

2017 Ecological Assessment for Fairview:


An ecological assessment report completed for the Fairview In-Field Drilling, Fairview Optimisation and Fairview Eastern Flank Recovery Projects

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Table of Contents

1.0	Introduction	3
1.1	Project Description	3
1.2	Purpose	3
1.3	Scope	3
2.0	Methodology	5
2.1	Desktop Review and Assessment Level Determination	5
2.1.1	Vegetation Community Assessments	5
2.1.2	EVNT Flora Species Assessment	6
2.1.3	Fauna Species Habitat Assessment	7
3.0	Results	8
3.1	Desktop Assessment and Assessment Level Determination	8
3.2	Field Assessment	10
3.2.1	Vegetation Communities	10
3.2.2	Threatened Flora	13
3.2.3	Threatened Fauna Habitat Assessment	14
4.0	Recommendations	15
5.0	References	16

Figures

Figure 1: Assessment Areas	4
Figure 2: Construction Disturbance Zone for IDP-321	8
Figure 3: Construction Disturbance Zone for IDP-335	9
Figure 4: Construction Disturbance Zone for IDP-340	9
Figure 5: Groundtruthed RE mapping for IDP-321	12
Figure 6: Groundtruthed RE mapping for IDP-335	12
Figure 7: Groundtruthed RE mapping for IDP-340	13

Appendices

Appendix A: The likelihood of occurrence of EPBC Act and/or NC Act listed threatened flora and fauna

List of Abbreviations

Abbreviation	Description
DEHP	Department of Environment and Heritage Protection (Queensland)
EA	Environmental Authority
EA	Environmental Authority
EPBC Act	Environment Protection and Biodiversity Conservation Act 1999 (Commonwealth)
ESA	Environmentally Sensitive Area
EVNT	Endangered Vulnerable and Near Threatened
GIS	Geographic Information System
GLNG	Gladstone Liquefied Natural Gas
ha	Hectare
HES	High Ecological Significance
HVR	High Value Regrowth
NC Act	Nature Conservation Act, 1992
RE	Regional Ecosystem
REDD	Regional Ecosystem Description Database
SEQ	South East Queensland
TEC	Threatened Ecological Community
VMA	Vegetation Management Act, 1999

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1.0 Introduction

1.1 Project Description

This ecological assessment report has been completed for the Fairview In-Field Drilling, Fairview Optimisation and Fairview Eastern Flank Recovery development projects. These development project occur in the eastern sections of the Fairview Gas Field. The scope of these development projects involves the construction of wells and associated infrastructure to increase production of wells located in the eastern sections of the Fairview Gas Field. Construction of these projects are scheduled to commence in mid-2018.

1.2 Purpose

A number of previous ecological assessments have been completed within the vicinity of these development projects. Where previous ecological data cannot be relied upon additional assessments are required. The purpose of this assessment report is to document the additional ecological assessment work completed for these Projects, specifically disturbances associated with Integrated Disturbance Planning (IDP) request numbers: IDP-321, IDP-335, IDP-340 and IDP-342. This report has been completed in accordance with the Santos GLNG Methodology for Assessing Ecological Values and complies with the site assessment and ecological survey requirements listed in Santos GLNG's environmental approvals. Outcomes of this report are used to quantify area of threatened species habitat and ecological communities that are subject to statutory disturbance limits in the Santos GLNG environmental approvals.

1.3 Scope

All areas identified on the aerial photography with little or no structured woodland / forest vegetation have previously been cleared. In these areas, the presence of ecological values is assumed to be unlikely. All works located in areas previously disturbed have been excluded from additional ecological assessments and impacts in these areas are considered minimal, short term and without any significant consequence.

The scope of the ecological assessment is restricted to the Construction Disturbance Zones (CDZs) associated with IDP-321, IDP-335, IDP-340 and IDP-342. The locations of these CDZs are shown on Figure 1 below. The areas subject to field assessment are shown as red.



Figure 1: Assessment Areas

2.0 Methodology

2.1 Desktop Review and Assessment Level Determination

A review of the existing ecological reports and data collected for the project was conducted to ascertain whether the existing information was adequate or whether additional assessments were required. These reports are listed below:

- Ecological Assessment Report IDP-213 - M70 to M17 Loop Gathering Line – Santos 2016
- Biodiversity Offset Assessment Report: 'Fairview' – 6CP908635, Boobook 2015a.
- Biodiversity Offset Assessment Report: 'Springwater' – 8SP261936, Boobook 2015b.

The results of the above previous ecological field assessments as well as Santos GLNG's high-resolution aerial photography, Santos' threatened fauna records and the Queensland Governments Regional Ecosystem mapping and description were used to identify areas that required additional assessment. Additional assessments are required in the following circumstances:

- The vegetation community / EVNT species habitat has not been previously assessed and mapped (i.e. should not require assessment again) or has been previously assessed and the mapping shows low confidence in accuracy of polygon attributes;
- The likelihood of the RE community type / EVNT species habitat mapping being accurate based on aerial imagery;
- The likely accuracy of the mapped land zone based on geology and soils mapping and interpretation of the aerial imagery; or
- Areas of potential controlled vegetation communities, including possible patches of regrowth endangered RE and TEC that are not mapped appear to occur on the aerial photography.

The majority of the land disturbance activities associated with the proposed development projects are wholly located within an area of existing disturbance. For these disturbances, there will be no impact to any Regional Ecosystem vegetation community or EPBC Act listed species or TEC. Additional detailed ecological assessment were conducted within the disturbances associated with IDP-321, IDP-335 and IDP-340 were the subject of additional ecological assessment. The assessments areas are shown in Figure 1.

2.2 Field Assessment

Field assessments were conducted on 30 June 2016. Field assessments were focussed on three areas (see Figure 2 to Figure 4). Sites were undertaken in the dominant vegetation community within the assessment areas. Sites were selected based on aerial photography interpretation of site characteristics and the presence of mapped remnant or regrowth vegetation. Where alternate vegetation communities were identified quaternary level assessment were conducted to identify the RE and the broad habitat values. The methodology used in the field assessment is discussed below.

2.2.1 Vegetation Community Assessments

The vegetation community assessment was based on the Queensland Herbarium's *Methodology for Survey and Mapping of Regional Ecosystems and Vegetation Communities in Queensland* (Neldner et al., 2012). Features assessed within each assessment sites include:

- Notes on presence or absence of native vegetation;
- Photographic evidence (multiple photos);
- Quaternary level notes on dominant species (e.g. *Corymbia citriodora*, *Eucalyptus crebra* woodlands on sandy soils, mostly native understory *Aristida* spp.);

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- Land Zone, landscape topography and soil type;
- Height of the Ecological Dominant Layer
- Estimate of patch size;
- Native ground cover species richness;

In sites that were ESA the following additional attributes were collected:

- Total percent ground cover;
- Per cent species richness of declared plant pest species;
- Organic litter cover ;
- Estimate of shrub density;
- Total density of coarse woody material;
- Presence and dominance of key flora species within all structural layers; and
- Incidental observations (including presence of weed species / populations).

The relative dominance of species in each strata were assigned as per the definitions in the August 2012 version of the Regional Ecosystem Map Assessment Kit (Queensland Herbarium, 2012) where:

- d (dominant species) – A species that contributes most to the overall above-ground biomass of a particular stratum
- c (co-dominant species) – Where two or more species contribute more or less equally to form the dominant above-ground biomass of a particular stratum
- s (subdominant species) – A species is considered to be subdominant when it contributes less biomass than the dominant species, but occurs as more than an isolated individual. As a general rule, the species must individually contribute more than 10% of the total biomass of the stratum in which it occurs.
- a (associated species) – Any species is present in a stratum but does not contribute more than 10% of the total biomass of the stratum in which it occurs.

Endangered (Biodiversity status) regional ecosystems that have not developed a Remnant (VMA, 1999) structure are assessed for their potential to provide for ecological functioning within the landscape. The Santos methodology “Functional Thresholds for Assessing Regional Ecosystem Functionality” was employed to assess whether these non-remnant vegetation patches reach a threshold of functionality. This method includes the assessment of the following criteria:

- Patch width
- Patch Size
- Non-native perennial vegetative cover
- Recruitment to the Ecologically Dominant Layer (EDL)

In accordance with the Neldner Methodology, the attribute accuracy of the groundtruthed vegetation data in the Santos GIS is classified using the following confidence ratings:

- A = high confidence in accuracy of polygon attributes
- B = moderate confidence in accuracy of polygon attributes
- C = low confidence in accuracy of polygon attributes

2.2.2 EVNT Flora Species Assessment

Santos GLNG have previously commissioned Boobook to provide habitat mapping based on assumptions and rules with high level reasoning for 21 species of MNES flora. This data was reviewed to determine MNES flora

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species likely to occur within each of the three Santos GLNG development areas. There are four species: *Acacia grandifolia*, *Bertya opposens*, *Daviesia discolour* and *Eucalyptus beaniana* potentially distributed within the development areas of IDP-321, IDP-335 and IDP-340.

Flora species field assessments were conducted using a random meander approach. This approach was loosely based on the timed meander survey method discussed in Section 4.1 of the *Queensland Department of Environment and Heritage Protection's Flora Survey Guidelines - Protected Plants - Nature Conservation Act 1992*. A random meander was conducted within each assessment site.

2.2.3 Fauna Species Habitat Assessment

As with the field based vegetation community assessment, habitat assessments were undertaken in representative habitat patches. The field assessment were undertaken using the Habitat Mapping Assessment Tool (HMAT). Preliminary assessments of the following factors were undertaken (at a desktop level) and recorded on the HMAT:

- (1) Tenement in which the Habitat Zone is located (Part A of HMAT);
- (2) Biodiversity Planning Assessment (BPA) Mapping (Part B of HMAT);
- (3) Proximity to water (Part C of HMAT);
- (4) Underlying vegetation type (Part D of HMAT); and,
- (5) Specimen backed records (Part E of HMAT).

In addition, a review of fauna databases, reports and mapping was also be conducted to gain an understanding of the species and the species' preferred microhabitat features likely to occur in the area.

The field assessment involved the completion of the HMAT. The field assessment involves two steps:

- (1) Review and confirm the results of the desktop assessment (Part A - E); and
- (2) Complete the microhabitat features assessment (Part F).

Once the data entry stage of the HMAT is complete, the HMAT will predict habitat classes of Unlikely, General, Essential or Core habitat for each of the significant species in the HMAT.

The results of the HMAT were then verified and the assessing ecologist documented whether they:

- (1) Agree and confirm the output of the HMAT; or
- (2) Disagree with output of the HMAT.

In addition to completing the above assessment process using HMAT, incidental observations of fauna species observed while completing the field based elements of HMAT were recorded as part of this assessment.

3.0 Results

3.1 Desktop Assessment and Assessment Level Determination

The results of the above previous ecological field assessments as well as Santos GLNG's high-resolution aerial photography, Santos' threatened fauna records and the Queensland Governments Regional Ecosystem mapping and description identified:

- No wetlands of high ecological significance were depicted on the 'Map of Referrable Wetlands'
- No springs
- No records of EVNT flora and fauna
- No areas identified on as High Risk Areas on the flora survey trigger map

The majority of the land disturbance activities associated with the proposed development projects are wholly located within an area of existing disturbance. For these disturbances, there will be no impact to any Regional Ecosystem vegetation community or EPBC Act listed species or TEC. Additional detailed ecological assessment were conducted within the disturbances associated with IDP-321, IDP-335 and IDP-340. The assessments areas are shown in Figure 2 to Figure 4 below.



Figure 2: Construction Disturbance Zone for IDP-321



Figure 3: Construction Disturbance Zone for IDP-335



Figure 4: Construction Disturbance Zone for IDP-340

3.2 Field Assessment

In the vicinity of the IDP-321 survey area the vegetation is dominated by an extensive belt of predominantly coarse grained sandstones that form an undulating to hilly surface with areas of deep valleys and gorges associated with the Dawson River. Soils are predominantly coarse, with deep sands or with deep sandy-surface texture contrast soils on less steep areas. A mixed eucalypt woodland or forest, is the most widespread vegetation type, the dominant tree species being poplar box *Eucalyptus populnea* (RE 11.10.11) and *Callitris glaucophylla* (11.10.9). To the north of IDP-321 is very narrow but tall *Eucalyptus camaldulensis* / *E. tereticornis* river red-gum/forest red gum) open-forest associated with the Dawson River alluvium (RE 11.3.25).

IDP-335 and IDP-340 survey area is dominated by deep sandy soils derived from coarse grained sandstones. The landscape is comprised of low gently undulating hills dominated by a patchwork of white cypress pine *Callitris glaucophylla* (11.10.9) and poplar box *Eucalyptus populnea* (RE 11.10.11) with occurrences of narrow-leaved ironbark *Eucalyptus crebra* and silver-leaved ironbark *Eucalyptus melanophloia* woodlands (RE 11.10.7). Small patches of spotted gum *Corymbia citriodora* woodland (RE 11.10.1) occurs on the shallow sandy soils of the steeper parts of the southern and northern extremities of the survey area. The north and western edges of the survey area support narrow areas of finer grained sandstones and alluvial soils that have either been cleared or support woodlands of polar box (RE 11.3.2, 11.9.7) and small patches of brigalow *Acacia harpophylla* (RE 11.9.5).

3.2.1 Vegetation Communities

3.2.1.1 Regional Ecosystems

No natural grassland communities exist in the Fairview Project Area. Areas that consist of pasture grass and are clearly not regional ecosystem vegetation communities were not assessed. Four different REs were ground-truthed within the Site (Table 1).

Table 1: Groundtruthed Regional Ecosystem Vegetation Communities

RE Code	VM Act Class	Bio Status	Short Description (DEHP 2015)	Location
11.3.2	OC	OC	<i>Eucalyptus populnea</i> woodland on alluvial plains	IDP-335
11.9.5	E	E	<i>Acacia harpophylla</i> and/or <i>Casuarina cristata</i> open forest on fine-grained sedimentary rocks	IDP-335
11.10.9	LC	NCAP	<i>Callitris glaucophylla</i> woodland on coarse-grained sedimentary rocks	IDP-340
11.10.11	LC	NCAP	<i>Eucalyptus populnea</i> , <i>E. melanophloia</i> +/- <i>Callitris glaucophylla</i> woodland on coarse-grained sedimentary rocks	IDP-335, IDP-321

E = Endangered; *OC* = Of Concern; *LC* = Least Concern; *NCAP* = No Concern at Present

Quaternary survey site data are summarised within Table 2. The results of the quaternary assessment sites are mapped in Figure 5 to Figure 7.

Table 2: Summary of quaternary survey site assessments within the Site

Survey Site Code	Location (GDA94)	Vegetation Description	State Mapped RE	Ground-truthed RE Type
17-Q1	55J 714105E 7146253N	Fairview – Yebna IDP 321 <i>Eucalyptus populnea</i> dominated woodland. <i>E. melanophloia</i> and <i>Callitris glaucophylla</i> also present as subdominantes. The mid-layer layer contains co-dominates of the following: <i>Callitris glaucophylla</i> ; <i>Geijera parviflora</i> ; <i>Eremophila mitchellii</i> and <i>Psydax oleifolia</i> . A very dense vegetated ground layer is present dominated by the grasses: <i>Cenchrus ciliaris</i> and <i>Themeda triandra</i> .	11.10.9	11.10.11
17-Q2	55J 712117E 7147973N	Fairview – Yebna IDP 335 <i>Eucalyptus populnea</i> dominated woodland with <i>Callitris glaucophylla</i> present. The mid-layer layer relative dense and diverse, containing <i>Geijera parviflora</i> , <i>Eremophila mitchellii</i> , <i>Alphitonia excels</i> , <i>Carrisa ovata</i> and <i>Capparis lasiantha</i> . contains co-dominates of the following: <i>Callitris glaucophylla</i> ; <i>Geijera parviflora</i> ; <i>Eremophila mitchellii</i> and <i>Psydax oleifolia</i> . Ground layer dominated by <i>Aristida caput- medusae</i> and <i>Eriachne mucronata</i> .	11.10.9	11.10.11
17-Q3	55J E 7173179N	Fairview – Yebna IDP 335 <i>Acacia harpophylla</i> woodland; midlayer dominated by canopy recruits, <i>Geijera parviflora</i> and; sparse ground layer dominated by <i>Eriachne mucronata</i> . Brigalow TEC	11.10.9	11.9.5
17-Q4	55J 686276E 7173389N	Fairview – Yebna IDP 335 <i>Eucalyptus populnea</i> woodland. Low tree layer dominated by <i>Geijera parviflora</i> . Grassy groundlayer dominated by <i>Bothriochloa</i> sp. and <i>Cenchrus ciliaris</i> .	Non-Remnant / 11.3.2	11.3.2
17-Q5	55J 714311E 7146225N	Fairview Strathbane IDP-340 <i>Callitris glaucophylla</i> woodland with associated <i>Eucalyptus crebra</i> and <i>E. populnea</i> on coarse-grained sedimentary rocks on the higher altitude escarpments to the east of Hallet State Forest. Sparse mid-layer dominated by regrowth <i>Callitris glaucophylla</i> . Sparse ground layer dominated by <i>Aristida caput- medusae</i> and <i>Eriachne mucronata</i> .	11.10.9	11.10.9

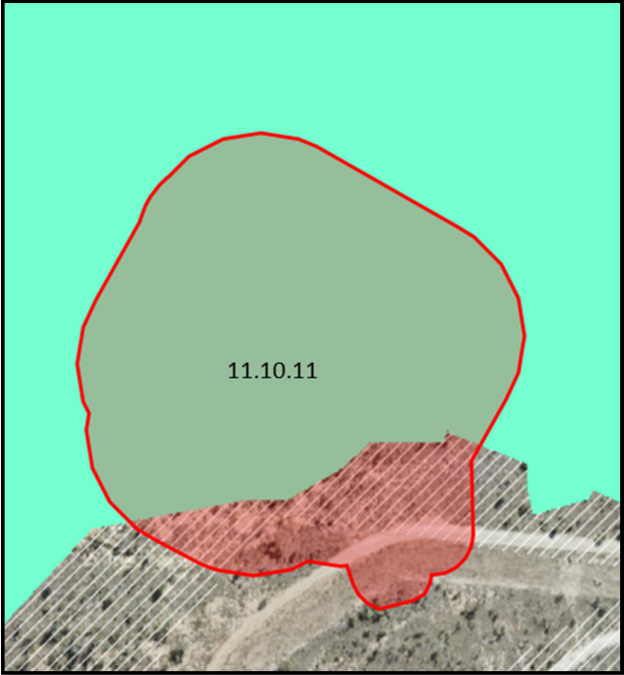


Figure 5: Groundtruthed RE mapping for IDP-321

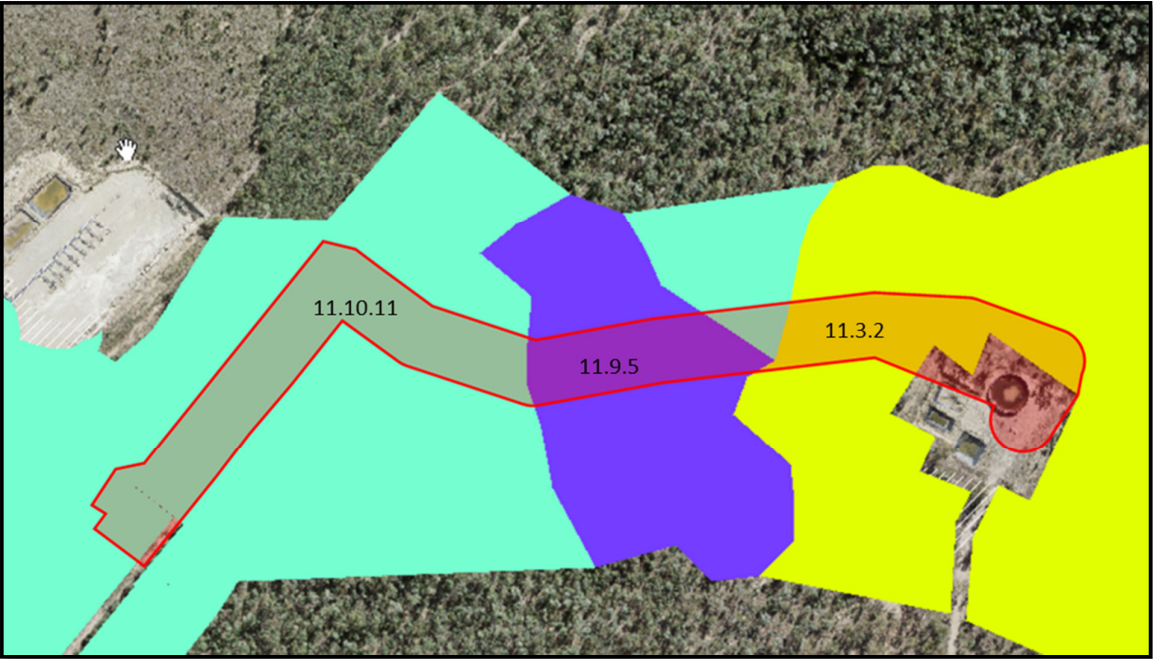


Figure 6: Groundtruthed RE mapping for IDP-335

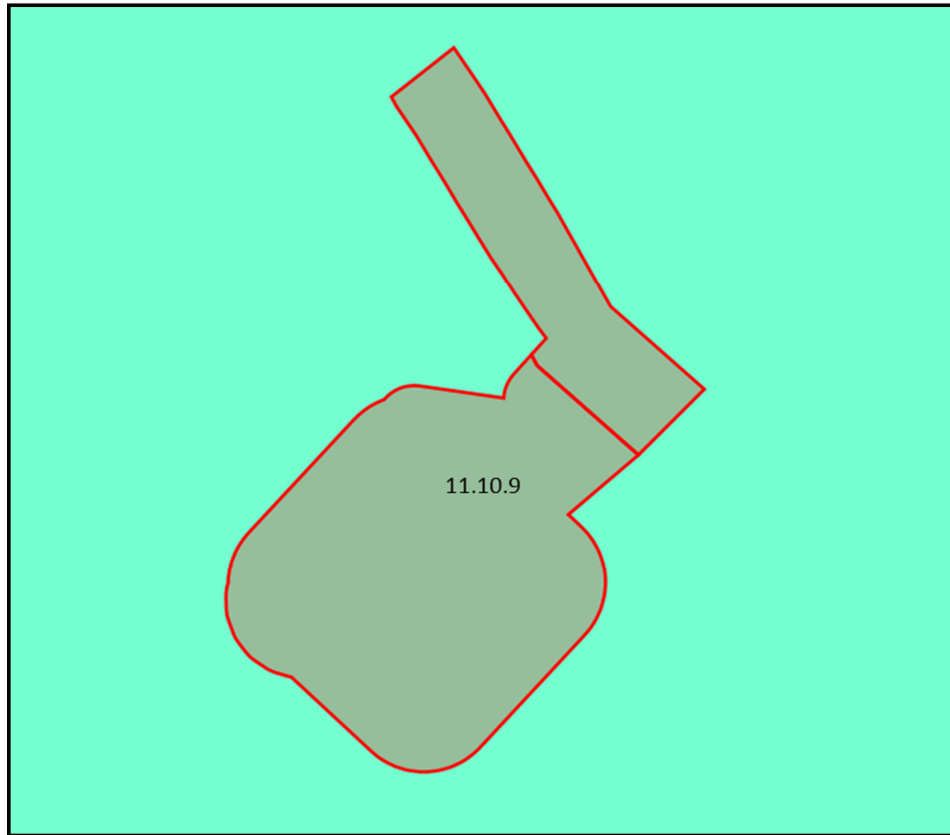


Figure 7: Groundtruthed RE mapping for IDP-340

3.2.1.2 Threatened Ecological Communities

The field survey confirmed the presence of one TEC, this being Brigalow (*Acacia harpophylla* dominant and co-dominant). A patch of the endangered RE 11.9.5 occurs through the middle sections of IDP-335. This patch met the TEC condition thresholds and the functionality requirements listed in Santos GLNG's Methodology for assessing Ecological Values. .

Three additional TECs; 'Coolibah-Black Box Woodlands of the Darling Riverine Plains and the Brigalow Belt South Bioregions', Semi-evergreen vine thickets of the Brigalow Belt (North and South) and Nandewar Bioregions' and 'Weeping Myall Woodlands' have the potential to occur in the assessment areas. None of these TECs occur within the CDZs assessed.

3.2.2 Threatened Flora

The assessment areas are not located within a High Risk Area as shown on a Protected Plants Survey Trigger Map (DEHP 2017). The desktop assessment indicated that four species of threatened flora have been recorded within 5 km of the Site (DSITI 2017b). Boobook (2016) identified four species: *Acacia grandifolia*, *Bertya opposens*, *Daviesia discolour* and *Eucalyptus beaniana* potentially distributed within the development areas of IDP-321, IDP-335 and IDP-340. However, the broad habitat requirements for these species were not present within the development areas. The Queensland Government Wildlife Online - Extract Date 06/07/2017 was reviewed and identified *Acacia calantha* as previously being observed within the vicinity of the assessment area. The open eucalypt woodlands on sandstone escarpments associated with this species was not observed.

No threatened flora was detected within the Site.

3.2.3 Threatened Fauna Habitat Assessment

No threatened flora species were observed during the assessment. The majority of the land disturbance activities wholly located within an area of existing disturbance, there will be no impact to any Regional Ecosystem vegetation community or EPBC Act listed species habitat or TEC. In the areas containing remnant vegetation (IDP-321, IDP-335 and IDP-340), fauna habitat assessments were performed at each quaternary survey site.

Habitat for 6 EPBC Act species was observed within the assessment areas. The Collared Delma and the Dunmall's snake rely on ground level habitat features, in particular woodlands and open forests with abundant woody debris. The habitat mapping for these species shows that they are expected to occur in the same areas and the habitat for these species had the greatest extent of coverage in the assessment areas. The results of the HMAT assessment is provided in Table 3.

Table 3: EPBC Act listed Threatened fauna habitats

HMAT SITE	RE	Squatter pigeon	Large-eared pied bat	SE long-eared bat	Dunmall's snake	Yakka skink	Collared delma
2017-S1	11.10.11	G	G	G	G	G	G
2017-S2	11.10.11	G	G	G	G	G	G
2017-S3	11.9.5			G	G	G	G
2017-S4	11.3.2			G	G	G	G
2017-S5	11.10.9			G	G		G

An assessment of the likelihood of occurrence of EPBC Act and/or NC Act listed threatened fauna occurring in the assessment areas is summarised in Appendix A.

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4.0 Recommendations

The proposed impacts to EPBC Act listed threatened species will be subtracted from the project disturbance limits for the relevant species mentioned in Table 3. The proposed impacts to Brigalow TEC will be subtracted from the project disturbance limits.

Given the presence of habitat and potential habitat features in the remnant vegetation a fauna spotter catcher will be used to clear the disturbance areas associated with the Construction Disturbance Zones assessed in this report.

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5.0 References

- Boobook (2015a). Biodiversity Offset Assessment Report: 'Fairview' – 6CP908635 (Rev A, issued 18/10/2015). Roma, BOOBOOK.
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**Appendix A:
The likelihood of occurrence of EPBC Act and/or NC
Act listed threatened flora and fauna**

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Scientific & Common Name	EPBC Act Status	NC Act Status	Distribution and Known Habitat Use	Likelihood of Occurrence
<i>Calidris ferruginea</i> Curlew Sandpiper	CE	E	A migratory species usually encountered on coastal and near-coastal saline and freshwater wetlands (Pizzey and Knight 1997). Passage migrants are occasionally present on inland wetlands, and the species is sparsely recorded across inland Queensland (ALA 2017).	Unlikely to be present. Suitable wetland habitat is absent from the Site.
<i>Calyptorhynchus lathami</i> Glossy Black-Cockatoo	-	V	Dependent on the fruits of several species of <i>Casuarina</i> and <i>Allocasuarina</i> spp. and occurs in a variety of forest types (Pizzey and Knight 2010, Garnett <i>et al.</i> 2011). It will visit isolated trees and remnant patches where food trees are present (Holmes 2012). Nesting habitat is hollow-bearing live or dead trees (Higgins 1999).	Unlikely to be present. Potentially suitable habitat with food plants including <i>Casuarina cristata</i> are absent from the Site.
<i>Erythrotriorchis radiatus</i> Red Goshawk	V	V	A highly mobile species with a large home range; breeding habitat is in intact tall forest associated with major drainage lines, especially near permanent water bodies and where there is high avian prey diversity, but the species could potentially forage much further away from these areas (Marchant and Higgins 1993).	Potentially present. No riparian habitat with tall trees that could potentially support nesting sites for the species are present within the Site; however foraging habitat is present.
<i>Geophaps scripta scripta</i> Squatter Pigeon (southern subspecies)	V	V	Inhabits grassy woodlands with open areas for foraging habitat usually within proximity to a nearby water source (Higgins and Davies 1996). Previously recorded from Kentucky (C. Eddie pers. obs.).	Potentially present. Potentially suitable foraging and nesting habitat is present particularly the RE 11.3.2 at IDP-335.
<i>Grantiella picta</i> Painted Honeyeater	V	V	Lives/breeds in woodlands and open forests with high densities of suitable food plants (i.e. mistletoes, family Loranthaceae) (Higgins <i>et al.</i> 2001).	Unlikely to be present. Mistletoe is largely absent from or n very low abundance within the Site.
<i>Rostratula australis</i> Australian Painted Snipe	E	V	Forages at shallow edges and adjacent vegetated margins of freshwater wetlands (DoEE 2017b) and is able to use both artificial and natural ephemeral and permanent wetlands (Marchant and Higgins 1993).	Unlikely to be present. Suitable wetland habitat is absent from the Site.

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Scientific & Common Name	EPBC Act Status	NC Act Status	Distribution and Known Habitat Use	Likelihood of Occurrence
<i>Maccullochella peelii</i> Murray Cod	V	-	In Queensland naturally-occurring populations of this species are confined to permanent water in riverine environments in the Condamine, Maranoa-Balonne, Weir and Moonie River catchments (Lintermans 2007).	Unlikely to be present. Does not occur naturally within Dawson River catchment and no suitable riverine habitat exists within the Site.
<i>Chalinolobus dwyeri</i> Large-eared Pied Bat	V	V	All known occurrences of this species are within or near forested landscapes with relatively high relief (DSITI 2017d). The species may be present in uplands with likely presence of appropriate geology (usually sandstone) providing essential habitat (caves, crevices, holes) and associated foraging habitat.	Potentially present. Potentially suitable foraging habitat is present within the Site.
<i>Dasyurus hallucatus</i> Northern Quoll	E	LC	Formerly widespread in south-central Queensland this species has declined markedly and is now confined to rugged and remote areas throughout its distribution (Burnett 2012). Forested uplands with high relief and/or containing abundant rock outcrops may support the species.	Potentially present. Potentially suitable foraging habitat is present within the Site.
<i>Nyctophilus corbeni</i> South-eastern Long-eared Bat	V	V	The distribution and habitat preferences of this species are very poorly known; it inhabits a range of dry forest types in south central Queensland (Reardon 2012).	Potentially present. Potentially suitable foraging and roosting habitat is present within the Site.
<i>Petauroides volans</i> Greater Glider	V	V	Occurs in eucalypt woodlands and open forest particularly those with mature trees containing large hollows (TSSC 2016).	Potentially present. Potentially suitable foraging habitat is present within the Site, however tall trees with large hollows are absent from the Site.
<i>Phascolarctos cinereus</i> Koala (combined populations of QLD, NSW and the ACT)	V	V	This species requires eucalypt woodland and forest habitat with suitable food trees (primarily <i>Eucalyptus</i> spp.) (DoEE 2017b). Woodlands containing food trees in riparian/alluvial areas are particularly favoured (Melzer <i>et al.</i> 2014). Potential food trees occurring within the Site include <i>Eucalyptus melanophloia</i> , <i>E. orgadophila</i> and <i>E. crebra</i> .	Potentially present. Potentially suitable food trees and foraging habitat is present within the Site in the areas dominated by Poplar Box

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Scientific & Common Name	EPBC Act Status	NC Act Status	Distribution and Known Habitat Use	Likelihood of Occurrence
<i>Acanthophis antarcticus</i> Common Death Adder	-	V	A widespread but patchily distributed snake (ALA 2017). Lives in woodlands, open forests and heathlands; requires abundant shelter/ambush predation cover e.g. low shrubs, rocks, logs, dense leaf litter (Wilson 2015).	Potentially present. Potentially suitable habitat with shelter sites (e.g. dense low shrubs, rocks) is present within RE 11.9.5 within the Site.
<i>Delma torquata</i> Collared Delma	V	V	Occupies a range of eucalypt woodlands and open forests; lives under surface rock and large woody debris (Wilson 2015). The Site is within the species' known range with several records from locations north-west of Roma (ALA 2017).	Potentially present. Eucalypt/Callitris woodland with potentially suitable shelter sites (e.g. small rocks, woody debris) is present within the Site.
<i>Denisonia maculata</i> Ornamental Snake	V	V	Occurs in lowlands associated with the Dawson and Fitzroy catchments (DoEE 2017b). Known southerly distribution limit is approximately Lake Nuga Nuga (ALA 2017). Lives in woodland and grassland with cracking clay soils, usually in close proximity to wet or seasonally wet areas e.g. billabongs, gilgais, floodplains, riparian corridors (DoEE 2017b).	Unlikely to be present. Habitat with preferred substrate (e.g. deep cracking clay, gilgais) is absent from the Site.
<i>Egernia rugosa</i> Yakka Skink	V	V	Lives in a range of woodland and open forests dominated by <i>Eucalyptus</i> , <i>Acacia</i> and <i>Callitris</i> spp.; also grassland with regrowth trees (DoEE 2017b). Requires suitable soils for burrows or shelters in sinkholes, abandoned rabbit warrens or large fallen/piled woody material (Eddie 2012).	Unlikely to be present. Eucalypt woodland with potentially suitable burrowing substrate and shelter sites (e.g. large logs, log piles) is absent from the Site.
<i>Eelseya albagula</i> White-throated Snapping Turtle	CE	E	Occurs in the Fitzroy and Dawson River catchments where it requires permanent water in riverine environments (Limpus <i>et al.</i> 2011).	Unlikely to be present. No suitable riverine habitat is present within the Site.
<i>Furina dunmalli</i> Dunmall's Snake	V	V	Occupies woodlands and open forests; may be reliant on presence of abundant fallen woody debris (Hobson 2012).	Potentially present. Potentially suitable foraging and shelter habitat is present in remnant and regrowth REs throughout the Site.

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<i>Rheodytes leukops</i> Fitzroy River Turtle	V	V	The species is confined to the Fitzroy and Dawson River catchments where it requires permanent water in riverine environments (Limpus <i>et al.</i> 2011).	Unlikely to be present. No suitable riverine habitat is present within the Site.
<i>Strophurus taenicauda</i> Golden-tailed Gecko	-	NT	Lives in dry open forest and woodlands, especially those with well-developed shrub layer where it shelters in tree hollows and splits, and under loose bark (QMDC 2008).	Potentially present. Potentially suitable habitat with shelter sites (e.g. trees with loose bark) is present within parts of the Site.
<i>Jalmenus eubulus</i> Pale Imperial Hairstreak	-	V	Usually associated with Brigalow (<i>Acacia harpophylla</i>) open forests and woodlands (Valentine and Johnson 2012).	Potentially present. Habitat with suitable food plants (e.g. <i>Acacia harpophylla</i>) is present within the Site.