■ Disturbed land and land degradation ■ Site instability ■ Introduction or spread of declared weeds	■ Reinstatement of ground cover vegetation. ■ No new declared or spread of weed infestations.	■ Weekly inspections during rehabilitation.	Trigger: ■ Disturbed land with an increase in weed infestations. Action: ■ Conduct weed control; and ■ Commence remedial actions to ensure ground cover is re-established with local species.
Disturbed land is to be reprofiled to the original contours.	■ Land degradation ■ Site instability ■ Introduction or spread of declared weeds.	■ Project Area is stabilised with no erosion or sediment runoff and no declared weed infestations.	■ Weekly inspections during rehabilitation.	Trigger: ■ Original contours are not reinstated. Action: ■ Commence remedial actions to ensure disturbed land is reprofiled appropriately.

8 MONITORING PROGRAM

The objectives of the monitoring program are:

- Assess compliance with the SSMP and relevant conditions of approval;
- Determine effectiveness of mitigation measures, to be assessed against the performance criteria in this SSMP; and
- Determine the extent of secondary impacts of the Project on significant species and identify if further mitigation measures are needed.

Weed monitoring is a requirement of the Environmental Management Plan Atlas Stage 3 Gas Project [SENEX-ATLS-EN-PLN-015]. Similarly, monitoring of rehabilitation of the Production Area is a requirement of the Rehabilitation Plan Atlas Stage 3 Gas Project [SENEX-ATLS-EN-PLN-018]. Monitoring undertaken for these components and any subsequent adaptive management will support the management of significant species and their habitats.

In addition, baseline data and species information, for threatened species, has been collected as part of biodiversity studies for Atlas Stage 3 and ongoing pre-clearance surveys and ecological assessments will be completed with progressive development across the Project Area in accordance with Senex's Atlas Stage 3 Environmental Constraints Protocol for Planning and Field Development [OPS-ATLS-EN-PLN-001]. This data will be collated and managed in a database that will be available to inform future studies (and site surveys) and analysed where appropriate.

9 REFERENCES

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APPENDIX A LIKELIHOOD OF OCCURRENCE OF MNES

Identification		Status		Records		Assessment	
Scientific Name	Common Name	NC Act	Comm. EPBC Act	Recent WildNet Records within 10 km	Recent ALA Records within 10 km	Habitat Summary	Likelihood of Occurrence
Listed Threatened Species							
Flora							
Acacia curranii	Curly-bark Wattle	V	V	No	Yes – Locality	This species is found in dry sclerophyll forests of heath associated with rock pavements. It is commonly found growing on toeslopes and north-facing crests of hills and ranges. They occur on mainly stony soils with an extensive bedrock crop, where they can also be found on sandstone forming red sandy soils. *Suitable habitat (heath associated with rock pavements) is patchily distributed to the south of the Project Area, but not within the Project Area.*	Unlikely to occur. ■ Project Area is within the distribution for the species. ■ This species is considered unlikely to occur due to the absence of suitable habitat (heath associated with rock pavements on land zone 7) within the Project Area. The nearest confirmed population is approximately 15 km south-southeast of the Project Area near the southern boundary of Gurulmundi State Forest (DES 2022a). ■ No records exist within the Project Area however, ten records exist within the Locality in suitable habitat heath associated with rock pavements on the southern boundary of Gurulmundi State Forest in 1982.
Arythraxon hispidus	Hairy Joint Grass	V	V	No	No	Growing in or on the edges of rainforest and in wet Eucalypt forest, often near creeks or swamps (TSSC, 2008). It has been recorded from many locations in north-eastern NSW and southeast Queensland. Outlying and disjunct populations of this species associated with springs and spring-fed wetlands occur in the Carnarvon Range and Taroom area (DES 2022h). *There is a lack of suitable rainforest, wet Eucalypt forest or spring-fed wetland habitats within the Project Area.*	Unlikely to occur. ■ The Project Area is within the known distribution of the species. ■ Lack of suitable rainforest and wet Eucalypt forest habitat, as well as spring-fed wetlands in the Project Area. ■ No recent records exist for this species within the Project Area/ Locality and no observations were made during field surveys. The closest record of the species was recorded 80 km north-east of the Project Area, in cleared, non-native vegetation near Dawson River in 1995.
Cadellia pentastylis	Ooline	V	V	No	Yes – Project Area and Locality.	Ooline grows in SEVT and sclerophyll vegetation on undulating terrain of various geology, including sandstone, conglomerate and claystone. The species forms a closed or open canopy, as a dominant or commonly with White Box (*Eucalyptus albens*) and White Cypress Pine (*Callitris glaucophylla*), with an open understorey and leaf litter dominating the forest floor. *This species is present in the southern part of the Project Area (South of Giligulgul Road). It was observed as retained isolated trees and clumps or extensively in remnant Brigalow woodlands.*	Known to occur. ■ This species is present in the far south-eastern corner of the Project Area (South of Giligulgul Road). It was observed as retained isolated trees and clumps or in remnant Brigalow woodlands. Thirty-five (35) specimen records occur within the Project Area and another six (6) records occurred within the 10 km desktop search area between 1995 and 2020 (DES 2022a). ■ This species is locally abundant in Brigalow woodland around the plateau in the south-eastern corner of the Project Area. It was observed as isolated trees and clumps or as a common tree in Brigalow woodland in Gurulmundi State Forest, Stones Country Resource Reserve and adjacent properties, however these forests or reserves are not present within the Project Area. ■ Based on field surveys in 2022 and 2023, the area of known Ooline occurrence is restricted to a limited portion of the Project Area in the south-east corner, within Brigalow woodlands and adjacent cleared exotic pasture areas as isolated trees.

Identification		Status		Records		Assessment	
Scientific Name	**Common Name**	**NC Act**	**Comm. EPBC Act**	**Recent WildNet Records within 10 km**	**Recent ALA Records within 10 km**	**Habitat Summary**	**Likelihood of Occurrence**
Calytrix gurulmundensis	Gurulmundi Fringe-myrtle	V	V	No	Yes – Locality.	This species is recorded as having an area of occurrence in open shrubland with sparse stunted *Eucalypt, Causarina* and *Acacia* spp., Often they are also found in *Triodia* hummock grasslands with shallow red gravelly soil and on sandstones. *Suitable habitat (heath associated with rock pavements) is patchily distributed to the south of the Project Area, but not within the Project Area.*	Unlikely to occur. ■ Project Area is within the distribution for the species. ■ There is no suitable habitat (heath associated with skeletal soils and rock pavements on land zone 7) within the Project Area. This habitat type and the species are abundant in Gurulmundi State Forest to the south, including 26 specimen records within 10 km of the Project Area between 1961 and 2021 (DES 2022a). The species is abundant on the plateau area to the south of the Project Area including parts of Gurulmundi SF, Stones Country Resources Reserve and adjacent properties.
Dichanthium setosum	Bluegrass	-	V	No	No	Associated with heavy basaltic black soils and red-brown loams with clay subsoils. Often found in moderately disturbed areas. Threats relate to heavy grazing, clearing for pasture improvement and cropping, fire, introduced grasses and road widening. Associated species include White Box (*Eucalyptus albens*), Silver-leaved Ironbark (*E. melanophloia*), Yellow Box (*E. melliodora*), Manna Gum (*E. viminalis*), Amulla (*Myoporum debile*), Purple Wiregrass (*Aristida ramosa*), Kangaroo Grass (*Themeda triandra*). *Associated species not present within the Project Area and the substrates present were not preferred by the species (prefers basalt derived soils).*	Unlikely to occur. ■ The Project Area is within the known distribution of the species. ■ Associated species are not present within the Project Area and the substrates present were not preferred by the species (prefers basalt derived soils). ■ No recent records exist for this species within the Project Area; however, the species has been recorded within the locality, in cleared non-native vegetation in 1971 and 2017.
Homopholis belsonii	Belson's Panic	E	V	No	Yes – Locality.	It occurs on rocky hills supporting White Box (*Eucalyptus albens*) and in Wilga (*Geijera parviflora*) woodland; flat to gently undulating alluvial areas supporting Belah (*Casuarina cristata*) forest; and soils and plant communities of Poplar Box (*E. populnea*) woodlands. It is also known to be associated with shadier areas of Brigalow (Acacia harpophylla), Myall (*A. melvillei*), and Weeping Myall (*A. pendula*) communities; in Mountain Coolibah (*E. orgadophila*) communities; and on roadsides. *There is potential habitat of Poplar Box and Brigalow woodlands, or open forests present within the Project Area.*	Potential to occur. ■ Project Area is within the distribution for the species. ■ There are limited areas of potential habitat for this species in the form of isolated patches of Brigalow and Poplar Box open forests and woodlands within the Project Area. ■ There are no records for this species within the Project Area. One specimen has been recorded 2 km to the north at the junction of Woleebee and Wandoan Creeks in 2007 (ALA, 2022; DES, 2022).
Lepidium monoplocoides	Winged Pepper-cress	-	E	No	No	This species grows in riparian open forest dominated by *Eucalyptus camaldulensis* and *Casuarina cunninghamiana* with a variably dense shrubby understorey of *Hymenanthera dentata*, *Bursaria spinosa, Acacia fimbriata, A. floribunda, Callistemon viminalis* and *Leptospermum brachyandrum*. This species is most abundant in Tussock grasslands fringing riparian open forests. Areas of known populations of this species are in the Murray-Darling basin on floodplains and other periodically waterlogged areas with heavy clay soils (Mavromihalis 2010). The species has a wide distribution through inland NSW and Victoria. The sole records from Queensland are from the Yelarbon area (ALA 2022). *There is a lack of potential habitat in preferred Eucalyptus camaldulensis riparian areas within the Project Area.*	Unlikely to occur. ■ The Project Area is outside of the known distribution for the species. ■ There is a lack of potential habitat in preferred Eucalyptus camaldulensis riparian areas within the Project Area. ■ No recent records exist for this species within the Project Area/Locality and no observations were made during field surveys.

Identification		Status		Records		Assessment	
Scientific Name	Common Name	NC Act	Comm. EPBC Act	Recent WildNet Records within 10 km	Recent ALA Records within 10 km	Habitat Summary	Likelihood of Occurrence
Thesium australe	Austral Toadflax	V	V	No	No	A semi-parasitic species that attaches to the roots of a range of grass species, particularly Kangaroo Grass (*Themeda triandra*). Distribution includes parts of Queensland, New South Wales, the ACT and Victoria. In Queensland, the species is known in Kumbia, Glen Rock Regional Park, Carnarvon National Park, Crows Nest, Clifton, Warwick, Greenmount, Cambooya, Dalby, the Bunya Mountains, Blackbutt and Imbil. The species occurs in open grassy heath dominated by Swamp Myrtle (*Leptospermum myrtifolium*), Small-fruit Hakea (*Hakea microcarpa*), Alpine Bottlebrush (*Callistemon sieberi*), Woolly Grevillea (*Grevillea lanigera*), Coral Heath (*Epacris microphylla*) and *Poa* spp. (Griffith 1991); Kangaroo Grass grassland surrounded by *Eucalyptus* woodland; and grassland dominated by Barbed-wire Grass (*Cymbopogon refractus*) (Leigh et al. 1984; Hunter et al. 1999). *Suitable habitat is not present within the Project Area.*	Unlikely to be present. ■ The Project Area is within the distribution for the species. ■ Suitable habitat (heath, Kangaroo Grass grassland) is not present within the Project Area. ■ No records exist for this species within the Project Area or Locality and no observations were made in the field. The closest record is approximately 84 km from the Project Area in cleared, non-native vegetation in 1846.
Vincetoxicum forsteri	Slender Tylophora	E	E	No	No	*Vincetoxicum forsteri* has rarely been collected and is known to be present within eight localities in the Dubbo area and Mt Crow, near Barraba in NSW, and “Myall Park” near Glenmorgan in Queensland. Conservation of this species occurs within Goobang National Park, Eura State Forest, Goonoo SF, Pilliga West SF and Coolbaggie Nature Reserve. *Vincetoxicum forsteri* inhabits dry scrub, open forest and woodlands associated with *Melaleuca uncinata*, *Eucalyptus fibrosa*, *E. sideroxylon, E. albens, Callitris endlicheri*, *C. glaucophylla, Allocasuarina luehmannii, Acacia hakeoides, A. lineata, Myoporum spp.,* and *Casuarina spp*. (DECC, 2005a; Forster et al., 2004). *Potential habitat of dry Eucalypt woodlands occurs within the far south-eastern corner of the Project Area.*	Potential to occur. ■ Project Area is within the distribution for the species. ■ Limited areas of suitable habitat (dry eucalypt woodland) exists as several small fragments through the Project Area and a larger area in the southeast corner. Suitable habitat includes areas of dry eucalypt woodland, with riparian and wetland eucalypt communities considered unsuitable for this species. No records within the Project Area or Locality. The closest record is approximately 99 km south-west of the Project Area in Eucalyptus woodlands with a tussock grassy understorey in 1960.
Xerothamnella herbacea	Null	E	E	No	No	*Xerothamnella herbacea* is known from two sites northeast of Chinchilla, a single record from near Theodore and a record near Yelarbon east of Goondiwindi, Queensland. This species occurs within the Condamine, Border Rivers Maranoa–Balonne and Fitzroy (Queensland) Natural Resource Management Regions. *Xerothamnella herbacea* occurs in Brigalow (*Acacia harpophylla*) dominated communities in shaded situations, often in leaf litter and is associated with gilgais (shallow ground depressions). Soils are heavy, grey to dark brown clays (Queensland Herbarium, 2008). *There is suitable habitat of Brigalow woodlands present within the Project Area.*	Unlikely to occur. ■ The Project Area is within the known distribution of the species. ■ There is suitable habitat of Brigalow woodlands present within the Project Area. ■ No recent records exist for this species within the Project Area/Locality and no observations were made during field surveys. The closest record is approximately 90 km south-east of the Project Area in cleared non-native vegetation, recorded in 1984.

Identification		Status		Records		Assessment	
Scientific Name	**Common Name**	**NC Act**	**Comm. EPBC Act**	**Recent WildNet Records within 10 km**	**Recent ALA Records within 10 km**	**Habitat Summary**	**Likelihood of Occurrence**
Birds							
Aphelocephala leucopsis	Southern Whiteface	V	V	No	No	This species has a wide distribution across much of Australia, including southern Queensland west of the Great Dividing Range. It inhabits a variety of open woodlands and shrublands that have a grassy and/or shrubby understorey and are dominated by acacia and eucalypt species. **Breeding habitat:** This species nests and roosts in tree hollows, in either live or dead standing trees within habitats dominated by Eucalypt and Acacia species. **Foraging habitat:** This species forages almost exclusively on the ground, with preference for areas with low tree densities and an understorey consisting of herbs and leaf litter in habitats dominated by Eucalypt or Acacia species. *Species will utilise almost all habitats present within the Project Area, excluding any cleared grazed.*	Potential to occur. ■ Project Area is within the distribution for this species. ■ No records exist for this species within the Project Area or Locality and no observations were made in the field. The closest record is approximately 58 km from the Project Area, recorded at campground at Rocky Creek in Yuleba. ■ Species has the potential to utilise almost all habitats present within the Project Area, excluding any cleared grazed land. ■ Potential habitats in the Project Area include all areas of eucalypt open forests/woodlands and acacia woodlands. Whilst potential foraging habitat occurs in all broad habitat types, breeding habitat is more likely to occur in areas of eucalypt open woodland/open forest with tree hollows. These areas of more abundant hollows are present in areas of riparian eucalypt open forest in the Project Area, and the larger patches of eucalypt woodland in the south-east corner.
Lathamus discolor	Swift Parrot	E	CE, Ma	No	No	Majority of the Swift Parrot population winters in Victoria and New South Wales, inhabiting flowering woodlands and forests, including inland box-ironbark and grassy woodlands, coastal swamp mahogany (*E. robusta*) and spotted gum (*Corymbia maculata*) when in flower. Species distribution in mainland Australia fluctuates based on the availability of preferential food resources. **Breeding habitat:** This species does not breed in mainland Australia; breeding habitat is restricted to Tasmania. **Foraging habitat:** This species forages in the largest trees available, on *psyllid* lerps, seeds and fruits, with non-breeding birds preferring to feed in inland box-ironbark and grassy woodlands, coastal swamp mahogany (*E. robusta*) and spotted gum (*Corymbia maculata*) when in flower.	Unlikely to occur. ■ Project Area is not located within the distribution for this species. ■ No records exist for this species within the Project Area or Locality and no observations were made in the field. The closest record is approximately 62 km south from the Project Area, recorded in cleared, non-native vegetation. ■ The Project Area does not contain preferential foraging resources for the Swift Parrot.
Calidris ferruginea	Curlew Sandpiper	CE	CE, Ma and Mi	No	No	This species is occasionally recorded inland, though less often than in coastal regions of Australia, within ephemeral and permanent lakes, dams, waterholes and bore drains, usually with bare edges of mud or sand. They occur in both fresh and brackish waters. Occasionally they are recorded around floodwaters. **Breeding habitat**: This species does not breed in Australia. **Foraging habitat**: potential foraging habitat exists in the Project Area in the form of dams. **Roosting habitat**: this species roost in open situations with damp substrate, especially on bare shingle, shell or sand beaches, sandspits and islets in or around coastal or near-coastal lagoons and other wetlands, occasionally roosting in dunes during very high tides and sometimes in saltmarsh. *Wetland habitat within the Project Area comprises small ephemeral vegetated swamps and billabongs associated with meandering drainage lines which are unlikely to attract this species.*	Unlikely to occur. ■ Project Area is within the broad distribution of the species; however, it is predominantly associated with the coastal fringe around Australia, with occasional vagrants recorded in inland area associated with wetland areas, including farm dams and modified habitats. ■ Wetland habitat within the Project Area comprises small ephemeral vegetated swamps and billabongs associated with meandering drainage lines which are unlikely to attract this species. ■ No records for the species occur within the Project Area/Locality and no observations were made during field surveys. The closest record was recorded 9 km south of the Project Area, in eucalypt woodlands in with a tussock grass understorey in 2014.

Identification		Status		Records		Assessment	
Scientific Name	**Common Name**	**NC Act**	**Comm. EPBC Act**	**Recent WildNet Records within 10 km**	**Recent ALA Records within 10 km**	**Habitat Summary**	**Likelihood of Occurrence**
Calyptorhynchus lathami lathami	South-eastern Glossy Black-cockatoo	V	V	No	Yes – within Locality	The South- eastern Glossy Black-cockatoo are uncommon but widespread. They can be found from Mitchell, Queensland, through eastern New South Wales to East Gippsland, Victoria. **Foraging habitat**: The South- eastern Glossy Black Cockatoo feed almost exclusively on the seeds of sheoaks (Allocasuarina spp. and Casuarina spp.), usually relying on one or two species within a region (Higgins 1999). **Breeding habitat:** They are hollow nesters, utilising large hollows in both living and dead Eucalypt trees (Higgins, 1999). *Potential foraging and breeding habitat exists in the Project Area, in the form of Eucalypt woodland and mixed Eucalypt/Belah (She-oak) woodland. Additionally, some scattered patches exists within the central portion of the Project Area.*	Likely to occur. ■ Project Area is within the distribution for this species. ■ Potential foraging and breeding habitat exists in the southern and northern portions of the Project Area, in the form of Eucalypt woodland and Belah (She-oak) woodland. Additionally, some scattered patches exists within the central portion of the Project Area. ■ Potential breeding habitat is restricted to habitat types in the Project Area that contain suitable hollow-bearing trees. Potential nest trees occur in remnant eucalypt woodland and forest and in well-developed riparian corridors across the Project Area. ■ Two records within the adjoining area are present from 2009 and were recorded in Eucalypt open forest in with grassy understorey and Brigalow (*Acacia harpophylla*) forest and woodlands. No observations were made during field surveys.
Climacteris picumnus victoriae	Brown Treecreeper (south-eastern)	V	V	No	No	Brown Treecreepers (south-eastern) inhabit open dry eucalypt forest and woodlands, mainly areas that are dominated by stringybarks or other rough-barked eucalypt species. The understorey is usually open and grassy, sometimes with few shrubs. They can also occur in open forest, woodlands and mallee that is subject to periodic inundation. This species is usually absent from areas with a dense shrubby understorey and heavily degraded woodland areas. **Breeding and roosting habitat:** This species nests and roosts in hollows, in either live trees, dead standing trees or tree stumps. **Foraging habitat:** An open understorey is preferable to enable individuals to forage on or near the ground while maintaining vigilance for predators. Areas with fallen timber provide greater foraging opportunities. *Patches of suitable Callitris/ Eucalypt woodlands of exist along the Eastern boundary of the Project Area, just North and South of Jackson-Wandoan Road. Additionally Open Eucalyptus forest occurs along the Gurulmundi Road in the south-eastern corner of the Project Area. Small patches of open Eucalyptus forest exist both north and south of Weldons Road.*	Potential to occur. ■ Project Area is marginally within the distribution for this species. ■ Suitable habitat is present within the Project Area. ■ No records exist for this species within the Project Area or Locality and no observations were made in the field. The closest record is approximately 194 km from the Project Area in Bluegrass and Tall Bunch Grass tussock grasslands. ■ Small patches of suitable dry Eucalyptus woodland/ forest habitat occurs across the Project Area ■ Whilst potential foraging habitat occurs in all broad habitat types, breeding habitat is more likely to occur in areas of eucalypt open woodland/open forest with tree hollows. These areas of more abundant hollows are present in areas of riparian eucalypt open forest in the Project Area, and the larger patches of eucalypt woodland in the south-east corner.
Erythrotriorchis radiatus	Red Goshawk	E	E	No	No	This species prefers wooded and forested lands of tropical and warm-temperate Australia. Forests of intermediate density, with tall stands or individual trees so that nests are supported, are favoured, or ecotones between habitats of differing densities, e.g., between rainforest and eucalypt forest, between gallery forest and woodland, or on edges of woodland and forest where they meet grassland, cleared land, roads or watercourses. This species avoids very dense and very open habitats. This species has a large home range. **Breeding and roosting habitat**: This species rarely breeds in areas with fragmented vegetation. Breeding habitat is restricted to trees that are taller than 20 m and within 1km of a watercourse or wetland. **Foraging habitat**: Habitat has to be open enough for fast hunting and manoeuvring in flight, but with enough cover for ambushing of prey. *Dense wooded areas for roosting and breeding habitat are lacking in the Project Area.*	Unlikely to occur. ■ Project Area in the Brigalow Belt Bioregion is now considered to be outside of the distribution for the species. There are no validated recent records from this region (since 1997) and the Brigalow Belt Bioregion is now considered to be outside the species distribution (MacColl et al. 2021). ■ Dense wooded areas for roosting and breeding habitat are lacking in the Project Area. ■ No records for the species exist within the immediate Project Area/ Locality and no observations were made during field surveys. The closest record of this species was recorded 62.6 km south-east of the Project Area in cleared, native vegetation.

Identification		Status		Records		Assessment	
Scientific Name	**Common Name**	**NC Act**	**Comm. EPBC Act**	**Recent WildNet Records within 10 km**	**Recent ALA Records within 10 km**	**Habitat Summary**	**Likelihood of Occurrence**
Falco hypoleucos	Grey Falcon	V	V	No	No	This species prefers arid and semi-arid Australia and frequents timbered lowland plains, particularly acacia shrublands that are crossed by tree-lined watercourses. This species has also been observed in treeless areas, frequenting tussock grassland and open woodland for foraging. **Breeding habitat**: Nests chosen are usually in the tallest trees along watercourses, particularly River Red Gum (*Eucalyptus camaldulensis*) and Coolibah (*E. coolabah*) **Foraging habitat**: timbered lowland plains, acacia shrubland crossed by tree-line watercourses, as well as treeless areas, tussock grasslands and open woodlands. **Roosting habitat**: this species is likely to roost in both its breeding and foraging habitat. This species has also been observed roosting on the ground. *The Grey Falcon requires Acacia shrubland habitat as well as lowland plains associated with water, which is lacking within the Project Area.*	Unlikely to occur. ■ Project Area is within the species distribution. ■ The Grey Falcon requires Acacia shrubland habitat as well as lowland plains associated with water, which is lacking within the Project Area. ■ No records for the species occur within the Project Area/adjoining area and no observations were made during field surveys. The closest record of this species was recorded 63.8 km south-east of the Project Area in eucalyptus woodlands with a shrubby understorey.
Geophaps scripta scripta	Southern Squatter Pigeon	V	V	No	Yes (within the 10 km Locality 2016, but within a large area of suitable habitat)	Squatter pigeon (southern) habitat is generally defined as open-forests to sparse, open-woodlands and scrub that are mostly dominated by Eucalyptus, Corymbia or Callitris species. Additionally, they also favour remnant regrowth or partly modified vegetation communities that are within 3 km of water bodies. **Breeding habitat**: Breeding habitat occurs on stony rises on sandy, gravelly soils, within 1 km of a suitable, permanent waterbody (including farm dams and watercourses). **Foraging habitat**: Natural foraging habitat for the species is any remnant or regrowth open-forest to sparse, open-woodland or scrub dominated by *Eucalyptus, Corymbia, Acacia* or *Callitris* species, on sandy or gravelly soils, within 3 km of a suitable, permanent or seasonal waterbody. **Dispersal habitat**: Dispersal habitat is any forest or woodland occurring between patches of foraging or breeding habitat, and suitable waterbodies. Additionally, where scattered trees still occur and the distance of cleared land between remnant trees or patches of species' habitat does not exceed 100 m, individuals may be found foraging in, or moving across modified or degraded environments (Squatter Pigeon Workshop, 2011). *There is a lack of foraging and breeding habitat to the north of Project Area due to it being largely cleared with dense pastoral grasses, however areas of suitable habitat are present in the south-eastern corner of the Project Area in the form of dry woodlands.*	Potential to occur. ■ Project Area is within the distribution for the species. ■ There is a lack of foraging and breeding habitat to the north of Project Area due to it being largely cleared with dense pastoral grasses, however areas of suitable habitat are present in the south-eastern corner of the Project Area in the form of dry woodlands. ■ The landscape in the north of the Project Area is unsuitable for this species being largely cleared and with dense encroachment by pastoral grasses in most remaining woodland patches. Suitable dry woodland habitat remains on and around the plateau in the southeastern part of the Project Area. ■ No records within the Project Area and the closest record is from 2016 in cleared non-native vegetation near Cherwondah SF (ALA, 2022), which is a large area of suitable habitat around 10 km east of the Project Area.
Grantiella picta	Painted Honeyeater	V	V	No	No	The Painted Honeyeater lives in dry, open forests and woodlands. The species usually occurs in areas with flowering and fruiting mistletoe and flowering Eucalypts. This species prefers Acacia dominated woodlands, as well Paperbarks, Casuarinas, Callitris and Box-Ironbark-Yellow Gum woodlands with a large number of mature trees as these host more Mistletoe. **Breeding habitat**: breeding habitat is typically mature trees in remnant vegetation with high quantities of mistletoe. **Foraging and roosting habitat**: Associated with woodlands and forests with Mistletoe. *Mistletoe is present sparingly in Eucalypt woodlands across the Project Area that could be utilised as habitat for this species.*	Potential to occur. ■ Project Area is within the distribution for the species. ■ Areas with a high abundance of mistletoe species in either eucalypt or acacia woodlands provide foraging habitat for this species. Mistletoe is present sparingly in Eucalypt woodlands across the Project Area that could be utilised as habitat for this species. Limited potential habitat of Brigalow woodland is also present. ■ No records within the Project Area or Locality. The closest record of this species was recorded 47 km south-east of the Project Area, in eucalypt open forest with tussock grass understorey in 1997.

Identification		Status		Records		Assessment	
Scientific Name	**Common Name**	**NC Act**	**Comm. EPBC Act**	**Recent WildNet Records within 10 km**	**Recent ALA Records within 10 km**	**Habitat Summary**	**Likelihood of Occurrence**
Hirundapus caudacutus	White-throated Needletail	V	V and Mi	No	No	According to Higgins (1999), this species occurs over most types of habitat, but are recorded most often above wooded areas, including open forest and rainforest, and may also fly between trees or in clearings, below the canopy, but they are less commonly recorded flying above woodland (as cited in DSEWPC, 2019b). Whilst rare, they have been recorded on wooded ends of ridges, roosting after dark high in the eucalypt tree canopies (Tarburton, 1993). **Breeding habitat**; this species does not breed in Australia. **Roosting habitat**: the species is noted to roost in tall mature forests and woodlands amongst dense foliage and in hollows often associated with ridgelines. **Foraging habitat**: the species almost always will fly aerially at 'cloud level' and forage over farmland, heathland and mudflats. *Species likely to only fly aerially over the Project Area, which contains no rainforest vegetation. The Project Area does not contain habitat in the form of elevated eucalypt forests or wooded ridges to act as foraging and roosting habitat for the species.*	Known to occur. ■ Project Area is within the distribution for the species. ■ Species likely only to fly aerially over the Project Area (through September to April on its migration), which contains no rainforest vegetation. The Project Area does not contain habitat in the form of elevated Eucalypt forests or wooded ridges to act as foraging and roosting habitat for the species. ■ A flock of eight birds were observed flying low near Weldon's Road on 24 November 2022, during field surveys after those conducted for the current project.
Rostratula australis	Australian Painted Snipe	E	E	No	No	The Australian painted snipe generally inhabits shallow terrestrial freshwater (occasionally brackish) wetlands, including temporary and permanent lakes, swamps and claypans. Marchant & Higgins (1993) stated that the Australian painted snipe can use modified habitats, such as low-lying woodlands converted to grazing pasture, sewage farms, dams, bores and irrigation schemes, however they do not necessarily breed in such habitats (as cited in DoE, 2019d). **Breeding habitat**: requirements specific for this species include shallow wetlands with bare mud and dense low vegetation cover and/or and tree or shrub cover nearby. Nest records are all, or nearly all, from or near small islands in freshwater wetlands. **Foraging habitat**: Terrestrial freshwater (occasionally brackish) wetlands, including temporary and permanent lakes, swamps and claypans. They have also been observed in inundated grasslands as well as dams and bore drains. *Small areas of foraging habitat present within small ephemeral wetlands on drainage lines. These may provide temporary refuge and foraging habitat for the species and support occasional transient visitors to the Project Area.*	Potential to occur. ■ Project Area is within the distribution for the species. ■ Small areas of foraging habitat present within small ephemeral wetlands on drainage lines. These may provide temporary refuge for the species and support occasional transient visitors to the Project Area. ■ No records within the Project Area or Locality. The closest record of this species was recorded 166 km south-west of the Project Area, in eucalypt open forest with tussock grass understorey.
Stagonopleura guttata	Diamond Firetail	V	V	No	No (However, within Locality; two records within 25 km in 2019 and 2021 and several within Barakula State Forest, 40 km to the east)	Found in grassy eucalypt, acacia or casuarina woodlands, including Box-Gum Woodlands and Snow Gum *Eucalyptus pauciflora* Woodlands. Also occurs in open forest, mallee, Natural Temperate Grassland, and in secondary grassland derived from other communities. Often found in riparian areas (rivers and creeks), and sometimes in lightly wooded farmland. **Breeding habitat:** Nests are globular structures built either in the shrubby understorey, or higher up associated in woodland areas, especially under hawk's or raven's nests. **Roosting habitat:** Birds roost in dense shrubs of woodlands or in smaller nests built especially for roosting. **Foraging habitat:** Feeds exclusively on the ground, on ripe and partly-ripe grass and herb seeds and green leaves, and on insects (especially in the breeding season). *Suitable habitat includes any Eucalyptus or Acacia woodlands/ forests throughout the Project Area.*	Potential to occur. ■ Project Area is within the distribution for this species. ■ Suitable habitat is present within the Project Area. ■ No records exist for this species within the Project Area or within the 10 km Locality and no observations were made in the field. The closest record of the species was recorded 14 km south-west of the Project Area in eucalypt woodlands with shrubby understorey, in 2019. ■ Suitable habitat includes any Eucalyptus woodlands/ forests throughout the Project Area. Species also occurs in Acacia dominant areas.

Identification		Status		Records		Assessment	
Scientific Name	Common Name	NC Act	Comm. EPBC Act	Recent WildNet Records within 10 km	Recent ALA Records within 10 km	Habitat Summary	Likelihood of Occurrence
Fish							
Maccullochella peelii	Murray Cod	-	V	No	No	This species is considered a main channel specialist but will occur in floodplains when inundated. They prefer complex structural features that slow the flow of water and provide ambush points, including rocks, snags, tree stumps and overhanging vegetation in water deeper than 2.4 m flowing less than 0.2 m/s. **Breeding habitat:** Nests in sunken logs, submerged rocks or excavated depressions in clay banks. Eggs and newly hatched larvae (up to 11 days old) are guarded by the male. *Suitable habitat is not present in the Project Area due to the ephemeral nature of the creeks at the site, and an absence of deep channels (greater than 2.4m), with slow flowing water.*	Unlikely to occur. ■ Project Area is just outside the distribution for this species. ■ Suitable habitat is not present in the Project Area due to the ephemeral nature of the creeks at the site. ■ No records exist for this species within the Project Area or Locality and no observations were made in the field. The closest record is approximately 62 km from the Project Area in the Condamine River in 2015.
Mammals							
Chalinolobus dwyeri	Large-eared Pied Bat	V	V	No	No	Sandstone cliffs and fertile wooded valley habitat within close proximity of each other are considered as habitat critical to the survival of the Large-eared Pied Bat (DECC, 2007). Rainforest and moist Eucalypt forest habitats on other geological substrates (viz. rhyolite, trachyte and basalt) at high elevation are also considered to be important for this species (DERM, 2011c). Some populations of the Large-eared Pied Bat would rely in part on the TEC of Brigalow (*Acacia harpophylla* dominant and co-dominant). **Foraging and roosting habitat:** The species requires a combination of sandstone cliffs to provide roosting sites, especially Box Gum woodlands and river corridors used for foraging. The large-eared pied bat requires the presence of diurnal roosts in order to shelter. Roosts are utilised during the day and also at night. **Breeding habitat**: the species is known to breed in two known locations, which are not in the vicinity of the Project Area. *Potential habitat of Brigalow present but a lack of sandstone cliffs, and woodland valley areas for roosting.*	Unlikely to occur. ■ The Project Area occurs within the distribution for this species. ■ The southern part of the Project Area includes forested escarpment areas along the Great Dividing Range. However, there are no records within the Western Downs Regional Council area. The closest records are from over 100 km northwest of the Project Area, in the Expedition Ranges (ALA 2022). ■ Limited areas of potential habitat of Brigalow is present but a lack of sandstone cliffs, and woodland valley areas for roosting. ■ No records occur within the Project Area/ Locality and no observations were made during field surveys. Closest records are from over 100km to the northwest of the Project Area, recorded in eucalyptus open forests with a grassy understorey in 2003.
Dasyurus hallucatus	Northern Quoll	-	E	No	No	The northern quoll occurs in a range of habitats, including open dry sclerophyll forest and woodland, riparian woodland, low dry vine thicket, the margins of notophyll vineforest, sugarcane farms and in urban areas. They are most abundant in hilly or rocky areas close to permanent water. The preferred habitat of rocky areas close to permanent water are very scarce across the Project Area, however, dry sclerophyll forests associated with remnant Eucalypt woodlands are present. Frequent cool burns and the absence of old growth forests (with hollows) or high elevation rugged terrain or rock falls limits the potential habitat available for the species. **Breeding habitat:** generally requires habitat encompassing some form of rocky area for denning purposes with surrounding vegetated habitats used for foraging and dispersal, as well as connection to permanent water. Dens are made in rock crevices, tree holes or occasionally termite mounds. **Foraging and dispersal habitat**: this species is more likely to be present in Queensland where there are high relief areas that have shallower soils, greater cover of boulders, less fire impact and closer to permanent water.	Potential to occur. ■ Project Area is within the distribution for the species. ■ Potential suitable rocky areas for breeding, denning and foraging habitat are limited to the far south-eastern corner of the Project Area in the plateau with eucalypt woodland/open forest habitat types. ■ No records within the Project Area or adjoining area. The closest record is approximately 142 km north-east of the Project Area in eucalyptus woodlands with a tussock grass understorey, recorded in 1966.

Identification		Status		Records		Assessment	
Scientific Name	**Common Name**	**NC Act**	**Comm. EPBC Act**	**Recent WildNet Records within 10 km**	**Recent ALA Records within 10 km**	**Habitat Summary**	**Likelihood of Occurrence**
						Potential suitable rocky areas for breeding, denning and foraging habitat are limited to the far south-eastern corner of the Project Area.	
Macroderma gigas	Ghost Bat	E	V	No	No	In Queensland the species occurs in 4-5 disjunct populations, north from Rockhampton (TSSC, 2016c). Populations are centred around maternity roosts in deep caves. Pairs and small groups disperse widely during the winter non-breeding season, using temporary daytime roosts in caves and rocky overhangs (TSSC, 2016c)	Unlikely to occur. ■ The Project Area is outside the known distribution of this species, with the closest record over 223 km north-west of the Project Area, recorded in cleared non-native vegetation in 1997 (ALA 2022).
Nyctophilus corbeni	Corben's Long-eared Bat	V	V	No	No	This microbat species has a scattered distribution mostly within the Murray-Darling Basin, but with some records outside of this area. It is more common in box, ironbark and cypress pine woodland on the western slopes and plains. Its stronghold seems to be the Pilliga scrub. It roosts in tree hollows, crevices and under loose bark. **Foraging habitat**: Foraging tends to be located around patches of trees in the landscape. **Breeding habitat**: Little information is available on the breeding behaviour for the species. **Roosting habitat**: Roosting behaviour is located within dead trees including ironbark's, cypress and bulloak. *There is a small amount of potential foraging habitat present in the form of wooded areas in the south of the Project Area, with connectivity to woodland outside of the Project Area.*	Potential to occur. ■ Project Area is within the distribution for the species. ■ There is a small amount of potential foraging habitat present in the form of wooded areas in the south of the Project Area, with connectivity to woodland outside of the Project Area. ■ Suitable habitat in the Project Area is associated with larger patches of remnant eucalypt and acacia woodlands. ■ No records within the Project Area or Locality. The closest record is approximately 40 km south-east of the Project Area in cleared non-native vegetation in 2013.
Petauroides volans	Greater Glider (southern and central)	E	E	No	Yes (confirmed in Project Area during field surveys)	The Greater Glider is an arboreal nocturnal marsupial, largely restricted to Eucalypt forests and woodlands. It is primarily folivorous, with a diet mostly comprising eucalypt leaves, and occasionally flowers. It is more common in taller, montane older forests which have an abundance of hollows. There is no information available that differentiates foraging, breeding and denning habitat for the species however, for denning and nesting it prefers tall mature forests with large tree hollows. *Potential foraging and denning habitat of tall, mature Eucalypt forests is present within the Project Area, specifically along the riparian areas.*	Known to occur. ■ Project Area is within the distribution for the species. ■ Potential foraging and denning habitat of tall, mature eucalypt forests present within the Project Area, specifically along the riparian areas. ■ The species was detected in Queensland Blue Gum (*Eucalyptus tereticornis*) woodland in the north of the Project Area, in the remnant riparian corridors along Wandoan Creek and Woleebee Creek. The species is likely to occur wherever large trees with hollows occur in woodland connected with these corridors and also in open eucalypt woodland area in the southeast of the Project Area in 2022.
Petaurus australis australis	Yellow-bellied Glider (south-eastern)	V	V	No	No	This species is found in Eucalypt dominated woodlands and forests, including both wet and dry sclerophyll forests (Kavanagh et al. 1995; Rees et al. 2007). **Breeding habitat**: Hollow-bearing trees used by the yellow-bellied glider (south-eastern) are primarily living, smooth-barked eucalypts of multiple species. Stags (standing dead trees) account for only two percent of den trees in certain forest types. **Foraging and roosting habitat**: The species shows a preference for larger patches of mature growth forests that contain suitable trees that they require for foraging and roosting. *There is potential foraging and roosting habitat present in the form of wooded plateaus in the far south-eastern corner of the Project Area however no feed trees were detected in the Project Area.*	Potential to occur. ■ Project Area is within the distribution for the species. ■ There is potential foraging and roosting habitat present in the form of wooded plateaus in the far south-eastern corner of the Project Area however no feed trees were detected in the Project Area. ■ No feed trees were detected within the Project Area. The species is unlikely to occur in the cleared and fragmented landscape across the north of the Project Area. The wooded plateau in the southeast is connected to suitably large areas of remnant woodland with potential feed trees.

Identification		Status		Records		Assessment	
Scientific Name	Common Name	NC Act	Comm. EPBC Act	Recent WildNet Records within 10 km	Recent ALA Records within 10 km	Habitat Summary	Likelihood of Occurrence
							■ Denning habitat of tall, mature eucalypt forests present within the Project Area, specifically along the riparian areas. ■ No records within the Project Area or Locality. The closest record is approximately 11 km east of the Project Area in eucalyptus open forests with a grassy understorey in 2009.
Phascolarctos cinereus	Koala	-	E	No	No	Koalas naturally inhabit a range of temperate, sub-tropical and tropical forest, woodland and semi-arid communities dominated by Eucalyptus species as explained by Martin & Handasyde 1999 (as cited in, DoE, 2019h). **Breeding and foraging habitat**: Koala habitat can be broadly defined as any forest or woodland containing species that are known Koala food trees, or shrubland with emergent food trees. **Dispersal behaviour:** the species is known to traverse a matrix of landscape features from remnant and regrowth vegetation to paddock trees and grasslands. *Foraging and breeding habitat of Eucalypt forests, and preferred food trees including E. tereticornis, E. populnea, E. crebra, E. longirostrata, E. melanophloia, E. exserta and Corymbia citriodora subsp. variegata), as well as dispersal opportunities, are present within the Project Area.*	Likely to occur. ■ Project Area is within the distribution for the species. ■ There are only sparse records in the locality suggesting a very low density population, with no evidence of recent (last 25 years) Koala sightings in the Project Area or within 10km of the locality. A targeted field survey was undertaken in the Project Area, which included spotlighting, searches for scats and scratch marks, with no Koalas observed or scats detected during the 20 days of field surveys. ■ Evidence of Koala from the 2022 field surveys was in the form of potential scratch marks only, and there is uncertainty that the scratches were from Koalas. ■ There is potential foraging and breeding habitat for Koala present in the form of Eucalypt dominated woodlands and open forests in the Project Area, particularly along riparian areas.
Reptiles							
Anomalopus mackayi	Five-clawed worm-skink	E	V	No	No	This species is associated with deep cracking clays that provide individuals with shelter. Habitat areas include Bluegrass and/or Mitchell Grass dominated grassland and other grasslands categorised as RE 11.3.21; River Red Gum - Coolibah-Bimble/Poplar Box and Weeping Myall grassy woodlands; White Box grassy woodland; Myall woodland, and Brigalow (*Acacia harpophylla* dominant and co-dominant). *There is no delineation between breeding, dispersal and foraging habitat for this species. However, microhabitat requirements include cracking clay soils or self-mulching friable basalt soils and woody debris.*	Potential to occur. ■ Project Area is within the distribution for this species. ■ Areas of potential habitat are limited on the site, with an absence of native grasslands with deep, cracking clays. Potential habitat includes area of Brigalow woodlands, with coarse woody debris and deep leaf litter cover. ■ Ephemeral wetlands and creek lines are also present along with cracking clay soils in some areas. ■ No records exist for this species within the Project Area or Locality and no observations were made in the field. The closest record was recorded 150 km southeast of the Project Area in cleared non-native vegetation in 2023.
Delma torquata	Collared Delma	V	V	No	No	This species normally inhabits eucalypt-dominated woodlands and open-forests in Queensland RE Land Zones. The RE it prefers are ones dominated by Poplar Box (*Eucalyptus populnea*) on alluvial plains, Lemon-scented Gum (*Corymbia citriodora*) open forest on coarse-grained sedimentary rocks and Poplar Box/Brigalow (*Acacia harpophylla*) open forests on fine-grained sedimentary rocks. There is no delineation between breeding, dispersal and foraging habitat for this species. However, microhabitat requirements include presence of rocks, logs and specific mats of leaf litter typically 30-100 mm thick.	Potential to occur. ■ Project Area is within the distribution for the species. ■ Suitable habitat with abundant litter, rocks and woody debris occurs in remnant areas of forest and woodland associated with the escarpment and plateau in the far south-eastern corner of the Project Area. The species is unlikely to occur in the northern or central parts of the Project Area, where woodland fragments are small, narrow and disturbed, with few suitable habitat features for this species.

Identification		Status		Records		Assessment	
Scientific Name	Common Name	NC Act	Comm. EPBC Act	Recent WildNet Records within 10 km	Recent ALA Records within 10 km	Habitat Summary	Likelihood of Occurrence
						Suitable habitat with abundant litter, rocks and woody debris occurs in remnant areas of forest and woodland associated with the escarpment and plateau in the far south-eastern corner of the Project Area. The species is unlikely to occur in the northern or central parts of the Project Area, where woodland fragments are small, narrow and disturbed, with few suitable habitat features for this species.	■ No records within the Project Area or Locality. The closest record was recorded 111 km north-west of the Project Area in eucalyptus woodlands with a tussock grass understorey in 2020.
Egernia rugosa	Yakka Skink	V	V	No	Yes – Locality	The Yakka skink is known to occur in open dry sclerophyll forest, woodland and scrub. The core habitat of this species is within the Mulga lands and Brigalow belt south bioregions. It is known from rocky outcrops and sand plain areas with dense ground vegetation. There is no delineation between breeding, dispersal and foraging habitat for this species. However, microhabitat features required for this species include cavities under and between partly buried rocks, logs and tree stumps as well as abandoned animal burrows. *Dry sclerophyll forests and vegetation within the Brigalow belt south bioregion is present within the Project Area.*	Potential to occur. ■ Project Area is within the distribution for the species. ■ Suitable habitat with abundant litter, rocks and woody debris occurs in large remnant areas of forest and woodland associated with the escarpment and plateau in the far south-eastern corner of the Project Area. The species is unlikely to occur in the northern or central parts of the Project Area, where woodland fragments are small, narrow and disturbed, with few suitable habitat features for this species. ■ No records within the Project Area and Locality. The closest record was recorded 29 km south-east of the Project Area in other shrublands in 1998.
Elseya albagula	White-throated Snapping Turtle	CE	CE	No	No	The White-throated Snapping Turtle prefers clear, flowing, well-oxygenated waters for its habitat. The species prefers waterways with permanent flowing water, with undercut banks, large woody debris, deep pools (or approximately 6 m deep) and shallow riffle zones. *There is a lack of well-flowing rivers with permanently flowing water with large woody debris present within the Project Area.*	Unlikely to occur. ■ Project Area is within the distribution for the species. ■ There is a lack of well-flowing rivers with permanently flowing water with large woody debris present within the Project Area. ■ No records within the Project Area or Locality. The closest record was recorded 60 km north-east of the Project Area in adjacent to Dawson Creek in 1998.
Furina dunmalli	Dunmall's Snake	V	V	No	No	This species is found in forests and woodlands on black alluvial cracking clay and clay loams dominated by Brigalow (*Acacia harpophylla*), other Wattles (*A. burowii, A. deanii, A. leioclyx*), native Cypress (Callitris spp.) or Bull-oak (*Allocasuarina luehmannii)*. There is no delineation between breeding, dispersal and foraging habitat for this species. Microhabitat features preferred includes fallen timber and ground litter. *There is some limited suitable habitat with abundant litter, rocks and woody debris present in the far south-eastern corner of the Project Area.*	Potential to occur. ■ Project Area is within the distribution for the species. ■ There is some limited suitable habitat with abundant litter, rocks and woody debris present in the far south-eastern corner of the Project Area. ■ No records within the Project Area or Locality. The closest record was recorded 38 km south-west of the Project Area in Brigalow (Acacia harpophylla) forests and woodlands in 2009.
Hemiaspis damelii	Grey Snake	E	E	No	No	This species inhabits Brigalow *Acacia harpophylla* and Belah *Casuarina cristata* woodlands on dark brown to black cracking clay soils but are also found in Queensland Bluegrass *Dichanthium sericeum* and/or Mitchell Grass *Astrebla* spp. grasslands on alluvial plains with cracking clay soils, and red sodsol soils on the western downs of Queensland. Closely associated with waterbodies, particularly ephemeral wetlands and floodplains. Shelters in and under soils cracks, rocks, logs, flood debris and abandoned burrows. **Breeding habitat:** There is no information about breeding habitat for this species. **Foraging habitat:** Forages for frogs in and around temporary water bodies, including small gullies and ditches, ephemeral wetlands, and floodplains. Uses soil cracks and crevices for cover when hunting.	Potential to occur. ■ Project Area is within the distribution for this species. ■ Brigalow and Belah are present in the north and far South-eastern parts of the Project Area, and ephemeral wetlands and creek lines are also present, with cracking clay soils in some areas. ■ No records exist for this species within the Project Area or the Locality and no observations were made in the field. The closest record was recorded 51 km east of the Project Area in eucalyptus open woodlands with shrubby understorey in Barakula State Forest in 2010.

Identification		Status		Records		Assessment	
Scientific Name	**Common Name**	**NC Act**	**Comm. EPBC Act**	**Recent WildNet Records within 10 km**	**Recent ALA Records within 10 km**	**Habitat Summary**	**Likelihood of Occurrence**
						Brigalow and Belah are present within the north and far south-eastern parts of the Project Area. Ephemeral wetlands and creek lines are also present along with cracking clay soils in some areas.	
Rheodytes leukops	Fitzroy River Turtle	V	V	No	No	The Fitzroy River Turtle is located mainly in rivers that contain large deep pools associated with rocky, sandy or gravel-based substrates, connected by shallow riffles. Areas that the species prefers are associated with higher water clarity and the species Ribbonweed (*Vallisneria sp.*) is often dominated in the creek beds. *There is a lack of rivers with large deep pools and rocky or sandy substrates present within the Project Area.*	Unlikely to occur. ■ Project Area is within the distribution for the species. ■ There is a lack of rivers with large deep pools and rocky or sandy substrates present within the Project Area. ■ No records within the Project Area or Locality. The closest record was recorded 174 km north of the Project Area in cleared non-native vegetation in 2009.
Invertebrates							
Adclarkia cameroni	Brigalow Woodland Snail	V	E	No	No	Found in remnant Eucalypt and Brigalow woodland associated with the Condamine River floodplain, centred on the area between Dalby and Miles/Condamine (TSSC 2016a). The Brigalow Woodland Snail requires both canopy cover (from trees and/or shrubs) and woody debris among leaf litter to maintain adequate microhabitat humidity levels for breeding and to avoid desiccation (TSSC 2016a). It is likely that the species can aestivate during dry periods, however, the possible extent of these periods is not known. The mobility, and therefore capacity for dispersal, of this species is very limited. *Limited areas of potential habitat of fragmented isolated patches of Brigalow and Eucalypt woodlands are present in areas across the Project Area.*	Unlikely to occur. ■ The Project Area is outside the known distribution and separated from known occurrences by substantial barriers of unsuitable habitat. ■ Limited areas of potential habitat of fragmented isolated patches of Brigalow and Eucalypt woodlands are present in areas across the Project Area and given the fragmented nature of these habitats they are unlikely to be utilised or colonised by the species given it's very limited mobility. ■ No records within the Project Area. The closest known record of the species was recorded in Gurulmundi State Forest, approximately 15 km south of the Project Area, recorded in 2014. However, this record was incorrectly identified (refer to Appendix I of the EAR). The next nearest known record is 52.11 km south-east of the Project Area, recorded in 2011 (ALA, 2023). ■ A statement from Craig Eddie (Principal Ecologist) is provided in Appendix I of the EAR.
Adclarkia dulacca	Dulacca Woodland Snail	E	E	No	Yes – Locality.	This species occurs in a small number of isolated populations in the areas between Miles and Dulacca, and south to Meandarra (TSSC 2016b). This species inhabits a variety of remnant and scattered habitats, such as vine thicket and Brigalow woodland patches on rocky outcrops with clay to loam soils, as well as ironbark and *Acacia shirleyi* woodlands on ridges and *Eucalyptus woollsiana* woodland. The Dulacca Woodland Snail is also able to exist in areas of brigalow regrowth and even in cleared paddocks but only where logs, woody debris or other suitable microhabitat sites remain (TSSC 2016b). This species can also shelter under loose bark at the base of trees. The Dulacca Woodland Snail requires both canopy cover (from trees and/or shrubs) and rocks or woody debris to maintain adequate microhabitat humidity levels for breeding and to avoid desiccation (TSSC 2016b). It is likely that the species can aestivate during dry periods, however, the possible extent of these periods is not known. The mobility of this species is limited, however, it will move between areas of suitable microhabitat. *Potential habitat of very fragmented, isolated patches of Brigalow woodlands is present in areas across the Project Area.*	• Likely to occur. ■ Project Area is within the distribution for the species. ■ The Project Area includes several small patches of suitable habitat (Brigalow woodland). Elsewhere the species persists in similarly fragmented landscapes. ■ This species was not located in surveys of the Project Area. The species has previously been collected from an area of RE 11.9.5a and 11.7.2 south of the Project Area, in the adjoining area (ALA, 2022). ■ A statement from Craig Eddie (Principal Ecologist) is provided in Appendix I of the EAR.

Identification		Status		Records		Assessment	
Scientific Name	Common Name	NC Act	Comm. EPBC Act	Recent WildNet Records within 10 km	Recent ALA Records within 10 km	Habitat Summary	Likelihood of Occurrence
Migratory Species							
Marine Species							
Apus pacificus	Fork-tailed Swift	-	Mi, Ma	No	No	In Australia, they occur over cliffs and beaches and also over islands and sometimes well out to sea. They also occur over settled areas, including towns, urban areas and cities. They mostly occur over dry or open habitats, including riparian woodland and tea-tree swamps, low scrub, heathland or saltmarsh. **Breeding habitat**: Does not breed in Australia. **Foraging habitat**: exclusively aerial and found across a range of habitats. *Potential foraging habitat over dry open habitats present, where it would fly aerially over.*	Likely to occur. ■ Project Area is within the distribution for the species. ■ Potential foraging habitat over dry open habitats present, where it would be only likely to fly aerially over. ■ No records within the Project Area or Buffer Zone. ■ Project Area is within the distribution for the species. ■ Potential foraging habitat over dry open habitats present, where it would be only likely to fly aerially over. ■ No records within the Project Area or Locality. The closest record was recorded 12.5 km west of the Project Area in eucalypt open forest in Cherwondah State Forest in 2002.
Terrestrial Species							
Cuculus optatus	Oriental Cuckoo	-	Mi	No	No	The species is found in forest canopy, open wooded areas and orchards, often in hill country, also in coniferous forest and in birch (Betula) above the treeline. The species may occur in association with remnant and regrowth RE types 11.3.2, 11.3.25, 11.9.4, 11.9.5, 11.9.5a, 11.9.10, 11.3.19, 11.5.1 within the Project Area. The species winters in many different countries, including the coastal parts of northern and eastern Australia (BirdLife International, 2015). **Breeding habitat**: Does not breed in Australia. **Foraging and roosting habitat**: Monsoonal rainforest, vine thickets, wet sclerophyll forest or open *Casuarina, Acacia,* or *Eucalyptus* woodlands. Frequently at the edges or ecotones between habitat types. *There is limited areas of potential suitable remnant woodlands and non-remnant patches of native vegetation habitat, within the Project Area.*	Potential to occur. ■ Project Area is within the distribution for this species but occurs predominantly in coastal areas. ■ Wetland habitat within the Project Area is limited to small ephemeral vegetated swamps and billabongs associated with meandering drainage lines which are unlikely to attract this species. ■ No records for the species exist within the Project Area/ Locality and no observations were made during field surveys. The closest record was recorded 84 km south-east of the Project Area in cleared, non-native vegetation in Chinchilla.
Motacilla flava	Yellow Wagtail	-	Mi, Ma	No	No	Habitat requirements for the yellow wagtail are highly variable, but typically include open grassy flats near water. Habitats include open areas with low vegetation such as grasslands, airstrips, pastures, sports fields; damp open areas such as muddy or grassy edges of wetlands, rivers, irrigated farmland, dams, waterholes; sewage farms, sometimes utilise tidal mudflats and edges of mangroves. This species may occur in association with non-remnant vegetation. **Breeding habitat**: Does not breed in Australia. **Foraging and roosting habitat**: Has a strong association with water, particularly rock substrates along watercourses, but also lakes and marshes. *Potential foraging habitat of waterbodies (predominately farm dams) present within the Project Area.*	Unlikely to occur. ■ Project Area is within the distribution for this species. ■ Potential foraging habitat of waterbodies (predominately farm dams) present within the Project Area. ■ No records for the species exist within the Project Area/ Locality and no observations were made during field surveys. There are also no records for this species from southern inland Queensland and so it is unlikely to occur within the limited habitat present in the Project Area. ■ The closest record was recorded 275 km north of the Project Area in cleared, non-native vegetation near Duaringa, in 1905.

Identification		Status		Records		Assessment	
Scientific Name	**Common Name**	**NC Act**	**Comm. EPBC Act**	**Recent WildNet Records within 10 km**	**Recent ALA Records within 10 km**	**Habitat Summary**	**Likelihood of Occurrence**
Myiagra cyanoleuca	Satin Flycatcher	-	Mi, Ma	No	No	Satin Flycatchers inhabit heavily vegetated gullies in Eucalypt-dominated forests and taller woodlands, and on migration, occur in drier woodlands and open forests. **Roosting habitat**: there is no information on the roosting behaviour for the species. **Foraging habitat**: the species is known to forage in the canopy and subcanopy of trees. **Breeding habitat**: breeding occurs in south-east Australia, but no other information is provided on the specifics of such locations. *There is some limited potential habitat present in the form of remnant and non-remnant woodlands within the Project Area.*	Potential to occur. ■ Project Area is within the distribution for the species. ■ There is some limited potential habitat present in the form of remnant and non-remnant woodlands within the Project Area. ■ No records within the Project Area or Locality. The closest record was recorded 28 km north of the Project Area in eucalypt woodlands with shrubby understorey, in 1997.
Rhipidura rufifrons	Rufous Fantail	-	Mi, Ma	No	Yes (within Locality, 2020)	In east and south-east Australia, the rufous fantail mainly inhabits wet sclerophyll forests, often in gullies dominated by eucalypts such as tallow-wood (*Eucalyptus microcorys*) and mountain grey gum (*E. cypellocarpa*). When on passage, they are sometimes recorded in drier sclerophyll forests and woodlands, including spotted gum (*E. maculata*), yellow box (*E. melliodora*), ironbarks or stringybarks, often with a shrubby or heath understorey. **Breeding habitat**: breeding occurs in south-east Australia, but no other information is provided on the specifics of such locations. **Foraging and roosting habitat**: There is no information concerning feeding or roosting sites during species migration. *There is some limited potential habitat present in the form of remnant and non-remnant woodlands within the Project Area.*	Potential to occur. ■ Project Area is within the distribution for the species. ■ There is some limited potential habitat present in the form of remnant and non-remnant woodlands within the Project Area. ■ No records within the Project Area, but there is a record from the Locality, from Nov 2020 in non-remnant riparian woodland near Sundown Rd, 8 km north of the Project Area (BOOBOOK unpublished data).
Wetland Species							
Actitis hypoleucos	Common Sandpiper	-	Mi, Ma	No	No	The species utilises a wide range of coastal wetlands and some inland wetlands, with varying levels of salinity, and is mostly found around muddy margins or rocky shores and rarely on mudflats. The common sandpiper has been recorded in estuaries and deltas of streams, as well as on banks farther upstream; around lakes, pools, billabongs, reservoirs, dams and claypans, and occasionally piers and jetties. **Breeding habitat**: Does not breed in Australia. **Foraging habitat**: this species forages in shallow water and on bare soft mud at the edges of wetlands; often where obstacles project from substrate, e.g. rocks or mangrove roots. Birds sometimes venture into grassy areas adjoining wetlands. It has been observed foraging in billabongs, lakes and dams. **Roosting habitat**: Roost sites are typically on rocks or in roots or branches of vegetation, especially mangroves. The species is known to perch on posts, jetties, moored boats and other artificial structures, and to sometimes rest on mud or 'loaf' on rocks. *Small areas of foraging habitat are present within small ephemeral wetlands, which may provide temporary refuge for the species, within the Project Area.*	Potential to occur. ■ Project Area is within the distribution for the species. ■ Small areas of foraging habitat are present within small ephemeral wetlands on drainage lines, which may provide temporary refuge for the species and support occasional transient visitors to the Project Area. ■ No records within the Project Area or Locality. The closest record was recorded 84 km south-east of the Project Area in cleared land adjacent to Baking Board Creek in Chinchilla.

Identification		Status		Records		Assessment	
Scientific Name	**Common Name**	**NC Act**	**Comm. EPBC Act**	**Recent WildNet Records within 10 km**	**Recent ALA Records within 10 km**	**Habitat Summary**	**Likelihood of Occurrence**
Calidris acuminata	Sharp-tailed Sandpiper	-	Mi, Ma	No	No	Prefers habitat on muddy edges of freshwater wetlands or brackish wetlands. Can be found at dams inland. Will often occupy coastal mudflats when ephemeral terrestrial wetlands have dried out. **Breeding habitat**: Does not breed in Australia. **Foraging habitat**: foraging habitat is at the edge of the water of wetlands or intertidal mudflats, either on bare wet mud or sand, or in shallow water. Also among inundated vegetation of saltmarsh, grass or sedges. They forage in sewage ponds, and often in hypersaline environments. After rain, they may forage in paddocks of short grass, well away from water. They may forage on coastal mudflats at low tide and move to freshwater wetlands near the coast to feed at high tide. **Roosting habitat**: Roosting occurs at the edges of wetlands, on wet open mud or sand, in shallow water, or in short sparse vegetation, such as grass or saltmarsh. Occasionally, they roost on sandy beaches, stony shores or on rocks in water. *Small areas of foraging habitat present within small ephemeral wetlands, which may provide temporary refuge for the species, within the Project Area.*	Potential to occur. ■ Project Area is within the distribution for the species. ■ Small areas of foraging habitat present within small ephemeral wetlands on drainage lines, which may provide temporary refuge for the species and support occasional transient visitors to the Project Area. ■ No records within the Project Area or Locality. The closest record was recorded 61 km south-east of the Project Area in cleared land 1 km east of Leichardt Highway and 2 km west of Condamine River.
Calidris melanotos	Pectoral Sandpiper	-	Mi, Ma	No	No	In Australasia, the pectoral sandpiper prefers shallow fresh to saline wetlands. The species is found at coastal lagoons, estuaries, bays, swamps, lakes, inundated grasslands, saltmarshes, river pools, creeks, floodplains and artificial wetlands. **Breeding habitat**: Does not breed in Australia. **Foraging habitat**: forages in shallow water or soft mud at the edge of wetlands, **Roosting habitat**: prefers shallow fresh to saline wetlands. The species is found at coastal lagoons, estuaries, bays, swamps, lakes, inundated grasslands, saltmarshes, river pools, creeks, floodplains and artificial wetlands. *Wetland habitat within the Project Area is limited to small ephemeral vegetated swamps and billabongs associated with meandering drainage lines which are unlikely to attract this species.*	Unlikely to occur. ■ Project Area is within the distribution for this species but occurs predominantly in coastal areas. ■ Wetland habitat within the Project Area is limited to small ephemeral vegetated swamps and billabongs associated with meandering drainage lines which are unlikely to attract this species. ■ No records for the species exist within the Project Area/ Locality and no observations were made during field surveys. The closest record was recorded 108 km south-west of the Project Area in cleared, non-native vegetation near Roma, in 1996.
Charadrius leschenaultii	Great Sand Plover	V	V, Mi, Ma	No	No	This species is found majorly within coastal wetlands occurrence when on migration throughout Australia. Records from inland sites are extremely rare and probably reflect vagrant birds blown off course by storms (TSSC, 2016b). *There is no suitable foraging habitat of coastal wetlands present within the Project Area.*	Unlikely to occur. ■ Project Area is within the distribution for this species. ■ There is no suitable foraging habitat of coastal wetlands present within the Project Area. ■ No records for the species exist within the Project Area/Locality and no observations were made during field surveys. The closest record was recorded 237 km south-east of the Project Area in cleared, native vegetation near Toowoomba in 2019.
Gallinago hardwickii	Latham's Snipe	-	Mi, Ma	No	No	They usually occur in open, freshwater wetlands that have some form of shelter (usually low and dense vegetation) nearby. They generally occupy flooded meadows, seasonal or semi-permanent swamps, or open waters, but various other freshwater habitats can be used including bogs, waterholes, billabongs, lagoons, lakes, creek or river margins, river pools and floodplains. This species has been said to occur very rarely in small patches of habitat such as roadside ditches and alpine bogs (Higgins & Davies, 1996). They can also be found around irrigation channels and modified habitats at farms.	Potential to occur. ■ Project Area is within the distribution for the species. ■ Small areas of foraging habitat are present within small ephemeral wetlands on drainage lines, which may provide temporary refuge for the species and support occasional transient visitors to the Project Area.

Identification		Status		Records		Assessment	
Scientific Name	Common Name	NC Act	Comm. EPBC Act	Recent WildNet Records within 10 km	Recent ALA Records within 10 km	Habitat Summary	Likelihood of Occurrence
						Breeding habitat: Does not breed in Australia. **Foraging habitat**: characterized by areas of mud (either exposed or beneath a very shallow covering of water) and some form of cover (e.g., low, dense vegetation) **Roosting habitat**: on the ground near (or sometimes in) their foraging areas, usually in sites that provide some degree of shelter, e.g., beside or under clumps of vegetation, among dense tea-tree, in forests, in drainage ditches or plough marks, among boulders, or in shallow water if cover is unavailable. *Small areas of foraging habitat are present within small ephemeral wetlands, which may provide temporary refuge for the species, within the Project Area.*	■ No records within the Project Area or Locality. The closest record was recorded 34 km south-east of the Project Area in eucalypt open forest with grassy understorey.

Note: CE = Critically Endangered; E = Endangered; V = Vulnerable; Mi = Migratory; Ma = Marine

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