



# McNulty Pipelines (PPL2048) Environmental Authority (EA0002214)

## EA Amendment Application Supporting Report

25 October 2023

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Supporting Information



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# 1 Introduction

Under Section 224 of the *Environmental Protection Act 1994* (EP Act), the holder of an environmental authority (EA) may, at any time, apply to the administering authority to amend the EA (i.e., submit an *amendment application*).

The purpose of this report is to provide sufficient information to enable the Department of Environment and Science (DES) to decide on the application to amend the McNulty Pipelines (PPL 2048) EA (EA0002214).

Arrow believes that the amendment application does not significantly increase the level of environmental harm caused by a relevant activity. Arrow believes that the authorisation to construct and operate the PPL has been approved subsequently and that the proposed amendment does not seek to increase the level of disturbance proposed or authorised and meets the criteria for a minor amendment (threshold). Instead, the application proposes to correctly reflect the impacts on PEMS based on the already approved PPL and EA.

The pipeline route the subject of the original application was preliminary and subject to further detailed design work. The route has undergone further design work and the route is now Final Layout Approved. This certainty of the route has enabled Arrow to finalise impact to Environmental values in general and to MSES in particular. In fact, there is a reduction in disturbance with the existing approved RoW being 40m in width and the disturbance associated with the PEMS linked to a 25m RoW due to refinement. As such, Arrow believes the scale and intensity has actually reduced to nearly 37% of the previously authorised disturbance based on a 40m RoW.

Details of the assessments of environmental matters included in this report are provided in section 5.

This amendment proposes changes to Table 2 — Significant residual impacts to prescribed environmental matters (PEMs) as outlined in Table 4-1 and authorisation in Environmentally Sensitive Areas (ESAs).

During the recent assessment of Significant Residual Impacts (SRI) for McNulty Pipelines (PPL 2048) (hereafter 'the project'), using recently acquired verification data, it was identified that matters 1 to 13 are not currently included within Table 2 – 'Significant residual impacts to prescribed environmental matters' within the EA0002214. To enable offsets to be appropriately assessed for the proposed disturbance during construction of the pipelines, the relevant PEMs need to be included within this table. A copy of the Significant Residual Impact Assessment is provided in Appendix E.

A notice of election has not been included as part of the application and will be submitted subject to approval and confirmation of the SRI assessment and required PEMS to be offset under the *Environmental Offsets Act 2014*. Arrow will provide a financial offset to offset any matters.

The offsets will not be staged.

This EA amendment application report has been developed and structured in accordance with the relevant provisions of the EP Act and DES guideline *Major and minor amendments* (ESR/2015/1684, Version 10.01, 4 May 2022 (hereafter 'DES Guideline').



## 2 Scope

The scope of the proposed works for the pipelines has not changed to the application which was submitted and approved by the Department in November 2019. The current EA0002214 which was issued on 27 March 2020 already authorises the construction and operation of one produced gas and one produced water pipeline, access tracks, Inlet Processing Facility (IPF) and incidental activities required to transfer produced gas and water in support of Arrow's Surat Gas Project (SGP) in the vicinity of the McNulty Field Compression Station (FCS) and pond (see Figure 1) located and authorised under QGC Pty Limited Environmental Authority EPPG00932613. The pipeline route the subject of the original application was preliminary and subject to further design work. The route has undergone further design work and the route is now Final Layout Approved. This certainty of the route has enabled Arrow to finalise impact to Environmental values in general and to MSES in particular.

This pipeline was also assessed and approved as part of the EPBC referral 2018/8223. As noted in the original application MNES have been prescribed and will be offset) in accordance with the EPBC Act Species Impact Management and Offset Plans, specifically the EPBC approval for the Surat Gas Project Off-tenure Pipelines and Associated Infrastructure (EPBC 2018/8223). There are however, residual impacts to State Prescribed Environmental Matters (PEMs) which this application explicitly seeks.

### 3 Proposed Amendments

The Tables below describes the proposed changes to the EA0002214, which is required to carry out the proposed pipeline.

#### 3.1 Environmentally sensitive areas

Variation to condition Variation 5, Table 1 to authorize the impacts to ESAs as shown below in Table 1 and shown in Figure 1 in addition to inclusions to the PEMs table.

Proposed inclusions are underlined and *italicized* and deletion in ~~strikethrough~~ below;

Variation 5 - Despite conditions PPSCA 3 (S), ~~(Variation 1) to (Variation 4)~~, this environmental authority does not authorise disturbance in ESAs, apart from the disturbance in ESAs is authorised in Table 1 – Authorised Disturbances in ESAs.

**Table 1 – Proposed changes to Variation 5, Table 1 – Authorised disturbances in ESAs**

<b>Description of infrastructure</b>	<b>ESA Description</b>	<b>Location</b>	<b>Maximum extent of disturbance (hectares)</b>
<u>Pipeline</u>	<u>Cat B ESA (Regrowth RE 11.4.3)</u>	<u>PPL 2048</u>	<u>0.2</u>
<u>Pipeline</u>	<u>Cat C (Of Concern RE 11.3.25)</u>	<u>PPL 2048</u>	<u>0.3</u>

### 3.2 Prescribed environmental matters

In addition to the proposed amendments to authorisations in the ESA's above, Arrow also requires the inclusion of PEMs as detailed in Table 2 below. It should be noted that not all the limits requested below in the PEMS table will need offsets at the State level. As noted in the application previously, this off tenure pipeline is covered by an existing EPBC approval EPBC 2018/8223 which includes impacts to MNES. As such, where vegetation listed as PEMS or Matters of State Environmental Significance (MSES) also provide habitat for species listed as MNES, the Commonwealth approval takes precedent and therefore offsets provided for MNES also satisfies the requirement for State offsets.

**Table 2 – Proposed changes to PPSCA 3 (S) Variation 9, Table 2 of the EA**

#### **Analysis of all Prescribed Environmental Matters (PEMs) and whether or not they have the potential for a Significant Residual Impact (SRI)**

Item	PEM	Potential for SRI	Comments
1	Regulated vegetation – Endangered regional ecosystems.	No	Not located within the disturbance footprint of the current project.
2	Regulated vegetation – Of concern regional ecosystems.	No	Not located within the disturbance footprint of the current project.
3	Regulated vegetation – Regional ecosystems (not within an urban area) that intersect a wetland on the vegetation management wetlands map.	No	Not located within the disturbance footprint of the current project.
4	Regulated vegetation – Regional ecosystems (not within an urban area) within the defined distance from the defining banks of a relevant watercourse on the vegetation management watercourse map.	Yes	Includes a total of 0.5 ha of ground-verified remnant vegetation across the following REs: <ul style="list-style-type: none"> <li>• 0.1 ha of RE 11.3.25.</li> <li>• 0.4 ha of RE 11.7.4</li> <li>• 0.1 ha of RE 11.7.7.</li> </ul> This vegetation is associated with Columboola Creek and several other unnamed tributaries with stream orders of 1 and 3. Refer to section 3.2.1 for the SRI assessment of this PEM. All vegetation polygons are co-located with protected wildlife habitat (Figure 2).
5	Regulated vegetation – Essential habitat (not in an urban area) for	No	Not located within the disturbance footprint of the current project.

Item	PEM	Potential for SRI	Comments
	critically endangered, endangered or vulnerable wildlife.		
6	Connectivity Areas – Connectivity area that is a regional ecosystem (not in urban area)	No	Not located within the disturbance footprint of the current project.
7	Wetlands and watercourses – A wetland in a wetland protection area	No	Not located within the disturbance footprint of the current project.
8	Wetlands and watercourses – A wetland of high ecological significance shown on the map of Queensland wetland environmental values	No	Not located within the disturbance footprint of the current project.
9	Wetlands and watercourses – A wetland or watercourse in high ecological value waters	No	Not located within the disturbance footprint of the current project.
10	Designated precinct in a strategic environmental area	No	Not located within the disturbance footprint of the current project.
11	Protected wildlife habitat – An area that is shown as a high risk area on the flora survey trigger map and that contains plants that are critically endangered, endangered or vulnerable.	No	Not located within the disturbance footprint of the current project.
12	Protected wildlife habitat – An area that is not shown as a high risk area on the flora survey trigger map, to the extent the area contains plants that are critically	No	Not located within the disturbance footprint of the current project.

Item	PEM	Potential for SRI	Comments
	endangered, endangered or vulnerable.		
13	Protected wildlife habitat – A koala habitat area as determined by the chief executive on the koala conservation plan map.	No	Not located within the disturbance footprint of the current project.
14	Protected wildlife habitat – Habitat for an animal that is critically endangered, endangered or vulnerable.	Yes	<p>A total of 38 ha will be disturbed along the pipeline alignment. Impact on species based on ground-verified remnant and regrowth vegetation to be cleared representing core habitat for one or more of the 12 species listed below (<b>species listed under the NC Act only are bolded</b>):</p> <ul style="list-style-type: none"> <li>• 13.5 ha for the Koala, <i>Phascolarctos cinereus</i> (Endangered under both the NC Act and EPBC Act)<sup>1</sup>.</li> <li>• 8.5 ha for the Greater Glider, <i>Petauroides volans</i> (Endangered under both the NC Act and EPBC Act).</li> <li>• 8.5 ha for the Yellow-bellied Glider, <i>Petaurus australis</i> (Vulnerable under both the NC Act and EPBC Act).</li> <li>• 8.5 ha for the South-eastern Long-eared Bat<sup>1</sup>, <i>Nyctophilus corbeni</i> (Vulnerable under both the NC Act and EPBC Act).</li> <li>• 8.5 ha for the Diamond Firetail, <i>Stagonopleura guttata</i> (Vulnerable under both the NC Act and EPBC Act).</li> <li>• 9 ha for the South-eastern Glossy Black-cockatoo, <i>Calyptorhynchus lathamii</i> (Vulnerable under both the NC Act and EPBC Act).</li> </ul>

<sup>1</sup> In instances where the PEM corresponds to a MNES are addressed and offset under Arrow's approved EPBC (2018/8223) Offset Area Management Plan.

Item	PEM	Potential for SRI	Comments
			<ul style="list-style-type: none"> <li>• 0.1 ha for the Painted Honeyeater, <i>Grantiella picta</i> (Vulnerable under both the NC Act and EPBC Act).</li> <li>• <b>8.5 ha for the Common Death Adder, <i>Acanthophis antarcticus</i> (Vulnerable under the NC Act).</b></li> <li>• 8.5 ha for the Dunmall's Snake<sup>1</sup>, <i>Glyphodon (Furina) dunmalli</i> (Vulnerable under both the NC Act and EPBC Act).</li> <li>• 0.2 ha for the Grey Snake, <i>Hemiaspis damelii</i> (Endangered under both the NC Act and EPBC Act).</li> <li>• 0.2 ha for the Brigalow Woodland Snail, <i>Adclarkia cameroni</i> (Vulnerable under the NC Act and Endangered EPBC Act).</li> <li>• 0.1 ha for the Dulacca Woodland Snail, <i>Adclarkia dulacca</i> (Endangered under both the NC Act and EPBC Act).</li> </ul> <p>All remnant and regrowth vegetation is mapped as protected wildlife habitat for one or more threatened species, with all vegetation polygons co-located to varying degrees with all other matters, and all the vegetation to be cleared is considered Koala habitat (Figure 2 to Figure 5).</p> <p>Refer to Section 3.2.2 of the SRI assessment of this PEM.</p>
15	Protected wildlife habitat – Habitat for an animal that is special least concern (i.e. echidna or platypus).	No	The EA already authorises 8.3 ha and 6 ha respectively. The assessment includes 1.7ha impact for platypus and no impact for echidna. The SRI assessment in Appendix E determines there is no SRI impact to either species.
16	Protected areas	No	Not located within the disturbance footprint of the current project.
17	Highly protected zones of State marine parks	No	Not located within the disturbance footprint of the current project.

Item	PEM	Potential for SRI	Comments
18	Fish habitat area	No	Not located within the disturbance footprint of the current project.
19	Waterway providing for fish passage – Fish passage (not in an urban area)	No	The EA already authorises 10 ha, the assessment includes 0.1ha impact of instream fish passage, with works to be done during the dry season. The SRI assessment in Appendix E determines there is no SRI impact.
20	Marine plants	No	Not located within the disturbance footprint of the current project.
21	Legally secured offset area	No	Not located within the disturbance footprint of the current project.

Table 3 below shows the proposed changes to Table 2 – Significant residual impacts to prescribed environmental matters to be included in the EA.

The proposed inclusions are underlined and *italicized* and deletion are in ~~striketrough~~ below;

**Table 3 – Table 2 - Significant residual impacts to prescribed environmental matters**

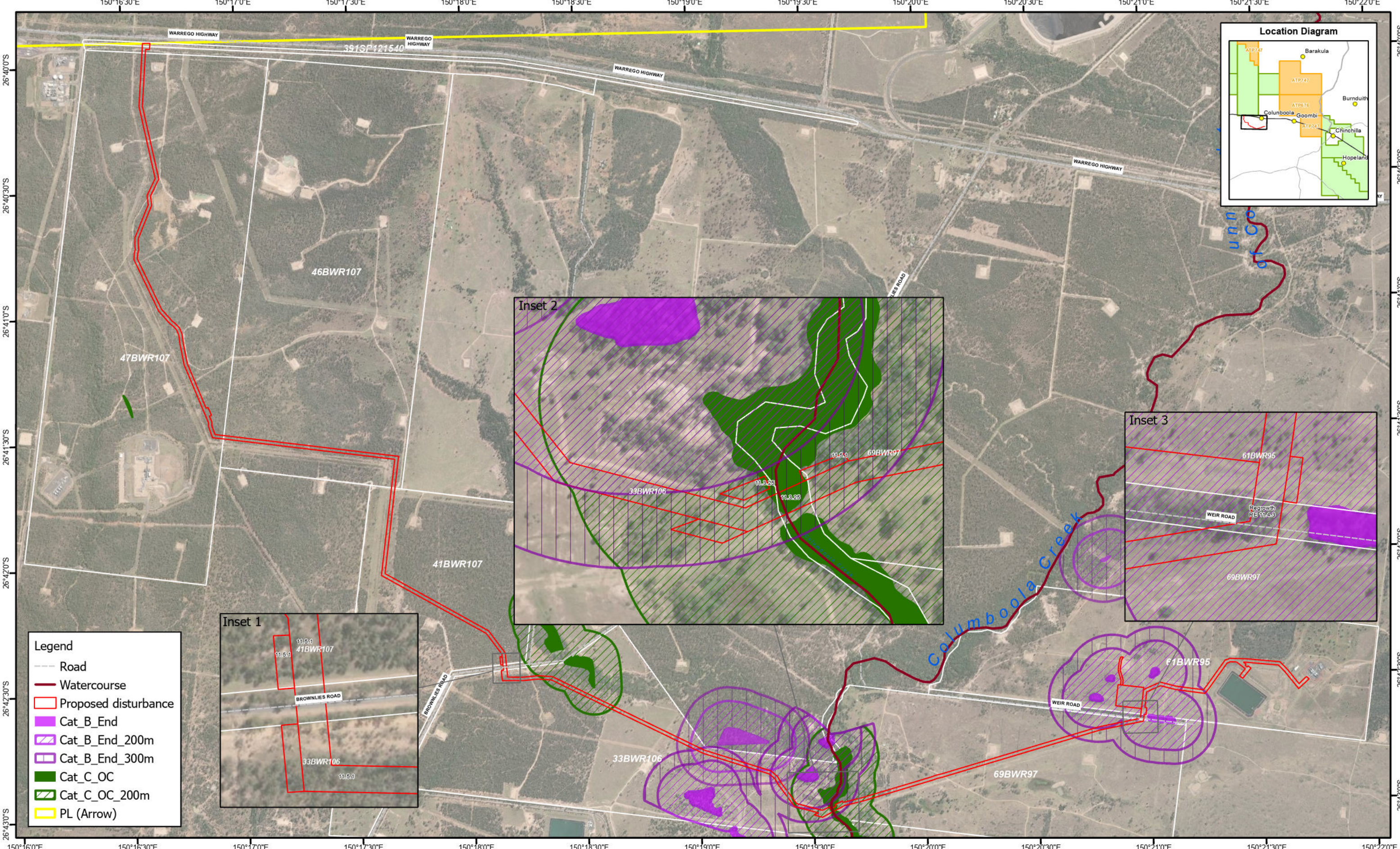
Prescribed environmental matter	Location of impact	Maximum extent of impact
<b><u>REGULATED VEGETATION</u></b>		
<i>Regulated vegetation –Regional ecosystems (not within an urban area) within the defined distance from the defining banks of a relevant watercourse on the vegetation management watercourse map.</i>		
<u>RE 11.3.25</u>	<u>PPL 2048</u>	<u>0.1</u>
<u>RE 11.7.4</u>	<u>PPL 2048</u>	<u>0.4</u>
<u>RE 11.7.7</u>	<u>PPL 2048</u>	<u>0.1</u>
<b>WETLANDS AND WATERCOURSES</b>		
A wetland of high ecological significance shown on the Map of referable wetlands – to be surveyed before ground disturbance	PPL 2048	0.3
<b><u>PROTECTED WILDLIFE HABITAT</u></b>		
<b>Habitat for an animal that is endangered wildlife</b>		
<u>Phascolarctos cinereus</u>	<u>PPL 2048</u>	<u>13.5</u>

<u>Petauroides volans</u>	<u>PPL 2048</u>	<u>8.5</u>
<u>Hemiaspis damelii</u>	<u>PPL 2048</u>	<u>0.2</u>
<u>Adclarkia dulacca</u>	<u>PPL 2048</u>	<u>0.1</u>
<b>Habitat for an animal that is vulnerable wildlife</b>		
<u>Petaurus australis</u>	<u>PPL 2048</u>	<u>8.5</u>
<u>Nyctophilus corbeni</u>	<u>PPL 2048</u>	<u>8.5</u>
<u>Stagonopleura guttata</u>	<u>PPL 2048</u>	<u>8.5</u>
<u>Calyptorhynchus lathamii</u>	<u>PPL 2048</u>	<u>9</u>
<u>Grantiella picta</u>	<u>PPL 2048</u>	<u>0.1</u>
<u>Acanthophis antarcticus</u>	<u>PPL 2048</u>	<u>8.5</u>
<u>Glyphodon (Furina) dunmallii</u>	<u>PPL 2048</u>	<u>8.5</u>
<u>Adclarkia cameroni</u>	<u>PPL 2048</u>	<u>0.2</u>
<b>Habitat for an animal that is special least concern wildlife</b>		
Tachyglossus aculeatus	<u>PPL 2048</u>	8
Ornithorhynchus anatinus	<u>PPL 2048</u>	(6)
<b>Waterways providing for fish passage</b>		
fish passage (not un an urban area) – to be surveyed before ground disturbance	<u>PPL 2048</u>	10

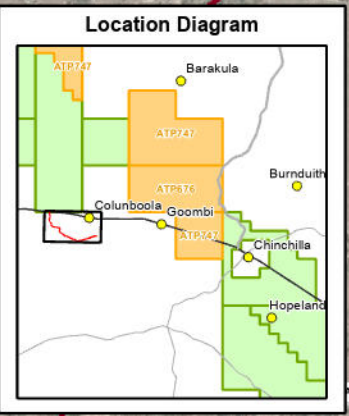
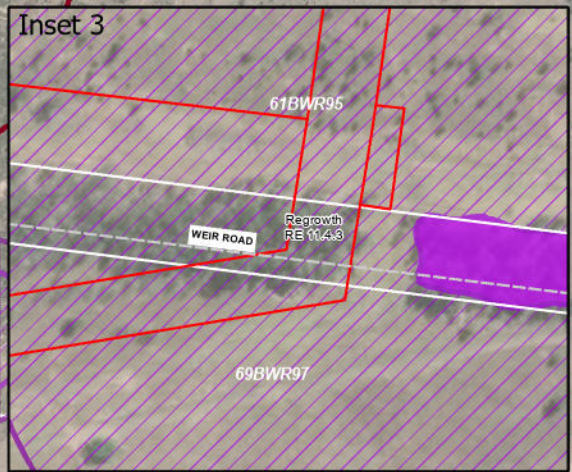
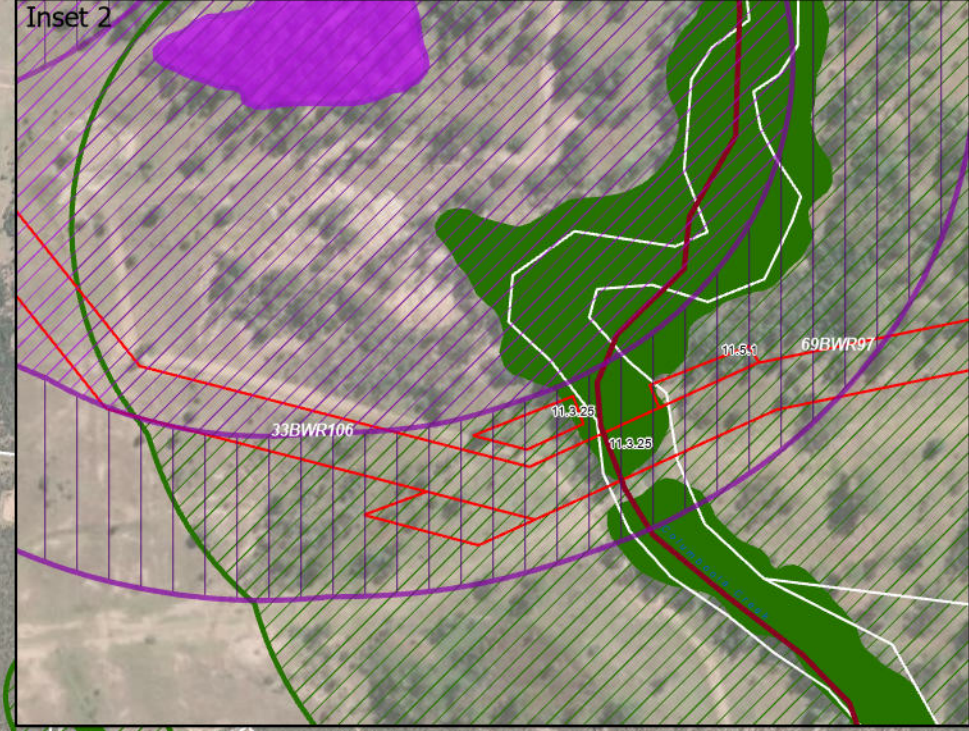
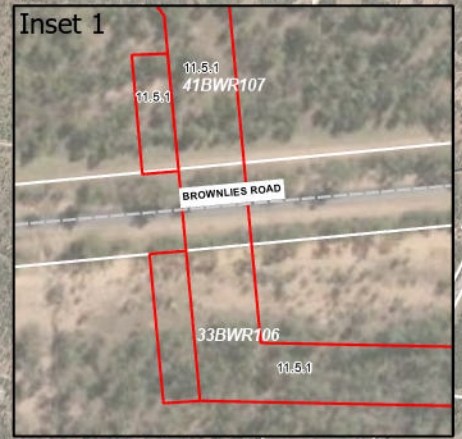


**Figure 1 – Environmentally Sensitive Areas occurring within the project footprint.**





- Legend**
- Road
  - Watercourse
  - ▭ Proposed disturbance
  - ▭ Cat\_B\_End
  - ▨ Cat\_B\_End\_200m
  - ▨ Cat\_B\_End\_300m
  - ▭ Cat\_C\_OC
  - ▨ Cat\_C\_OC\_200m
  - ▭ PL (Arrow)



Rev	Date	Revision Description	By	Chk	App
B	26/09/23	Revise route	TS	XX	XX
A	31/08/23	First issue	TS	XX	XX

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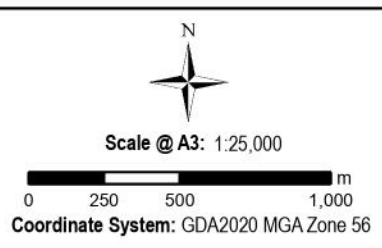
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**Author:** tstringer

**arrowenergy**  
go further



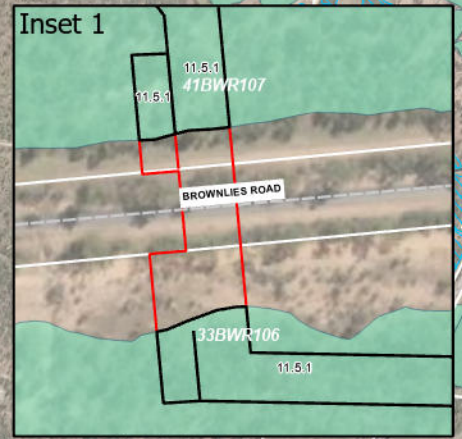
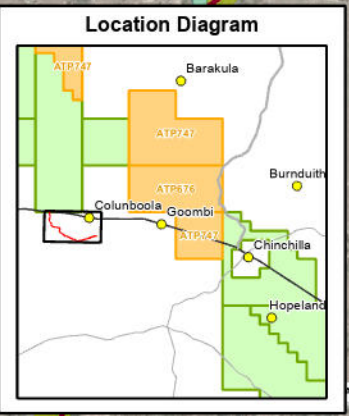
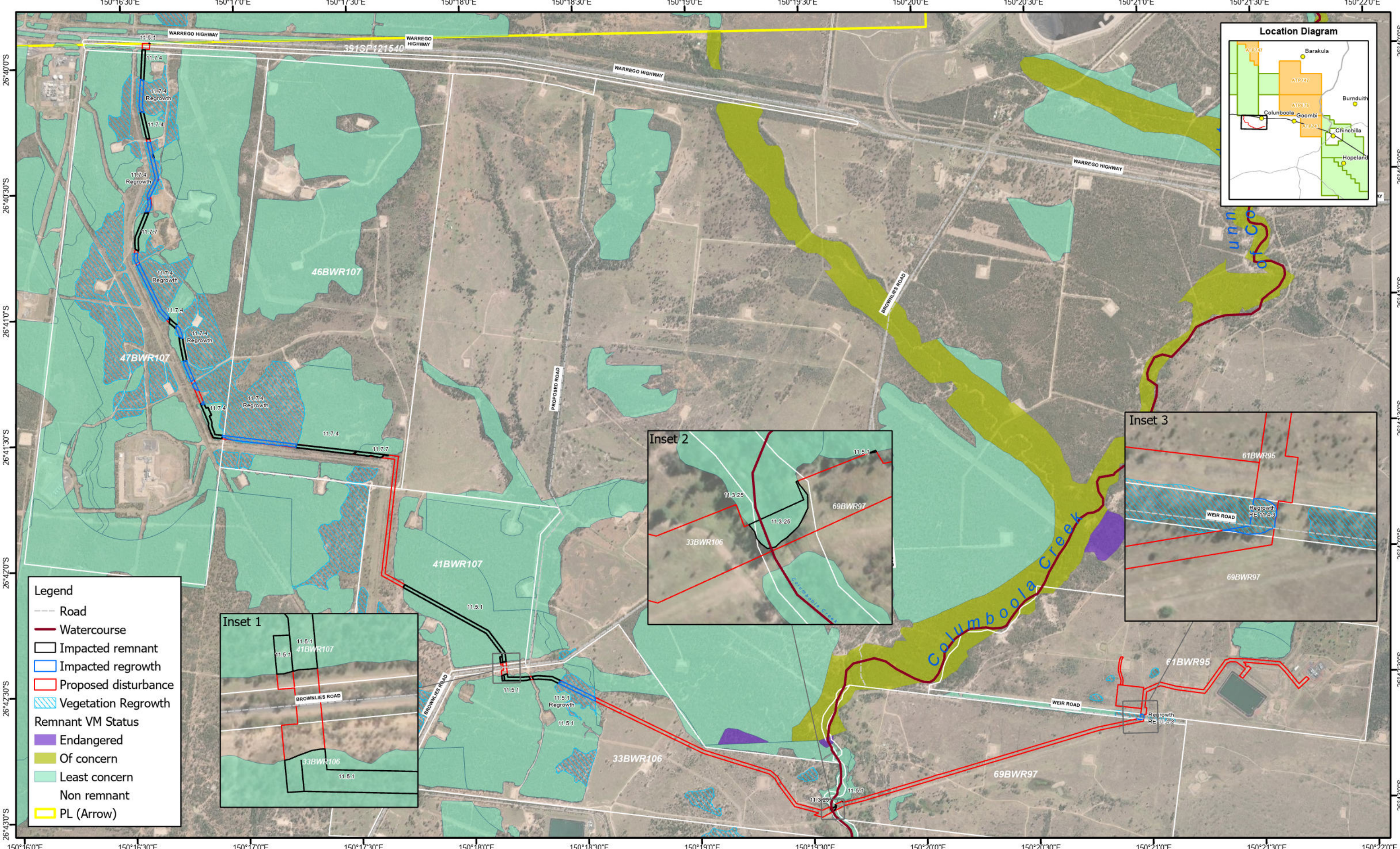
**ESA's McNulty location along with that of ground-verified remnant and regrowth vegetation**

**Uncontrolled (B)**



**Figure 2 – Regulated Vegetation occurring within the Project footprint**





- Legend**
- Road
  - Watercourse
  - Impacted remnant
  - Impacted regrowth
  - Proposed disturbance
  - ▨ Vegetation Regrowth
- Remnant VM Status**
- Endangered
  - Of concern
  - Least concern
  - Non remnant
  - PL (Arrow)

Rev	Date	Revision Description	Prep	Check	App		
B	22/09/23	Revise route	TS	XX	XX	XX	PF
A	31/08/23	First issue	TS	XX	XX	XX	PF

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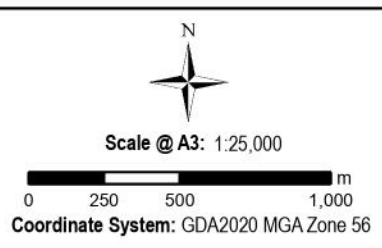
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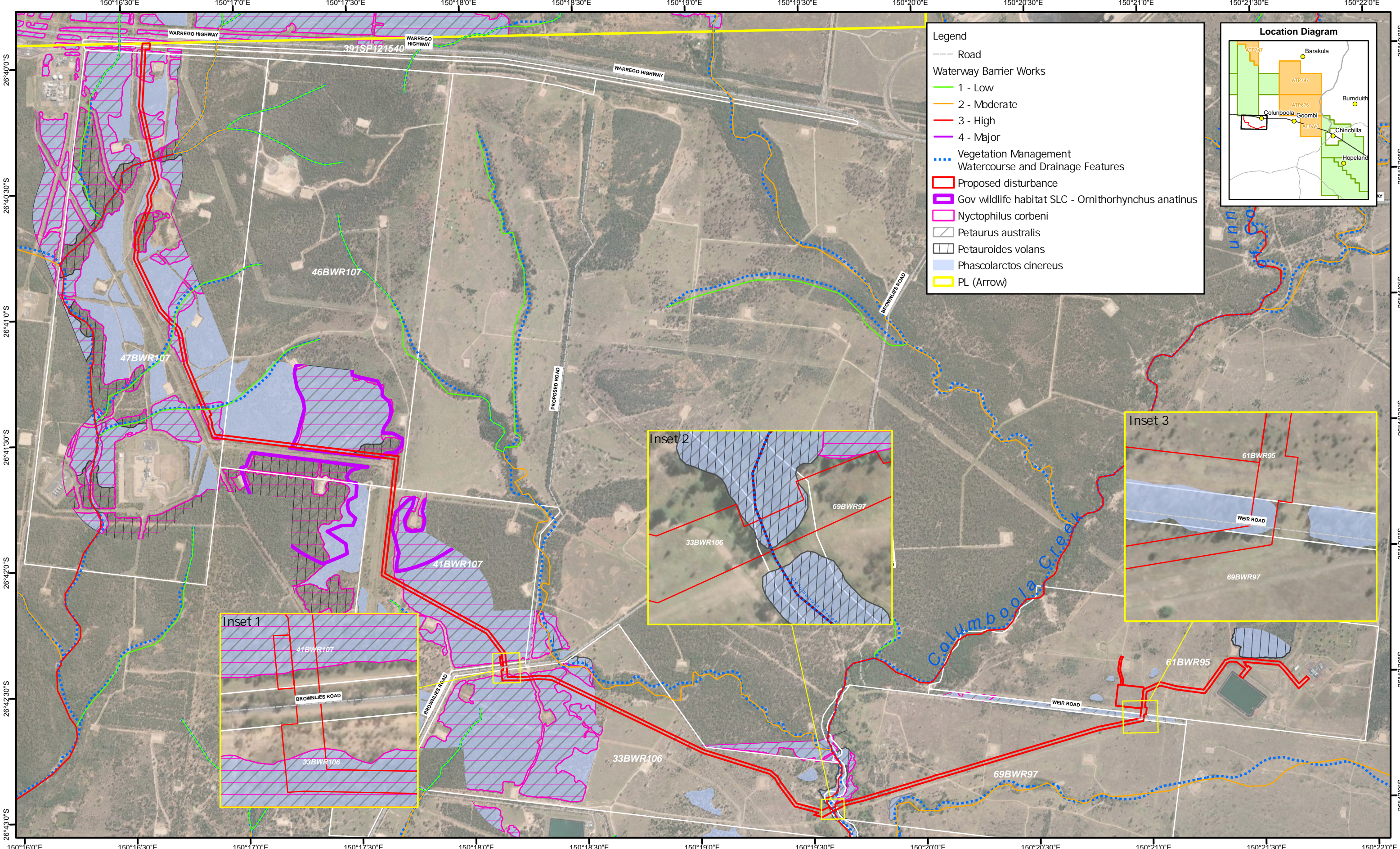
**Figure 1**  
**McNulty**  
location along with that of ground-verified remnant and regrowth vegetation

**Uncontrolled (B)**



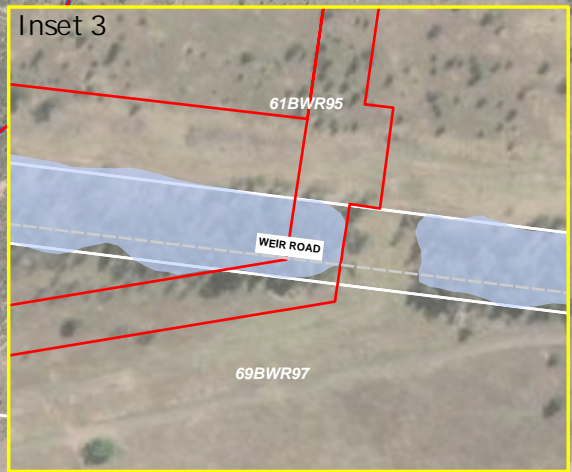
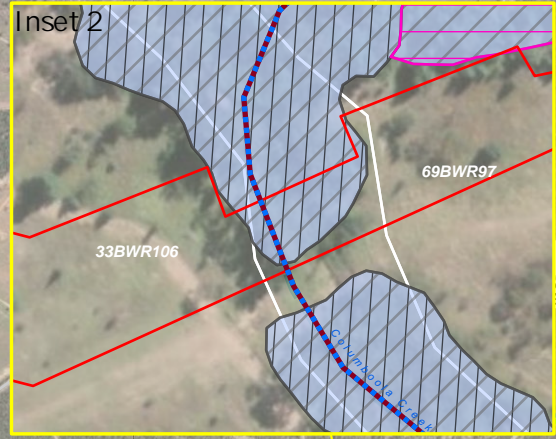
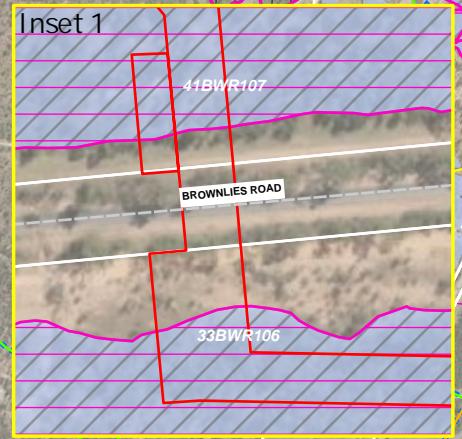
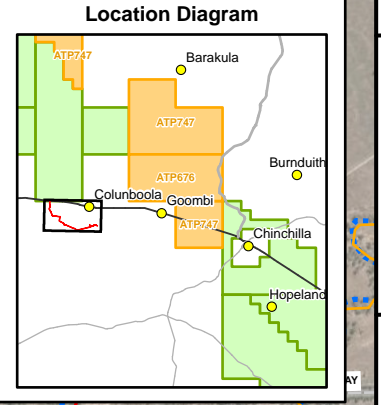
**Figure 3 - Prescribed Environmental Matters (PEMS) 2a occurring within the project footprint.**





**Legend**

- Road
- Waterway Barrier Works
  - 1 - Low
  - 2 - Moderate
  - 3 - High
  - 4 - Major
- Vegetation Management
- Watercourse and Drainage Features
- Proposed disturbance
- Gov wildlife habitat SLC - *Ornithorhynchus anatinus*
- Nyctophilus corbeni*
- Petaurus australis*
- Petauroides volans*
- Phascolarctos cinereus*
- PL (Arrow)



Rev	Date	Revision Description	By	App'd
D	26/10/23	Species extent updates	AW	XX
C	19/10/23	General map updates	TS	XX
B	22/09/23	Revise route	TS	XX
A	31/08/23	First issue	TS	XX

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Status: IFU  
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Author: avolhuter

Scale @ A3 1:25,000

Coordinate System: GDA2020MGA Zone 56

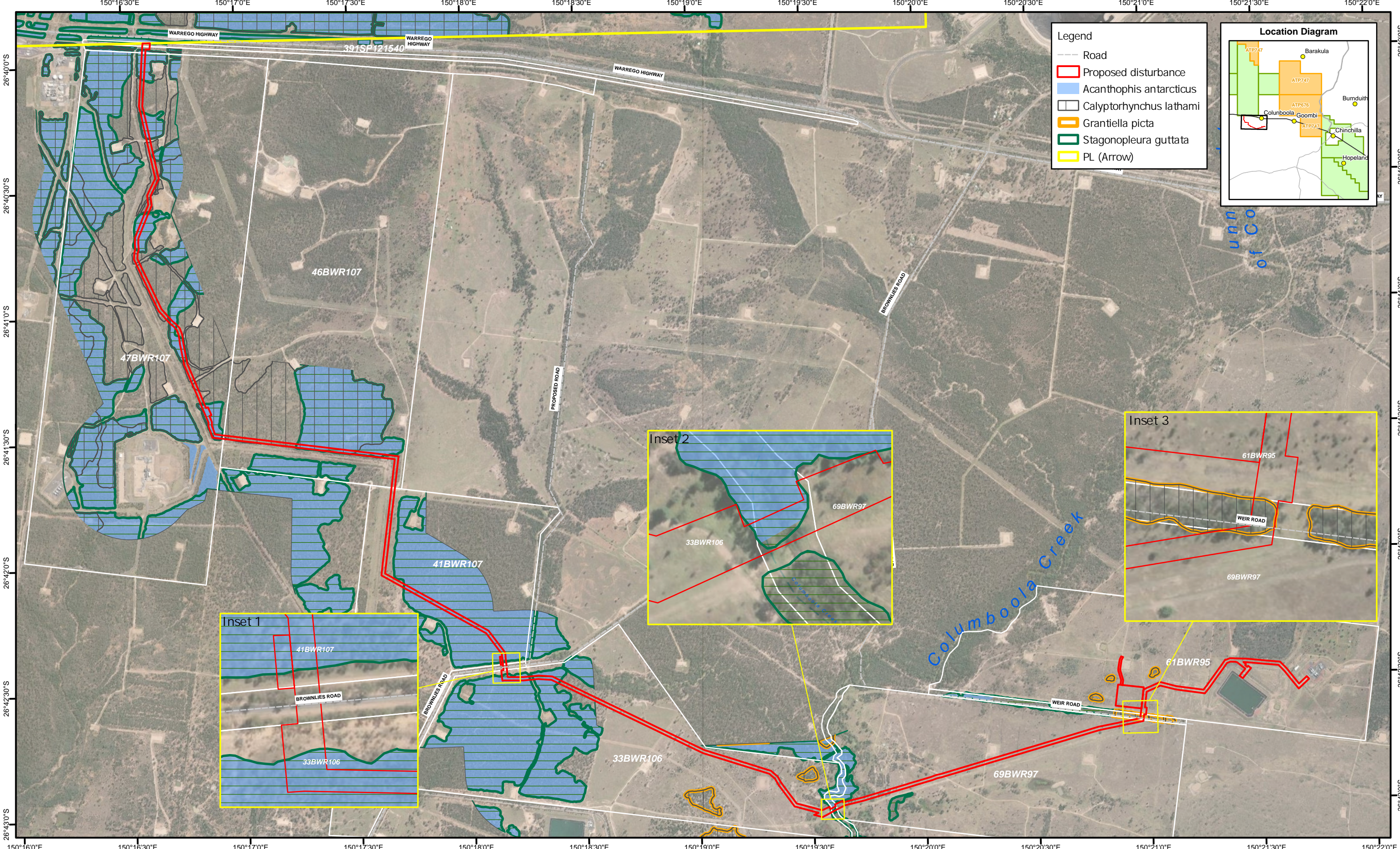
**Figure 2a**  
Prescribed Environmental Matters (PEMs) occurring within the project footprint

Uncontrolled (D)



**Figure 4 - Prescribed Environmental Matters (PEMS) 2b occurring within the project footprint.**





Rev	Date	Revision Description	By	App'd
D	26/10/23	Species extent update	AW	XX
C	19/10/23	General map updates	TS	XX
B	22/09/23	Revise route	TS	XX
A	31/08/23	First issue	TS	XX

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ArrowEnergy Limited, Geosciences Australia  
Qld Gov.

Status: IFU  
Issued To: P Finn  
Author: avolhuter

Scale @ A3 1:25,000

0 250 500 1,000 m

Coordinate System: GDA2020MGA Zone 56

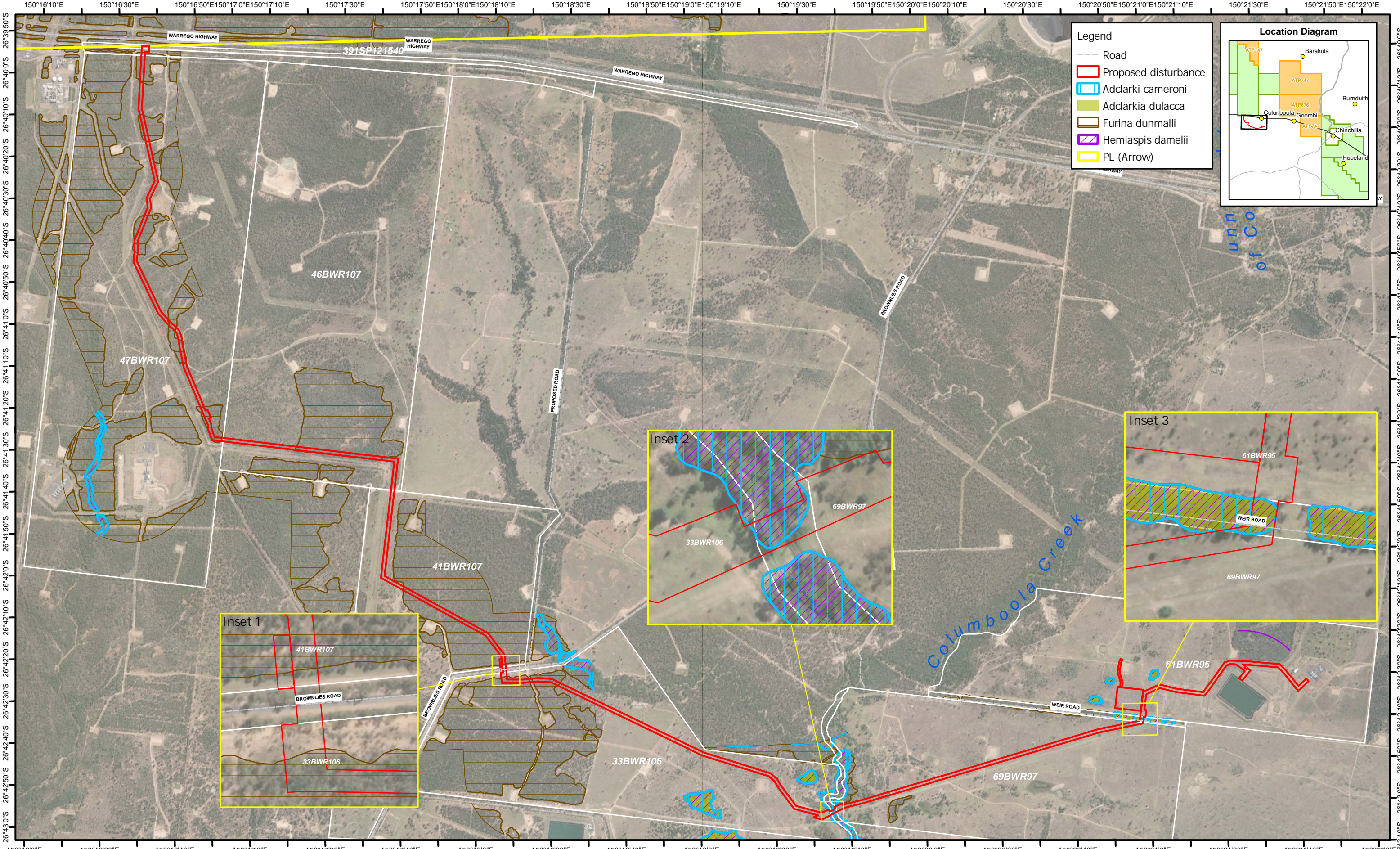
Figure 2b  
Prescribed Environmental  
Matters (PEMs) occurring  
within the project footprint

Uncontrolled (D)



Figure 5 - Prescribed Environmental Matters (PEMS) 2c occurring within the project footprint.





Version	Date	Description	Author
D	26/10/23	Species extent updates	AW/XX/XX/XX/PF
C	20/10/23	General map updates	TS/XX/XX/XX/PF
B	22/09/23	Revise route	TS/XX/XX/XX/PF
A	31/08/23	First issue	TS/XX/XX/XX/PF

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Qld Gov.

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Author: avolhuter

Scale @ A3 1:25,000

Coordinate System: GDA2020MGA Zone 56

Figure 2c  
Prescribed Environmental  
Matters (PEMs) occurring  
within the project footprint

Uncontrolled (D)



## 4 Justification

Table 4 – Justification for changes to EA0002214

#	Change	Justification for Change
<b>Additional</b>		
1	<p>Under ‘Regulated vegetation’ - ‘A prescribed regional ecosystem is a matter of State environmental significance to the extent the ecosystem is located within a defined distance from the defining banks of a relevant watercourse’ add RE 11.3.25, with:</p> <ul style="list-style-type: none"> <li>• ‘Location of impact’ PPL 2048;</li> <li>• ‘Maximum extent of impact’ 0.1 ha.</li> </ul>	<ul style="list-style-type: none"> <li>• Ground-truthing and design refinement has resulted in updates to impacts on vegetation.</li> <li>• The <b>current Table 2</b> does not include the PEM for RE 11.3.25 as (McNulty specific) ‘a prescribed regional ecosystem is a matter of State environmental significance to the extent the ecosystem is located within a defined distance from the defining banks of a relevant watercourse’.</li> <li>• The amendment to the authorisation is required to allow activities associated with the McNulty Pipelines to be undertaken.</li> </ul>
2	<p>Under ‘Regulated vegetation’ - a ‘prescribed regional ecosystem is a matter of State environmental significance to the extent the ecosystem is located within a defined distance from the defining banks of a relevant watercourse’ add RE 11.7.4, with:</p> <ul style="list-style-type: none"> <li>• ‘Location of impact’ PPL 2048;</li> <li>• ‘Maximum extent of impact’ 0.4 ha</li> </ul>	<ul style="list-style-type: none"> <li>• Ground-truthing and design refinement has resulted in updates to impacts on vegetation.</li> <li>• The <b>current Table 2</b> does not include the PEM for RE 11.7.4 as (McNulty specific) ‘a prescribed regional ecosystem is a matter of State environmental significance to the extent the ecosystem is located within a defined distance from the defining banks of a relevant watercourse’.</li> <li>• The amendment to the authorisation is required to allow activities associated with the McNulty Pipelines to be undertaken.</li> </ul>
3	<p>Under ‘Regulated vegetation’ - a ‘prescribed regional ecosystem is a matter of State environmental significance to the extent the ecosystem is located within a defined distance from the defining banks of a relevant watercourse’ add RE 11.7.7, with:</p> <ul style="list-style-type: none"> <li>• ‘Location of impact’ PPL 2048;</li> <li>• ‘Maximum extent of impact’ 0.1 ha</li> </ul>	<ul style="list-style-type: none"> <li>• Ground-truthing and design refinement has resulted in updates to impacts on vegetation.</li> <li>• The <b>current Table 2</b> does not include the PEM for RE 11.7.7 as (McNulty specific) ‘a prescribed regional ecosystem is a matter of State environmental significance to the extent the ecosystem is located within a defined distance from the defining banks of a relevant watercourse’.</li> <li>• The amendment to the authorisation is required to allow activities associated with the McNulty Pipelines to be undertaken.</li> </ul>

#	Change	Justification for Change
4	Under wetlands and watercourses – a wetland of high ecological significance shown on the Map of referable wetlands – to be surveyed before ground disturbance.	<ul style="list-style-type: none"> <li>Proposal to delete this SRI PEMS from the table as there is no HES wetland along the pipeline alignment.</li> </ul>
5	<p>Under ‘Protected wildlife habitat’ - ‘Habitat for an animal that is endangered’ under both the NC Act and EPBC Act) add Koala, <i>Phascolarctos cinereus</i>, with:</p> <ul style="list-style-type: none"> <li>‘Location of impact’ PPL 2048;</li> <li>‘Maximum extent of impact’ 13.5 ha.</li> </ul>	<ul style="list-style-type: none"> <li>Ground-truthing and design refinement has resulted in updates to impacts on habitat.</li> <li>The <b>current Table 2</b> does not include the PEM for ‘Koala, (<i>Phascolarctos cinereus</i>)’ as ‘Habitat for an animal that is vulnerable’.</li> <li>The amendment to the authorisation is required to allow activities associated with the McNulty Pipelines to be undertaken.</li> <li>NOTE: As this species is also an EPBC Act matter, this matter falls under the definition of ‘same or substantially the same’ and any SRI will be managed under the Commonwealth approval and an Offset at a State Level is not required.</li> </ul>
6	<p>Under ‘Protected wildlife habitat’ - ‘Habitat for an animal that is endangered’ under both the NC Act and EPBC Act) add Greater Glider, <i>Petauroides volans</i>, with:</p> <ul style="list-style-type: none"> <li>‘Location of impact’ PPL 2048;</li> <li>‘Maximum extent of impact’ 8.5 ha.</li> </ul>	<ul style="list-style-type: none"> <li>Ground-truthing and design refinement has resulted in updates to impacts on habitat.</li> <li>The <b>current Table 2</b> does not include the PEM for ‘Greater Glider, (<i>Petauroides volans</i>)’ as ‘Habitat for an animal that is vulnerable’.</li> <li>The amendment to the authorisation is required to allow activities associated with the McNulty Pipelines to be undertaken.</li> </ul>
7	<p>Under ‘Protected wildlife habitat’ - ‘Habitat for an animal that is Vulnerable under both the NC Act and EPBC Act) add Yellow-bellied Glider, <i>Petaurus australis</i>, with:</p> <ul style="list-style-type: none"> <li>‘Location of impact’ PPL 2048;</li> <li>‘Maximum extent of impact’ 8.5 ha.</li> </ul>	<ul style="list-style-type: none"> <li>Ground-truthing and design refinement has resulted in updates to impacts on habitat.</li> <li>The <b>current Table 2</b> does not include the PEM for ‘Yellow-bellied Glider, (<i>Petaurus australis</i>)’ as ‘Habitat for an animal that is vulnerable’.</li> <li>The amendment to the authorisation is required to allow activities associated with the McNulty Pipelines to be undertaken.</li> </ul>
8	<p>Under ‘Protected wildlife habitat’ - ‘Habitat for an animal that is Vulnerable under both the NC Act and EPBC Act) add South-eastern Long-eared Bat, <i>Nyctophilus corbeni</i> with:</p> <ul style="list-style-type: none"> <li>‘Location of impact’ PPL 2048;</li> <li>‘Maximum extent of impact’ 8.5 ha.</li> </ul>	<ul style="list-style-type: none"> <li>Ground-truthing and design refinement has resulted in updates to impacts on habitat.</li> <li>The <b>current Table 2</b> does not include the PEM for ‘South-eastern Long-eared Bat, (<i>Nyctophilus corbeni</i>)’ as ‘Habitat for an animal that is vulnerable’.</li> <li>The amendment to the authorisation is required to allow activities associated with the McNulty Pipelines to be undertaken.</li> </ul>

#	Change	Justification for Change
9	<p>Under 'Protected wildlife habitat' - 'Habitat for an animal that is Vulnerable under both the NC Act and EPBC Act) add Diamond Firetail, <i>Stagonopleura guttatai</i> with:</p> <ul style="list-style-type: none"> <li>'Location of impact' PPL 2048;</li> <li>'Maximum extent of impact' 8.5 ha.</li> </ul>	<ul style="list-style-type: none"> <li>Ground-truthing and design refinement has resulted in updates to impacts on habitat.</li> <li>The <b>current Table 2</b> does not include the PEM for Diamond Firetail, <i>Stagonopleura guttatai</i> 'as 'Habitat for an animal that is vulnerable'.</li> <li>The amendment to the authorisation is required to allow activities associated with the McNulty Pipelines to be undertaken.</li> </ul>
10	<p>Under 'Protected wildlife habitat' - 'Habitat for an animal that is vulnerable' is Vulnerable under both the NC Act and EPBC Act) add Glossy Black-cockatoo, <i>Calyptorhynchus lathami</i>, with:</p> <ul style="list-style-type: none"> <li>'Location of impact' PPL 2048;</li> <li>'Maximum extent of impact' 9 ha.</li> </ul>	<ul style="list-style-type: none"> <li>Ground-truthing and design refinement has resulted in updates to impacts on habitat.</li> <li>The <b>current Table 2</b> does not include the PEM for 'Glossy Black-cockatoo, (<i>Calyptorhynchus lathami</i>)' as 'Habitat for an animal that is vulnerable'.</li> <li>The amendment to the authorisation is required to allow activities associated with the McNulty Pipelines to be undertaken.</li> </ul>
11	<p>Under 'Protected wildlife habitat' - 'Habitat for an animal that is vulnerable is Vulnerable under both the NC Act and EPBC Act)' add Painted Honeyeater, <i>Grantiella picta</i>, with:</p> <ul style="list-style-type: none"> <li>'Location of impact' PPL 2048;</li> <li>'Maximum extent of impact' 0.1 ha.</li> </ul>	<ul style="list-style-type: none"> <li>Ground-truthing and design refinement has resulted in updates to impacts on habitat.</li> <li>The <b>current Table 2</b> does not include the PEM for 'Painted Honeyeater, (<i>Grantiella picta</i>), as 'Habitat for an animal that is vulnerable'.</li> <li>The amendment to the authorisation is required to allow activities associated with the McNulty Pipelines to be undertaken.</li> </ul>
12	<p>Under 'Protected wildlife habitat' - 'Habitat for an animal that is vulnerable is Vulnerable under the NC Act add Common Death Adder (<i>Acanthophs antarticus</i>) with:</p> <ul style="list-style-type: none"> <li>'Location of impact' PPL 2048;</li> <li>'Maximum extent of impact' 8.5 ha.</li> </ul>	<ul style="list-style-type: none"> <li>Ground-truthing and design refinement has resulted in updates to impacts on habitat.</li> <li>The <b>current Table 2</b> does not include the PEM for 'Common Death Adder (<i>Acanthophs antarticus</i>) as 'Habitat for an animal that is vulnerable'.</li> <li>The amendment to the authorisation is required to allow activities associated with the McNulty Pipelines to be undertaken.</li> </ul>
13	<p>Under 'Protected wildlife habitat' - 'Habitat for an animal that is Vulnerable under both the NC Act and EPBC Act)' add Dunmall's Snake, <i>Furina dunmalli</i>, with:</p> <ul style="list-style-type: none"> <li>'Location of impact' PPL 2048;</li> <li>'Maximum extent of impact' 8.5 ha.</li> </ul>	<ul style="list-style-type: none"> <li>Ground-truthing and design refinement has resulted in updates to impacts on habitat.</li> <li>The <b>current Table 2</b> does not include the PEM for 'Dunmall's Snake, (<i>Furina dunmalli</i>)' as 'Habitat for an animal that is vulnerable'.</li> <li>The amendment to the authorisation is required to allow activities associated with the McNulty Pipelines to be undertaken.</li> </ul>

#	Change	Justification for Change
14	<p>Under 'Protected wildlife habitat' - 'Habitat for an animal that is endangered' under both the NC Act and EPBC Act) add Grey Snake, <i>Hemiaspis damelii</i>, with:</p> <ul style="list-style-type: none"> <li>• 'Location of impact' PPL 2048;</li> <li>• 'Maximum extent of impact' 0.2 ha.</li> </ul>	<ul style="list-style-type: none"> <li>• The <b>current Table 2</b> does not include the PEM for 'Grey Snake, (<i>Hemiaspis damelii</i>)' as 'Habitat for an animal that is endangered'.</li> <li>• The amendment to the authorisation is required to allow activities associated with the McNulty Pipelines to be undertaken.</li> </ul>
15	<p>Under 'Protected wildlife habitat' - 'Habitat for an animal that is Vulnerable under both the NC Act and EPBC Act) add Brigalow Woodland Snail, <i>Adclarkia cameroni</i> with:</p> <ul style="list-style-type: none"> <li>• 'Location of impact' PPL 2048;</li> <li>• 'Maximum extent of impact' 0.2 ha.</li> </ul>	<ul style="list-style-type: none"> <li>• The <b>current Table 2</b> does not include the PEM for 'Brigalow Woodland Snail, <i>Adclarkia cameroni</i> as 'Habitat for an animal that is Vulnerable.</li> <li>• The amendment to the authorisation is required to allow activities associated with the McNulty Pipelines to be undertaken.</li> </ul>
16	<p>Under 'Protected wildlife habitat' - 'Habitat for an animal that is endangered' under both the NC Act and EPBC Act) add Dulacca Woodland Snail, <i>Adclarkia dulacca</i> with:</p> <ul style="list-style-type: none"> <li>• 'Location of impact' PPL 2048;</li> <li>• 'Maximum extent of impact' 0.1 ha.</li> </ul>	<ul style="list-style-type: none"> <li>• The <b>current Table 2</b> does not include the PEM for 'Dulacca Woodland Snail, <i>Adclarkia dulacca</i>' as 'Habitat for an animal that is endangered'.</li> <li>• The amendment to the authorisation is required to allow activities associated with the McNulty Pipelines to be undertaken.</li> </ul>
17	<p>Under 'Protected wildlife habitat' - 'Habitat for an animal that is special least concern wildlife for <i>Tachyglossus aculeatus</i></p>	<ul style="list-style-type: none"> <li>• The EA already authorises 6 ha the assessment includes no impact for echidna. The SRI assessment in Appendix E determines there is no SRI impact to this species.</li> </ul>
18	<p>Under 'Protected wildlife habitat' - 'Habitat for an animal that is special least concern wildlife for <i>Ornithorhynchus anatinus</i></p>	<ul style="list-style-type: none"> <li>• The EA already authorises 8.3 ha the assessment includes 1.7ha impact for platypus. The SRI assessment in Appendix E determines there is no SRI impact to this species.</li> </ul>
19	<p>Under waterway providing for fish passage – fish passage (not in an urban area) – to be surveyed before ground disturbance.</p>	<ul style="list-style-type: none"> <li>• The current <b>Table 2</b> already includes the PEMS for Fish passage of 10 ha. This amendment seeks to reduce that down to 0.1 ha due to a reduced RoW width.</li> </ul>

20 **Additional species added to the PEMS above that were identified in the attached ecology surveys for the off tenure pipelines as part of the EIS.**

Additional species include:

- Yellow-bellied Glider, *Petaurus australis*
- Diamond Firetail, *Stagonopleura guttatai*
- Brigalow Woodland Snail, *Adclarkia cameroni*
- Dulacca Woodland Snail, *Adclarkia dulacca*

The areas the subject of this EA amendment are part of the larger Surat Gas Project, which was referred to the Commonwealth (EPBC 2018/8223), deemed to be a controlled action, and took effect (i.e. the SGP project commenced under the EPBC Act) on 22 October 2020. After Shell took over the QGC business, Arrow and Shell agreed to share infrastructure, in part to lessen the environmental footprint of the two gas businesses. This resulted in the need for 7 interconnecting pipelines. A separate EPBC application was prepared, and the resulting EPBC 2018/8223 approval includes the McNulty Pipeline.

The carrying out of the activities more broadly under the entire EA and EPBC approval have been considered to have potential to have a significant impact on:

- listed threatened species and communities;
- listed migratory species;
- water resources.

Conditions of the EPBC approval has provided for biodiversity offsets, amongst other conditions to manage the potential for environmental harm. Note, this has been selected in the application form but is irrespective of the activities subject to this amendment.

Impacts to MNES have been approved and assessed noting that the additional species were not a controlling provision at the time of the referral and not subject to further assessment under the EPBC Act.

In 2018 and 2019 EcoSmart Ecology (ESE) prepared a terrestrial ecology impact assessment report for the Surat Gas Project (SGP) pipelines included as Appendix B and Appendix C. This work included inspecting relevant data sources to identify threatened species (flora and fauna specially protected under the *Environment Protection and Biodiversity Conservation Act 1999* [EPBC Act] and *Nature Conservation Act 1992* [NC Act]), which are known within and surrounding the SGP. 'Rules' were created to map habitat for these Matters of National and State Environmental Significance (MNES and MSES) based on GIS data, allowing the prediction of high value habitat. These surveys and mapping rules were also used to assess the impacts and environmental values associated with the McNulty PPL.

#	Change	Justification for Change
		<p>Habitats were classed as 'core' habitat or 'general' habitat. Core habitat areas reflect those REs which are likely to be regularly inhabited by, or of 'high importance' to, the species. Such areas include high amenity habitat which could include important resources such as roosting and nesting sites or food resources. General habitats are 'those REs that may be used less regularly by fauna' (3DE and ESE 2011) and have lower amenity habitat. These definitions roughly match the definitions of 'Core Habitat Possible' and 'General Habitat Possible' in DES (2020), which was not available in 2011. The mapping has been used to calculate predicted impacts (and subsequently offset requirements) based on the extent of Core Habitat Known and Core Habitat Possible.</p> <p>Considerable field work has been completed within and surrounding the SGP area (which included the McNulty PPL area) since this work was completed and our local knowledge has increased substantially. In a few cases, this has identified ways in which the mapping rules could be modified and improved for greater accuracy. Furthermore, additional MNES and MSES species have been listed under legislation since the original work was completed. These new additional species had not been previously assessed (given their latest change in status) but have been included in this assessment as an abundance of caution based on likelihood of occurrence assessment and suitability of habitat within the survey corridor for the McNulty PPL area utilising the aforementioned ecology surveys, survey data and mapping rules (Appendix D).</p>



#	Change	Justification for Change
21	<p><b>Existing McNulty EA0002214 (27 March 2020), PPSCA 3 (S) Variation 15</b></p> <p><i>The notice of election for the environmental offset required by condition (Variation 12), if applicable, must be provided to the administering authority no less than three months before the proposed commencement of the significant residual impacts for which the environmental offset is required.</i></p> <p><b>Proposed</b></p> <p><i>The notice of election for the environmental offset required by condition (Variation 12), if applicable, must be provided to the administering authority no less than three months before the proposed commencement of the significant residual impacts for which the environmental offset is required, unless a lesser timeframe has been agreed to by the administering authority.</i></p>	<ul style="list-style-type: none"> <li>To align with the McNulty EA0002214 with the existing Harry EA0002659 when it comes to how offsets will be delivered for consistency.</li> </ul>
22	<p><b>Amendment to Variation 5 condition and Table 1 Authorised disturbance in ESAs.</b></p>	<ul style="list-style-type: none"> <li>Arrow proposes to vary the wording of Variation 5 to include the reference to PPSCA 3 (S). This is to ensure explicit authorisation and remove any ambiguity that impacts to ESAs are authorised through Variation 5 - Table 1. As the wording currently of Variation 5 does not directly link to PPSCA 3 (S). As such Arrow believe that its necessary and desirable to include this variation to the wording of the condition.</li> <li>Arrow varies condition 5 to update the despite table to authorise impacts to ESAs that are intersected by the pipeline alignment as depicted in Table 1 of this application. The inclusion to the table will ensure compliance with the existing conditions with regards to disturbances within ESAs. It should be noted that the proposed alignment of the pipeline has not changed significantly since its original alignment and has been refined to reduce the overall impact with its width reduced to 25m Right of Way. Based on the current limit in the EA of 0.5ha, the numbers proposed in this amendment of 0.5ha in Cat B and Cat C ESAs combined is a consistent with the existing approved number but split to 0.2ha in Cat B ESA and 0.3ha in Cat C ESA.</li> </ul>

## 5 Environmental values and impacts

Pursuant to Arrows Area Wide Planning processes, suitably qualified persons:

- a) Conducted a desktop environmental constraints assessment for the proposed activities; then
- b) Validated the initial desktop assessment with field surveys.

Arrow selected the locations of planned activities to minimize potential impacts on environmental values and Matters of State Environmental Significance.

Table 5 describes environmental values identified as relevant to the proposed activity and assesses potential impacts to identified values. Table 6 describes MSES identified as relevant to the proposed activity, and assesses potential impacts to identified MSES.

### 5.1 Matters of National Environmental Significance

The areas the subject of this EA amendment is part of the larger Surat Gas Project, which was referred to the Commonwealth (EPBC 2018/8223), deemed to be a controlled action. Assessment of the potential impacts of the project on matters of national environmental significance (MNES) was undertaken through the Surat Gas Project EIS. Approval was subsequently granted by the then Commonwealth Department of the Environment. Arrow continues to be required to operate in accordance with the conditions that EPBC approval.

The carrying out of the activities more broadly under the entire EA and EPBC approval have been considered to have potential to have a significant impact on:

- listed threatened species and communities;
- listed migratory species; and
- water resources.

Conditions of the EPBC approval has provided for biodiversity offsets, amongst other conditions to manage the potential for environmental harm. Note, this has been selected in the application form but is irrespective of the activities subject to this amendment.

### 5.2 Environmental Impact Statement (EIS) and risk

Arrow believes the risk has been considered the same as assessed in the EIS because the activities are the same (essential petroleum activities), the location of impacts is the same (all within the area of the Surat Gas Project), and the proposed management actions are still relevant. Due to the proposed infrastructure (pipelines and incidental activities) and previous assessment under the EIS, this amendment presents a low risk of environmental harm.

The tables below provides an assessment of the impact and risk of environmental harm to environmental. The disturbance has been reduced from 40 m to 25 m and co-located with existing infrastructure corridors where possible. The amendment seeks to include PEMs to the EA.

**Table 5 – Assessment of potential for proposed activities to affect environmental values**

Environmental Value	Environmental Value Description	Potential Impacts	Mitigation Measures
Air	<p>The Environmental Protection (Air) Policy 2019 identifies environmental values to be enhanced or protected in relation to the air environment.</p> <p>The environmental values to be enhanced or protected under the policy, which are relevant to this application are <i>the qualities of the air environment that are conducive to protecting the health and biodiversity of ecosystems</i>.</p> <p>The proposed activity is located in a rural area, predominantly used for pastoral activities and intensely farmed cropping areas, with fragments of regional ecosystem.</p> <p>The location is also within active petroleum tenures, so some values of the air environment may be affected by authorised resource activities.</p> <p>Several residents exist less than 1km from the pipeline, north of the Warrego Highway.</p>	<p>Air quality impacts, such as dust, will be minor and restricted to the worksite for a minimal period during construction.</p> <p>During normal operation, potential air quality impacts are expected to be minimal and restricted to ad-hoc light-vehicle traffic.</p> <p>Air environmental values and any potential impacts, managed and authorized by the existing conditions, are expected to remain unchanged as a result of the proposed activities.</p>	<p>Dust suppression measures will be implemented to minimise dust deposition as required.</p> <p>The proposed activity would comply with existing EA conditions regarding the air environment.</p>

Environmental Value	Environmental Value Description	Potential Impacts	Mitigation Measures
<p><b>Noise and Vibration</b></p>	<p>The Environmental Protection (Noise) Policy 2019 identifies and declares environmental values of the acoustic environment.</p> <p>The environmental values identified and declared by the policy which are relevant to this application are:</p> <p><i>a. the qualities of the acoustic environment that are conducive to protecting the health and biodiversity of ecosystems; and</i></p> <p><i>c. the qualities of the acoustic environment that are conducive to protecting the amenity of the community.</i></p> <p>Project activities have been assessed and will comply with Standard Conditions PPSCE 10 (in accordance with Australian Standard 2187), PPSCE 11 and PPSCE 12.</p> <p>The proposed activity is situated in a rural location that is expected, in general, to have a low background noise level.</p> <p>The location is also within active petroleum tenures, so some values of the air environment may be affected by authorised resource activities.</p>	<p>The proposed activity is located in an area primarily used for petroleum and gas activities.</p> <p>The closest verified sensitive receptor to the proposed activity is a dwelling located approximately 0.8 km East of the pipeline on PL 492.</p> <p>There will be no greater impact on any affected persons or affected community because of this amendment application.</p> <p>Acoustic environmental values and any potential impacts, managed and authorized by the existing conditions, are expected to remain unchanged as a result of the proposed variations.</p>	<p>Construction and operational noise impacts on the surrounding amenity of the rural community are assessed and are appropriately managed by Arrow, including stakeholder engagement, low-noise equipment, restricted hours of operation and / or alternative arrangements as required.</p> <p>The proposed activity would comply with existing EA conditions regarding the acoustic environment.</p>

<p>Land</p>	<p>Environmental values to protect and enhanced in relation to land are not identified by an environmental protection policy under the <i>Environmental Protection Act 1994</i> (Qld).</p> <p>However, the Queensland Herbarium has developed a methodology for mapping regional ecosystems across Queensland in the Regional Ecosystem Description Database. Regional ecosystems are vegetation communities in a bioregion that are consistently associated with a particular combination of geology, landform and soil.</p> <p>The Department of Resources also identify areas with a validated record of, and / or containing habitat likely to have, one or more endangered, vulnerable or near threatened (EVNT) species, in State mapping as Essential Habitat for fauna, or Flora Trigger Map 'high risk' areas for flora.</p> <p>The setting of the project area is rural in nature, comprising some cultivated land including intensive farming, trending to low intensity grazing in the west as land suitability and rainfall</p>	<p>A total of 38 ha will be disturbed with around 14 ha of ground-verified remnant and regrowth vegetation to be cleared representing core habitat for one or more of the 12 species listed below (<b>species listed under the NC Act only are bolded</b>):</p> <ul style="list-style-type: none"> <li>• 13.5 ha for the Koala, <i>Phascolarctos cinereus</i> (Endangered under both the NC Act and EPBC Act).</li> <li>• 8.5 ha for the Greater Glider, <i>Petauroides volans</i> (Endangered under both the NC Act and EPBC Act).</li> <li>• 8.5 ha for the Yellow-bellied Glider, <i>Petaurus australis</i> (Vulnerable under both the NC Act and EPBC Act).</li> <li>• 8.5 ha for the South-eastern Long-eared Bat<sup>1</sup>, <i>Nyctophilus corbeni</i> (Vulnerable under both the NC Act and EPBC Act).</li> <li>• 8.5 ha for the Diamond Firetail, <i>Stagonopleura guttata</i> (Vulnerable under both the NC Act and EPBC Act).</li> <li>• 9 ha for the South-eastern Glossy Black-cockatoo, <i>Calyptorhynchus lathami</i> (Vulnerable under both the NC Act and EPBC Act).</li> <li>• 0.1 ha for the Painted Honeyeater, <i>Grantiella picta</i> (Vulnerable under both the NC Act and EPBC Act).</li> </ul>	<p>The proposed activities' locations avoids and / or minimises disturbance in regulated vegetation, ESAs, protected plants and EVNT species habitat, to the greatest extent practicable.</p> <p>Activities within ESAs / PZs have been collocated on, or with, areas of pre-existing disturbance wherever practicable. For example, by upgrading and using existing landholder access tracks.</p> <p>The environmental values of the land, including soils, landforms, rehabilitation and flora and fauna would be appropriately managed in accordance with Arrow's existing management plans. Examples of preconstruction survey activities to minimise clearing include:</p> <ul style="list-style-type: none"> <li>• Minimise the disturbance footprint and vegetation clearing</li> <li>• Use existing roads and tracks, where practicable</li> <li>• Avoid unnecessary impervious surface coverings and reduce land footprint and vegetation clearing when designing facilities</li> <li>• Reduce the width of construction ROW within areas of sensitivity to the greatest</li> </ul>
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	<p>declines. The major land uses include livestock farming and arable farming.</p> <p>There are five dominant terrestrial habitats in the wider project area: previously cleared or highly modified areas- Alluvial creek flats that contain narrow riparian strips containing mixed eucalypts (mainly <i>Eucalyptus tereticornis</i>, <i>E. populnea</i> and <i>E. camaldulensis</i>)- Clay plains with cracking soils that contain Brigalow (<i>Acacia harpophylla</i> and/or <i>Casuarina cristata</i> shrubby open forest)- Narrow strips of mixed eucalypts on undulating plains (mainly <i>Eucalyptus populnea</i> and <i>E. crebra</i>) this is further described along with the description of biodiversity and land environmental values in Appendix B, Appendix C and Appendix D.</p>	<ul style="list-style-type: none"> <li>• <b>8.5 ha for the Common Death Adder, <i>Acanthopis antarcticus</i> (Vulnerable under the NC Act).</b></li> <li>• 8.5 ha for the Dunmall’s Snake<sup>1</sup>, <i>Glyphodon (Furina) dunmalli</i> (Vulnerable under both the NC Act and EPBC Act).</li> <li>• 0.2 ha for the Grey Snake, <i>Hemiaspis damelii</i> (Endangered under both the NC Act and EPBC Act).</li> <li>• 0.2 ha for the Brigalow Woodland Snail, <i>Adclarkia cameroni</i> (Vulnerable under the NC Act and Endangered EPBC Act).</li> <li>• 0.1 ha for the Dulacca Woodland Snail, <i>Adclarkia dulacca</i> (Endangered under both the NC Act and EPBC Act).</li> </ul> <p>All remnant and regrowth vegetation is mapped as protected wildlife habitat for one or more threatened species, with all vegetation polygons co-located to varying degrees with all other matters, and all the vegetation to be cleared is considered potential Koala habitat.</p> <p>EcoSmart Ecology(2018)Surat Gas Project – Off-tenement Terrestrial Ecological Assessment Report 2018.</p>	<p>extent practicable without compromising the safety of workers</p> <ul style="list-style-type: none"> <li>• It should be noted that the proposed alignment of the pipeline has not changed significantly since its original alignment and has been refined to reduce the overall impact with its width reduced to 25m Right of Way.</li> <li>• Conduct preconstruction clearance surveys to identify any additional areas that may need to be avoided</li> <li>• Conduct preconstruction clearance surveys and include as a minimum:</li> <li>• Vegetation mapping at a scale suitable for site- specific planning - Identification of habitats and listed species - Identification of site-specific sensitive areas that require avoidance or buffer areas.</li> </ul>
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Environmental Value	Environmental Value Description	Potential Impacts	Mitigation Measures
<b>Community</b>	Persons and communities that may be impacted by the proposed amendment are the surrounding sensitive receptors.	<p>The proposed petroleum activities are located in the Western Downs Regional Council area. The closest settlement is Miles, approximately 10km to the East-North-East.</p> <p>The closest verified sensitive receptor to the proposed activity is a dwelling located approximately 1km from the pipeline, north of the Warrego Highway. There will be no greater impact on any affected persons or affected community because of this amendment application.</p>	<p>Environmental and social factors are considered as part of Arrows Area Wide Planning Process in deciding appropriate locations for proposed petroleum activities.</p> <p>Construction and operational noise impacts on the surrounding amenity of the rural community are assessed and are appropriately managed including stakeholder engagement, quiet drilling practices, low-noise equipment, restricted hours of operation and / or alternative arrangements as required.</p>
<b>Waste</b>	The proposed amendment will not generate any waste expected to affect existing environmental values that hasn't been previously assessed and approved in the original application, including the life, health and wellbeing of people; the diversity of ecological processes and associated ecosystems; and the land use capability.		

<p><b>Water and Wetlands</b></p>	<p>The <i>Environmental Protection (Water and Wetland Biodiversity) Policy 2019</i> identifies environmental values for waters and wetlands to be enhanced and protected.</p> <p>The terrain for the chosen pipeline route is generally flat to gently undulating plains with some gently undulating rises. The route intersects only one watercourse, Columboola Creek. The project area is generally between 300 m to 320 m above sea level.</p> <p>There are no wetlands whether it be General or High Ecological Significant Wetlands mapped or surveyed within the proposed construction corridor.</p> <p>The environmental values of wetlands to be enhanced or protected, relevant to this application are:</p> <ul style="list-style-type: none"> <li>• Health of wetland ecosystems;</li> <li>• Natural state and biological integrity; and</li> </ul> <p>Natural hydrological cycle; and interaction with other ecosystems.</p>	<p>State mapping identifies a Stream Order (SO) SO 3, Columboola Creek on Lot34BWR106 where the pipeline crosses in the south of the proposed activity. This crossing is regularly used as an access track and located immediately adjacent QGC's PPL184 Right of Way.</p> <p>Pipeline construction will involve crossing watercourses, roads and existing buried pipelines by open cut/ thrust boring or alternative trenchless technology (e.g. Horizontal Directional Drilling (HDD methods) depending upon the type and nature of the crossing.</p> <p>The existing EA has 10ha of disturbance approved and conditioned for Waterway providing for fish passage (not in an urban area).</p>	<p>The existing EA has 10ha of disturbance approved and conditioned for Waterway providing for Fish passage (not in an urban area). As such this amendment application does not seek to increase the disturbance area authorised.</p> <p>Erosion and sediment control would be appropriately managed, in accordance with Arrows existing management plans.</p> <p>Save for the proposed amendments, the proposed activities would comply with existing EA conditions regarding the water and wetlands environment.</p> <p>No material change to the environmental values protected by the current EA conditions, are expected as a result of the proposed activities.</p>
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Environmental Value	Environmental Value Description	Potential Impacts	Mitigation Measures
Underground water rights	The proposed amendment is for a Petroleum Pipeline Licence and involves above ground activity that will not affect the exercise of underground water rights.		

**Table 6 – Assessment of potential for proposed activities to affect MSES**

MSES	Potential Impact	Mitigation Measures
<p><b>Regulated Vegetation</b></p>	<p>State mapping identifies A ‘prescribed regional ecosystem is a matter of State environmental significance to the extent the ecosystem is located within a defined distance from the defining banks of a relevant watercourse’ exists as:</p> <ul style="list-style-type: none"> <li>• 0.1 ha of RE 11.3.25;</li> <li>• 0.4 ha of RE 11.7.4;</li> <li>• 0.1 ha of RE 11.7.7;</li> </ul> <p>A suitably qualified ecologist (Ecosmart Ecology) surveyed the proposed activities on the Property in March 2017 and March 2018.</p>	<p>Same for the proposed amendments, the proposed activities would comply with existing EA conditions regarding land, biodiversity and rehabilitation.</p> <p>An SRI for regulated vegetation has been undertaken and is included in Appendix E.</p>

MSES	Potential Impact	Mitigation Measures
Connectivity Areas	Results from applying the DES Landscape Fragmentation Connectivity tool indicates there will be no impact on connectivity areas.	None
Wetland and Watercourses	The surveyed area of the proposed activities is not within any declared wetland or watercourse that is of High Ecological Value as defined under the EPP Water.	None
Protected Wildlife Habitat	<p>Based on habitat mapping prepared by EcoSmart (Off-tenement Terrestrial Ecological Assessment Report, March 2018; Off-tenement Terrestrial Ecology Survey Report, March 2019), a total of 38 ha will be disturbed with 15 ha of remnant and regrowth vegetation to be cleared ranked from largest to smallest area; species listed under the NC Act <u>only</u> are <b>bolded</b>):</p> <p>(ranked from largest to smallest area; species listed under the NC Act only are bolded):</p> <ul style="list-style-type: none"> <li>• 13.5 ha for the Koala, <i>Phascolarctos cinereus</i> (Endangered under both the NC Act and EPBC Act).</li> </ul>	The pipeline route the subject of the original application was preliminary and subject to further design work. The route has undergone further design work and the route is now Final Layout Approved. This certainty of the route has enabled Arrow to finalise impact to Environmental values in general and to MSES in particular. Mitigation has occurred through further refinement of the RoW which has resulted in a reduction in disturbance with the existing approved RoW being 40m in width and the disturbance associated with the PEMS linked to a 25m RoW due to refinement. This is a 37% reduction of the previously authorised disturbance based on a 40m RoW.

MSES	Potential Impact	Mitigation Measures
	<ul style="list-style-type: none"> <li>• 8.5 ha for the Greater Glider, <i>Petauroides volans</i> (Endangered under both the NC Act and EPBC Act).</li> <li>• 8.5 ha for the Yellow-bellied Glider, <i>Petaurus australis</i> (Vulnerable under both the NC Act and EPBC Act).</li> <li>• 8.5 ha for the South-eastern Long-eared Bat<sup>1</sup>, <i>Nyctophilus corbeni</i> (Vulnerable under both the NC Act and EPBC Act).</li> <li>• 8.5 ha for the Diamond Firetail, <i>Stagonopleura guttata</i> (Vulnerable under both the NC Act and EPBC Act).</li> <li>• 9 ha for the South-eastern Glossy Black-cockatoo, <i>Calyptorhynchus lathami</i> (Vulnerable under both the NC Act and EPBC Act).</li> <li>• 0.1 ha for the Painted Honeyeater, <i>Grantiella picta</i> (Vulnerable under both the NC Act and EPBC Act).</li> <li>• <b>8.5 ha for the Common Death Adder, <i>Acanthophis antarcticus</i> (Vulnerable under the NC Act).</b></li> <li>• 8.5 ha for the Dunmall's Snake<sup>1</sup>, <i>Glyphodon (Furina) dunmalli</i> (Vulnerable under both the NC Act and EPBC Act).</li> <li>• 0.2 ha for the Grey Snake, <i>Hemiaspis damelii</i> (Endangered under both the NC Act and EPBC Act).</li> </ul>	<p>In 2018 and 2019 EcoSmart Ecology (ESE) prepared a terrestrial ecology impact assessment report for the Surat Gas Project (SGP) pipelines included as Appendix B and Appendix C. This work included inspecting relevant data sources to identify threatened species (flora and fauna specially protected under the Environment Protection and Biodiversity Conservation Act 1999 [EPBC Act] and Nature Conservation Act 1992 [NC Act]), which are known within and surrounding the SGP. 'Rules' were created to map habitat for these Matters of National and State Environmental Significance (MNES and MSES) based on GIS data, allowing the prediction of high value habitat. These surveys and mapping rules were also used to assess the impacts and environmental values associated with the McNulty PPL.</p> <p>Habitats were classed as 'core' habitat or 'general' habitat. Core habitat areas reflect those REs which are likely to be regularly inhabited by, or of 'high importance' to, the species. Such areas include high amenity habitat which could include important resources such as roosting and nesting sites or food resources. General habitats are 'those REs that may be used less regularly by fauna' (3DE and ESE 2011) and have lower amenity habitat. These definitions roughly match the definitions of 'Core Habitat Possible' and 'General Habitat Possible' in DES (2020), which was not available in 2011. The mapping has been used to calculate predicted impacts (and subsequently offset requirements) based on the extent of Core Habitat Known and Core Habitat Possible.</p> <p>Considerable field work has been completed within and surrounding the SGP area (which included the McNulty PPL</p>

MSES	Potential Impact	Mitigation Measures
	<ul style="list-style-type: none"> <li>• 0.2 ha for the Brigalow Woodland Snail, <i>Adclarkia cameroni</i> (Vulnerable under the NC Act and Endangered EPBC Act).</li> <li>• 0.1 ha for the Dulacca Woodland Snail, <i>Adclarkia dulacca</i> (Endangered under both the NC Act and EPBC Act).</li> </ul> <p>These vegetation polygons are all co-located with all other matters to varying degrees,</p> <p>Reference:</p> <ul style="list-style-type: none"> <li>• Appendix B - EcoSmart Off-tenement Terrestrial Ecological Assessment Report, March 2018</li> <li>• Appendix C - EcoSmart Off-tenement Terrestrial Ecology Survey Report, March 2019</li> </ul> <p>Matters of state environmental significance - wildlife habitat - special least concern animal.</p>	<p>area) since this work was completed and our local knowledge has increased substantially. In a few cases, this has identified ways in which the mapping rules could be modified and improved for greater accuracy. Furthermore, additional MNES and MSES species have been listed under legislation since the original work was completed. These new additional species had not been previously assessed (given their latest change in status) but have been included in this assessment as an abundance of caution based on likelihood of occurrence assessment and suitability of habitat within the survey corridor for the McNulty PPL area utilising the aforementioned ecology surveys and survey data (Appendix D).</p> <p>A copy of the SRI assessment is included in Appendix E.</p> <p>A notice of election has <b>not</b> been provided as part of the application material. It will be provided once an assessment and approval of the SRI and PEMs has occurred by the administering authority. Once the SRI and PEMs are confirmed a financial offset will be provided as part of the notice of election.</p> <p>The offset will not be staged.</p>
Koala Habitat in SEQ	The surveyed area of the proposed activities is not within any Koala Habitat in SEQ.	None
Protected Areas	The surveyed area of the proposed activities is not within any National Parks or Nature Refuges.	None

MSES	Potential Impact	Mitigation Measures
Fish Habitat	The surveyed area of the proposed activities is not within any declared fish habitat areas.	None
Fish Passage	None. The EA already authorises 10 ha.	<p>Pipeline construction will involve crossing watercourses, roads and existing buried pipelines by open cut/ thrust boring or alternative trenchless technology (e.g. Horizontal Directional Drilling (HDD methods) depending upon the type and nature of the crossing.</p> <p>Erosion and sediment control would be appropriately managed, in accordance with Arrow's existing management plans.</p> <p>Save for the proposed amendments, the proposed activities would comply with existing EA conditions regarding the water and wetlands environment.</p> <p>No significant residual impact to fish passage is expected as a result of the proposed activities as demonstrated in the SRI assessment in Appendix E.</p>
Marine Plants	The surveyed area of the proposed activities is terrestrial and inland.	None
Offset Areas	No legally secured offset areas were identified within the surveyed area of the proposed activities.	None

## 6 Conclusion

The amendment application relates to EA0002214 McNulty PPL2048. The subject of the application is the authorisation of ESA disturbance and inclusion of PEMS. The application had previously been assessed and approved by DES in 2020 and as such this application seeks to include the ESA and PEMS authorisations.

Arrow assessed the environmental impacts of the proposed activity and actively sought to avoid or minimize adverse impacts to the greatest practicable extent which has led to a reduction in the RoW width from 40m to 25m where possible.

The information provided supports Arrow's understanding that the application is properly classified a minor amendment (threshold), for the purpose of section 228 of the EP Act. Arrow believes that the proposed amendment does not trigger the thresholds/criteria for a major amendment based on the DES Major and Minor amendments guideline ESR/2015/1684 Version 11.00, in that the application does not increase the level of environmental harm caused by the proposed relevant activity since the application seeks to reduce the width of the RoW from 40m to 25m whilst seeking the inclusion of relevant PEMS and ESA authorisations.

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## Appendix A. - Legislative requirements

### Assessment level decision

Under section 228 of the EP Act, the administering authority must decide whether the proposed amendment application will be assessed at either a major or minor level.

Arrow considers that this application constitutes a minor amendment and provides the information below in support of this determination.

<b>Minor Amendment</b> for an environmental authority, means an amendment that the administering authority is satisfied that (as per the DES Guideline Major and Minor Amendments, dated 29 September 2020):	<b>Comment</b>
(a) is not a change to a condition identified in the authority as a standard condition other than a condition conversion or replacing a standard condition with a standard condition for the ERA	No changes to a standard condition are proposed.
(b) does not significantly increase the level of environmental harm caused by the relevant activity	<p>Arrow believes that the amendment application does not significantly increase the level of environmental harm caused by a relevant activity. Arrow believes that the authorisation to construct and operate the PPL has been approved subsequently and that the proposed amendment does not seek to increase the level of disturbance proposed or authorised. Instead the application proposes to correctly reflect the impacts on PEMS based on the already approved PPL and EA.</p> <p>The pipeline route the subject of the original application was preliminary and subject to further design work. The route has undergone further design work and the route is now Final Layout Approved. This certainty of the route has enabled Arrow to finalise impact to Environmental values in general and to MSES in particular. In fact there is a reduction in level of environmental harm and disturbance with the existing approved RoW being 40m in width and the disturbance associated with the PEMS linked to a 25m RoW due to refinement. As such, Arrow believe the scale and intensity has actually reduced to nearly 37% of the previously authorised disturbance based on a 40m RoW.</p>



<p><b>Minor Amendment</b> for an environmental authority, means an amendment that the administering authority is satisfied that (as per the DES Guideline Major and Minor Amendments, dated 29 September 2020):</p>	<p><b>Comment</b></p>
	<p>It should be noted that many of the additional PEMs added are as a result of updates to species listings from when the original application was submitted and approved in 2020 until now. This means those new species would now require PEMs whereas they wouldn't have previously under the originally approved application.</p> <p>In 2018 and 2019 EcoSmart Ecology (ESE) prepared a terrestrial ecology impact assessment report for the Surat Gas Project (SGP) pipelines included as Appendix B and Appendix C. This work included inspecting relevant data sources to identify threatened species (flora and fauna specially protected under the Environment Protection and Biodiversity Conservation Act 1999 [EPBC Act] and Nature Conservation Act 1992 [NC Act]), which are known within and surrounding the SGP. 'Rules' were created to map habitat for these Matters of National and State Environmental Significance (MNES and MSES) based on GIS data, allowing the prediction of high value habitat. These surveys and mapping rules were also used to assess the impacts and environmental values associated with the McNulty PPL.</p> <p>Habitats were classed as 'core' habitat or 'general' habitat. Core habitat areas reflect those REs which are likely to be regularly inhabited by, or of 'high importance' to, the species. Such areas include high amenity habitat which could include important resources such as roosting and nesting sites or food resources. General habitats are 'those REs that may be used less regularly by fauna' (3DE and ESE 2011) and have lower amenity habitat. These definitions roughly match the definitions of 'Core Habitat Possible' and 'General Habitat Possible' in DES (2020), which was not available in 2011. The mapping has been used to calculate predicted impacts (and subsequently offset requirements) based on the extent of Core Habitat Known and Core Habitat Possible.</p> <p>Considerable field work has been completed within and surrounding the SGP area (which included the</p>

<b>Minor Amendment</b> for an environmental authority, means an amendment that the administering authority is satisfied that (as per the DES Guideline Major and Minor Amendments, dated 29 September 2020):	<b>Comment</b>
	<p>McNulty PPL area) since this work was completed and our local knowledge has increased substantially. In a few cases, this has identified ways in which the mapping rules could be modified and improved for greater accuracy. Furthermore, additional MNES and MSES species have been listed under legislation since the original work was completed. These new additional species had not been previously assessed (given their latest change in status) but have been included in this assessment as an abundance of caution based on likelihood of occurrence assessment and suitability of habitat within the survey corridor for the McNulty PPL area utilising the aforementioned ecology surveys and survey data (Appendix D).</p>
<p>(c) does not change any rehabilitation objectives in the EA in a way likely to result in significantly different impacts on environmental values than the impacts previously permitted under the EA</p>	<p>The amendment application does not change any rehabilitation objectives stated in the authority in a way likely to result in significantly different impacts on environmental values than the impacts previously permitted under the authority.</p>
<p>(d) does not significantly increase the scale or intensity of the relevant activity</p>	<p>The proposed amendment does not seek a significant change to the scale or intensity of the relevant activity to which the EA and EPBC approval was previously assessed and granted upon. This amendment application seeks to nominate PEMS and authorisation into ESAs based on the alignment. There is no increase in scale or intensity as a result of the proposed amendment. In fact there is a reduction in disturbance with the existing approved RoW being 40m in width and the disturbance associated with the PEMS linked to a 25m RoW. As such, Arrow believe the scale and intensity has reduced to nearly 37% of the previously authorised disturbance based on a 40m RoW.</p>
<p>(e) does not relate to a new relevant resource tenure for the authority that is—</p> <ul style="list-style-type: none"> <li>(i) a new mining lease; or</li> <li>(ii) a new petroleum lease; or</li> </ul>	<p>The amendment application does not relate to a new relevant resource tenure.</p>

<b>Minor Amendment</b> for an environmental authority, means an amendment that the administering authority is satisfied that (as per the DES Guideline Major and Minor Amendments, dated 29 September 2020):	<b>Comment</b>
(iii) a new geothermal lease under the Geothermal Energy Act; or (iv) a new GHG injection and storage lease under the GHG storage Act.	
(f) increases the existing surface area for the relevant activity by 10% or less	The amendment application does not involve an addition to the surface area for the relevant activity of more than 10% of the existing area. There is actually a reduction in surface area impact.
(g) for an environmental authority for a petroleum activity—  (i) involves constructing a new pipeline that does not exceed 150km in length; and (ii) involves extending an existing pipeline by no more than 10% of the existing length of the pipeline.	The amendment application does not involve the construction of a new pipeline or the extension of an existing pipeline by 10%.
(h) if the amendment relates to a new relevant resource tenure for the authority that is an exploration permit or greenhouse gas permit—the amendment application seeks an EA that is subject to the standard conditions for the relevant activity, to the extent it relates to the permit.	The amendment application does not relate to a new relevant resource authority that is an exploration permit or GHG permit.

## Amendment application requirements

Table 7 addresses the requirements set out in Section 226(1) of the EP Act.

**Table 7 - Assessment against Ch 5, Pt 7, Div 2 of the Environmental Protection Act 1994**

224 Who may apply
<i>The holder of an environmental authority or PRCP schedule may, at any time, apply to the administering authority to amend the environmental authority or PRCP schedule (an amendment application).</i>
Arrow CSG (Australia) Pty Ltd is the principal holder of the EA.
225 Amendment application can not be made in particular circumstances
<i>Despite section 224, an amendment application for an environmental authority for a prescribed ERA can not be made if...</i>
Not applicable. The amendment application is for a Resource ERA, not for a prescribed ERA.
226 Requirements for amendment applications generally
<i>(1) An amendment application must –</i>
<i>(a) be made to the administering authority; and</i>
This amendment application is made to DES as the administering authority.
<i>(b) be made in the approved form; and</i>
The application is made using the DES 'Application to amend an environmental authority' form.
<i>(c) be accompanied by the fee prescribed under a regulation; and</i>
The prescribed application fee has been paid upon submission of the application.
<i>(d) describe the proposed amendment; and</i>
The proposed amendment is described in the Supporting Information provided to DES as part of the application.
<i>(e) describe the land that will be affected by the proposed amendment; and</i>
The land that will be affected by the proposed amendments are identified in the Supporting Information provided to DES as part of the application. The land that will be affected by the proposed amendment is within the land covered under the Surat Gas Project.
<i>(f) Include any other document relating to the application prescribed by regulation.</i>
Not applicable. No other document relating to the application has been prescribed by regulation.
226AA Requirement for amendment application by holder of environmental authority and PRCP schedule
<i>(1) This section applies if –</i>
<i>(a) the holder of an environmental authority and a PRCP schedule for the environmental authority (each a relevant environmental requirement) makes an amendment application...</i>
Not applicable. Arrow is not the holder of an environmental authority <b>and</b> a PCRPs schedule, because the PCRPs statutory provisions apply to mining activities, not to petroleum activities.
226A Requirements for amendment applications for environmental authorities
<i>(1) If the amendment application is for the amendment of an environmental authority, the application must also–</i>

<i>(a) describe any development permits in effect under the Planning Act for the carrying out of the relevant activity for the authority; and</i>
Not applicable. A development permit under the Planning Act is not required for the petroleum activities authorised by the environmental authority.
<i>(b) state whether each relevant activity will, if the amendment is made, comply with any eligibility criteria for the activity; and</i>
Not applicable. This EA amendment does not seek to change the eligibility criteria.
<i>(c) if the application states that each relevant activity will, if the amendment is made, comply with any eligibility criteria for the activity – include a declaration that the statement is correct; and</i>
Not applicable.
<i>(d) state whether the application seeks to change a condition identified in the authority as a standard condition; and</i>
Not applicable. The EA seeks to amend a variation condition and this amendment application does not seek to change or include a standard condition.
<i>(e) if the application relates to a new relevant resource tenure for the authority that is an exploration permit or GHG permit – state whether the applicant seeks an amended environmental authority that is subject to the standard conditions for the relevant activity or authority, to the extent it relates to the permit; and</i>
Not applicable. This amendment application does not relate to a new relevant resource tenure for the authority.
<i>(f) include an assessment of the likely impact of the proposed amendment on the environmental values, including -</i>
<i>i. a description of the environmental values likely to be affected by the proposed amendment; and</i>
An assessment of the likely impact of the proposed amendment on environmental values is included in the Supporting Information provided to DES as part of the application.
<i>ii. details of any emissions or releases likely to be generated by the proposed amendment; and</i>
Emissions likely to be generated by the activity are described in the Supporting Information provided to DES as part of the application. Arrow has determined that emissions or releases likely to be generated by Arrow's operations will not change as a result of the amendment and Arrow can comply with the existing relevant conditions of the EA.
<i>iii. a description of the risk and likely magnitude of impacts on the environmental values; and</i>
Arrow believes the risk has been considered the same as assessed in the EIS because the activities are the same (essential petroleum activities), the location of impacts is the same (all within the area of the Surat Gas Project), and the proposed management actions are still relevant.  The amendment application does not seek to change the proposed location or width of Right of Way (RoW) (there is actually a reduction in ROW) or other proposed infrastructure that has previously been assessed and included within its EPBC referral 2018/8223 to which the EA00002214 was granted under. As such, Arrow do not believe that the proposed amendments significantly increase the risks associated with the impacts on the environmental values as the alignment has not and will not change. The proposed amendment is to assign McNulty specific significant residual impacts to prescribed environmental values associated with activity authorised under the EA. See Section 3 for proposed amendment, section 4 for justification of amendment, and section 5 for environmental values and PEMs values, and 6 for conclusions. Unfortunately, due to uplisting or listing of certain species, a number of

<p>new PEMS are being requested, but note that the location and extent of the pipeline has not changed, but has reduced in width.</p>
<p><i>iv. details of the management practices proposed to be implemented to prevent or minimise adverse impacts; and</i></p>
<p>Management practices implemented by Arrow to prevent or minimise adverse impacts are described in the Supporting Information section 5 as part of the application. These include mitigation measures, management plans, procedures/processes to manage and minimise adverse impacts to environmental values where applicable. Arrow's management practices including those required under the EA will not change as a result of this amendment. The proposed alignment which was assessed and approved by DES was done to be co-located as close to existing petroleum infrastructure to avoid fragmentation and in conjunction with landholders requirements. As such, the alignment has been located to minimise adverse impacts where possible. In fact, there has be a reduction in disturbance from the original application due to refinement in the RoW required for construction. This will see a reduction in the RoW in areas from 40m to 25m.</p>
<p><i>v. details of how the land the subject of the application will be rehabilitated after each relevant activity ceases; and</i></p>
<p>To comply with the rehabilitation conditions of the environmental authority, the land the subject of the application will be rehabilitated after the relevant activity ceases. The land will be rehabilitated in accordance with the rehabilitation conditions of the EA and consistent with Arrows existing management plans and procedures related to rehabilitation. It is noted that all measures to avoid and mitigate impacts to PEMS has been done through the siting of the pipeline which has a number of design constraints and landholder constraints limiting its location. Furthermore, upon completion of the pipeline, the site would be reinstated and rehabilitated noting that vegetation on RoWs above gas and water pipelines would need to be managed to ensure process safety is maintained which may limit the amount of woody vegetation which can grow above pipelines and close to above ground infrastructure such as High Point Vents Etc. This would also be consistent with the AS 2885.3.2012 for the operation and maintenance of Australia P</p>
<p><i>(g) include a description of the proposed measures for minimising and managing waste generated by any amendments to the relevant activity; and</i></p>
<p>No additional waste is expected to be generated by the proposed amendment. Waste management in general will be undertaken in accordance with the existing requirements set out in the EA.</p>
<p><i>(h) include details of any site management plan or environmental protection order that relates to the land the subject of the application.</i></p>
<p>Not applicable. There are no site management plans (approved under Chapter 7, Part 8 Contaminated Land of the EP Act) or environmental protection orders (under section 368 of the EP Act) relating to the land the subject to this application.</p>
<p>226B Requirements for amendment applications for environmental authorities</p>
<p><i>An amendment application for a PRCP schedule must be accompanied by an amended rehabilitation planning part for the holder's PRC plan that complies with section 126C in relation to the proposed amendment.</i></p>
<p>Not applicable. Arrow is not the holder of a PCR schedule, because the PCR statutory provisions apply to mining activities, not to petroleum activities.</p>
<p>227 Requirements for amendment applications—CSG activities</p>
<p><i>(1) This section applies for an amendment application if— (a) the application relates to an environmental authority for a CSG activity; and</i></p>

<i>(b) the proposed amendment would result in changes to the management of CSG water; and the CSG activity is an ineligible ERA.</i>
Not applicable. The proposed amendments will not result in a change to the management of CSG water. Furthermore, the EA is for a Petroleum Pipeline Licence.
227AA Requirements for amendment applications—underground water rights
<i>(1) This section applies for an amendment application if— (a) the application relates to a site-specific environmental authority for— (i) a resource project that includes a resource tenure that is a mineral development licence, mining lease or petroleum lease; or (ii) a resource activity for which the relevant tenure is a mineral development licence, mining lease or petroleum lease; and the proposed amendment involves changes to the exercise of underground water rights.</i>
Not applicable. The proposed amendments will not result in changes to the exercise of underground water rights as its for a Petroleum Pipeline Licence.

**Table 8 – Standard Criteria (EP Act)**

<b>Schedule 4 EP Act</b>
<i>(a) the following principles of environmental policy as set out in the Intergovernmental Agreement on the Environment – (i) the precautionary principle; (ii) intergenerational equity; (iii) conservation of biological diversity and ecological integrity; and (b) Any Commonwealth or State government plans, standards, agreements or requirements about environmental protection or ecologically sustainable development</i>
<p>The precautionary principle was considered for the application. The proposed activities will use accepted best practice technology for which there is sufficient scientific data to support the certainty of achieving the principals of sustainable development.</p> <p>The principle of intergenerational equity was considered for the application. It is considered that the proposed activities would not impact the use of environmental values by future generations.</p> <p>The principles of conservation of biological diversity and ecological integrity were considered for the application. The proposed application would not result in significant adverse impacts to biological diversity or ecological integrity when considered in its entirety.</p> <p>The proposed activities will be undertaken in accordance with the applicable requirements of the following:</p> <ul style="list-style-type: none"> <li>• <i>Environmental Protection Act 1994 (EP Act)</i></li> <li>• <i>Environmental Protection Regulation 2019 (EP Regulation)</i></li> <li>• <i>Petroleum and Gas (Production and Safety) Act 2004</i></li> <li>• <i>CSG Water Management Policy 2012</i></li> <li>• <i>Nature Conservation Act 1992 (and associated 2018 guidance amendments)</i></li> <li>• <i>Environmental Protection and Biodiversity Conservation Act 1999 and Regulations</i></li> <li>• <i>Australian Standards.</i></li> </ul> <p>Where relevant these Acts are further referenced throughout this supporting information report</p>
<i>(c) Any relevant environmental impact study, assessment or report</i>

The activity subject to this amendment application was considered in the context of the EIS completed for the Surat Gas Project.
(d) The character, resilience and values of the receiving environment
Refer section 5.
(e) all submissions made by the application and submitters
The EA amendment should not be subject to public notification as there is not likely to be a substantial increase in the risk of environmental harm under the amended EA, nor a substantial change in the contaminants permitted to be released to the environment.
(f) Best Practice Environmental Management (BPEM) for activities under any relevant instrument, or proposed instrument, as follows- (i) an environmental authority; (ii) a transitional environmental program; (iii) an environmental protection order; (iv) a disposal permit; (v) a development approval;
Best Practice Environmental Management (BPEM) of the proposed activities would be achieved through compliance with the conditions of the EA and implementation of management measures as described in Section 5 of this supporting information report.
(g) Financial implications of the requirements under an instrument, or proposed instrument, mentioned in paragraph (g) as they would relate to the type of activity or industry carried out, or proposed to be carried out under this instrument
Arrow will continue to provide adequate funds, equipment and staff time to achieve compliance with the conditions of the EA. This will be reflected in approved Estimated Cost of Rehabilitation in accordance with the Financial Provisioning Scheme.
(h) Public interest
The proposed amendment is in the public interest, as it will secure important natural gas supply which is vital to meet the needs of customers in the east coast market, along with other Australian states and territories. It plays an important role in powering the energy transition to meet State and Commonwealth renewable energy targets.
(i) Site management plan (SMP)
There are no SMPs applicable or relevant to this application.
(j) Relevant Integrated environmental management system (IEMS) or proposed IEMS
The Arrow Integrated HSE Management System (HSEMS) will be implemented for the proposed activities.
(k) Other matters prescribed under a regulation
This application demonstrates compliance with relevant prescribed matters.

### Great Barrier Reef Catchments

The project area is not located in a Great Barrier Reef catchment area. As a result, Section 41AA of the EP Regulation is not triggered. Section 41AA relates to the release of fine sediment and inorganic nitrogen in Great Barrier Reef catchment waters and in particular, section 41AA(3) states:

The administering authority must refuse to grant the application if the authority considers that—



(a) the relevant activity will, or may, have a residual impact; and

(b) having regard to the matters mentioned in the water quality offset policy, the residual impact will not be adequately counterbalanced by offset measures for the relevant activity.

Proposed management measures for erosion and sediment control, stormwater and potential contaminants mean the risks of fine sediment and/or contaminants entering a watercourse are minimal, and the risk of any such sediment or contaminants being transported downstream to the GBR are negligible.

#### **Public notification**

Arrow believes that the application is properly classified as a 'minor' amendment under the EP Act. Public notification of a minor amendment application is not required.

Appendix B. Ecosmart Off-tenement Terrestrial Ecological  
Assessment Report, March 2018.

Appendix C. Ecosmart Off-tenement Terrestrial Ecology Survey  
Report, March 2019

Appendix D. Ecosmart Ecology Threatened Species Mapping Rules  
Review September 2023

## Appendix E. Significant Residual Impact Assessment