

Appendix E

MNES report – Likelihood of occurrence

Species name	EPBC Act status	NC Act status	Source	Habitat requirements	Likelihood of occurrence
Threatened ecological communities					
Poplar Box Grassy Woodland on Alluvial Plains	E	-	PMST	The TEC is typically a grassy woodland with a canopy dominated by <i>Eucalyptus populnea</i> and an understorey mostly of grasses and other herbs. The TEC is located west of the Great Dividing Range, typically less than 300 m above sea level and its broad distribution is generally located south of Charters Towers (DEE 2019).	<p>Unlikely to occur</p> <p>REs corresponding with the Poplar Box TEC were used as per Commonwealth conservation advice (including listing advice) for the Poplar Box Grassy Woodland on Alluvial Plains (DEE 2019) documentation.</p> <p>While Poplar Box TEC occurs in fragmented patches, the TEC was not recorded during field surveys and no REs diagnostic of the TEC were recorded within the Project area. Additionally, within a 2 km buffer of the Project area, no REs potentially corresponding to the Poplar Box TEC were identified within the desktop assessment. On this basis, the TEC is considered unlikely to occur.</p>
Semi-evergreen vine thickets of the Brigalow Belt (North and South) and Nandewar Bioregions – endangered.	E	-	PMST	The TEC is an extreme form of dry seasonal subtropical rainforest. The TEC occurs within subtropical areas with seasonally dry climate on high to medium fertile soils and is characterised by a prominence of trees with microphyll sized leaves and swollen-stemmed bottle trees. The TEC is scattered from Townsville to Jandowae on the Queensland/NSW border (McDonald 2010).	<p>Unlikely to occur</p> <p>REs corresponding with the TEC were used as per Commonwealth National recovery plan for the "Semi-evergreen vine thickets of the Brigalow Belt (North and South) and Nandewar Bioregions" ecological community documentation.</p> <p>The TEC was not recorded during field surveys and no REs diagnostic of the TEC were recorded within the Project area. Additionally, within a 2 km buffer of the Project area, no REs potentially corresponding to the Semi-evergreen vine thicket TEC was identified within the desktop assessment.</p> <p>While potential SEVT TEC may occur 3 km south of the Project area in suitable mapped REs, the Project area does not contain REs or vegetation that is diagnostic of either TECs. On this basis, the TEC is considered unlikely to occur.</p>
Birds					
<i>Calidris ferruginea</i> Curlew sandpiper	CE, Mig	CE	PMST	The sandpiper mainly occurs along the coastlines of Australia. They are in smaller numbers across inland water of Queensland. Known to inhabit sheltered intertidal mudflats, and ephemeral and permanent lakes and dams (Higgins and Davies 1996).	<p>Unlikely to occur</p> <p>This species has not been historically recorded from the desktop search extent. The nearest historical record is located approximately 27 km northeast of the pipeline alignment from 1971, associated with Jerona Fauna Reserve. Suitable habitat was observed to be lacking within the Project area.</p>
<i>Erythrotriorchis radiatus</i> Red goshawk	V	E	PMST	The red goshawk occurs in coastal and sub-coastal areas in wooded and forested lands of tropical and warm-temperate Australia and	<p>Unlikely to occur</p> <p>Potentially suitable habitat is present within the Project area. The closest record is approximately 55 km north-west of the pipeline alignment from 1998, associated with Bohle River tributary,</p>

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				nests in tall trees within 1 km of permanent water (DAWE 2021).	Stoney Creek west of Ross River Dam, Townsville. Based on the suitability of habitat, the species has potential to occur. However, it has experienced a recent, rapid northward contraction, and is now rarely encountered south of southern Cape York in Queensland (Garnett and Baker 2020). On this basis the species is unlikely to occur at the Project area
<i>Falco hypoleucos</i> Grey falcon	V	V	PMST	<p>The grey falcon occurs in arid and semi-arid Australia. The species is noted as being absent from east of the Great Dividing Range (TSSC 2020) and is mainly found in regions where the annual rainfall is less than 500 mm and is essentially confined to arid and semi-arid regions (TSSC 2020).</p> <p>They are an elusive species that occurs in arid to semi-arid environments in timbered lowland plains, shrublands, grasslands and open woodlands but have been observed hunting in open areas. They preference habitat with tree-lined watercourses for nesting (DAWE 2019).</p>	<p>Unlikely to occur</p> <p>The species has not been historically recorded in the desktop search extent. The species historical records are protected. According to ALA, the nearest historical record is 73 km southeast of the Project area from 1999. However this record is protected by a 10 km buffer.</p> <p>The species distribution does not encompass the Project area – indeed, the Project area is located well to the east of the Great Dividing Range where the species is noted to be absent. Additionally, BoM long-term climate statistics for the 'Burdekin Shire Council' weather station (Station 033001) report that the average annual rainfall for the region is 1056 mm – well above the 500 mm annual rainfall threshold that constrains grey falcon occurrence.</p>
<i>Geophaps scripta scripta</i> Squatter pigeon (southern)	V	V	WO	The species occurs in open-forests to sparse, open-woodlands and scrub that are dominated by <i>Eucalyptus</i> , <i>Corymbia</i> and <i>Acacia</i> or <i>Callitris</i> species, remnant and regrowth within 3 km of water (DAWE 2021).	<p>Confirmed present</p> <p>Nineteen squatter pigeon (subspecies unconfirmed) were recorded across the Project area and surrounds in open woodland to very sparse open woodland or highly disturbed pastures for cattle grazing. Although the subspecies was unable to be confirmed, and hybrids have the potential to occur, conservatively, the southern subspecies is considered 'confirmed present' for the purpose of the likelihood of occurrence.</p>
<i>Hirundapus caudacutus</i> White-throated needletail	V, Mig	V	PMST, WO	Almost exclusively aerial, it does prefer wooded, inland areas and heathland. In coastal areas they have been seen flying over mudflats and beaches. Widespread throughout eastern and south-eastern Australia. It has been recorded along all coastal regions of QLD and NSW (DAWE 2021).	<p>Likely to occur</p> <p>According to ALA, the species has been historically recorded in the desktop search extent, approximately 4 km east of the Project area from 1969. The species has potential to forage aerially across the Project area.</p>
<i>Neochmia ruficauda ruficauda</i> Star finch (eastern)	E	E	PMST	The star finch (eastern, southern) occurs in central Queensland including the Burdekin natural resource management region. The subspecies occurs in damp grasslands,	<p>Unlikely to occur</p> <p>The star finch (eastern, southern) has not been historically recorded in the desktop search extent. The closest records are near the Ross River Dam approximately 60 km north-west of the northernmost area of the pipeline alignment from 1986,</p>

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				sedgelands or grassy woodlands near permanent water (DAWE 2021).	associated with remnant vegetation (RE 9.12.22/9.12.34). Limited suitable habitat was present in the north of the Project area. This bird is extremely uncommon in central Queensland, and may now be regionally extinct (Ward et al. 2022).
<i>Numenius madagascariensis</i> Eastern curlew	CE, Mig	E	PMST	The eastern curlew primarily occurs coastally and is rarely recorded inland. During the non-breeding season in Australia, the species is commonly associated with sheltered coasts, mudflats and sandflats (DoE 2015a).	Unlikely to occur The species has not been historically recorded in the desktop search extent. The closest record is approximately 16-20 km northwest of the Project area from 2008 to 2021, adjacent to the Haughton River and within Horseshoe Lagoon Conservation Park and next to Ironbark Creek and Haughton River. No suitable habitat was observed across the Project area.
<i>Poephila cincta cincta</i> Black-throated finch (southern)	E	E	PMST, WO	The black-throated finch (southern) is distributed across central Queensland with known populations near Townsville-Charters Towers. The species inhabits grassy woodland dominated by eucalypts, paperbarks or acacias, where there is access to seeding grasses and water (Black-throated Finch Recovery Team 2007).	Confirmed present Two individuals were observed in very sparse open woodland.
<i>Rostratula australis</i> Australian painted snipe	E	E	PMST	The species generally inhabits shallow terrestrial freshwater (occasionally brackish) wetlands, including temporary and permanent lakes, swamps, claypans and waterlogged grasslands (DAWE 2021).	Unlikely occur The species has not been historically recorded within the desktop search extent. The nearest historical record is located approximately 18 km east of the pipeline alignment from 1972, associated with what is now non-remnant agricultural land, adjacent to the Burdekin River. Suitable habitat was observed to be lacking in the Project area.
<i>Turnix olivii</i> Buff-breasted button-quail	E	E	PMST	The buff-breasted button-quail occurs in north-eastern Queensland, with records ranging from the Iron Range to Ingham. The species occurs in patches of short and sparse grassland, on a terrain of small stones, often on lower slopes of hills and ridges, and in open glades amongst <i>Melaleuca</i> , <i>Acacia</i> , <i>Alphitonia</i> or <i>Tristania</i> in rainforest or open <i>Eucalyptus</i> woodland (DAWE 2021).	Unlikely to occur The species has not been historically recorded within the desktop search extent. The DES species records are protected from public access. According to ALA, the nearest historical record is located approximately 300 km north near Innisfail, this record is protected by a 10 km buffer. The species has not been definitively recorded in recent years. It is one the least known birds in Australia and has only been recorded in the Iron Range. No suitable habitat was observed in the Project area.
<i>Tyto novaehollandiae kimberli</i>	V	V	PMST	The masked owl (northern) occurs from Cape York Peninsula south to Einasleigh-Burdekin divide. The species has been recorded from riparian forest, rainforest, open forest, <i>Melaleuca</i> swamps and the edges of	Unlikely to occur The species has not been historically recorded within the desktop search extent. The nearest historical record is located

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Masked owl (northern)				mangroves, as well as along the margins of sugar cane fields (DAWE 2021).	approximately 54 km northwest from 1991, at Hervey's Range, Townsville. No suitable habitat was observed in the Project area.
Mammals					
<i>Dasyurus hallucatus</i> Northern quoll	E	LC	PMST, WO	The northern quoll occurs north to Weipa, south to Maleny and west to Carnarvon National Park. The species occurs across a range of habitats including rocky areas, eucalypt forest and woodlands, rainforests, sandy lowlands, beaches, grasslands and desert. Their habitat generally includes rocky areas for denning purposes (DAWE 2021).	Unlikely to occur Two records of the species have been historically recorded within the desktop search extent. Biomaps indicated one record was from 1973 associated with Bowling Green Bay National Park (30 km north of the Project area). The second record was from 1993 associated with grazing/agricultural land to the north-west of the Project area near Wangaratta, Queensland. The Project area is situated in a flat alluvial landscape with the southern extent of the alignment approximately 2 km from hilly terrain to the west. There is insufficient connectivity from shelter habitat to foraging/dispersal habitat within the Project area. Therefore, the species is considered unlikely to occur within the Project area.
<i>Hipposideros semoni</i> Semon's leaf-nosed bat	V	E	PMST	The Semon's leaf-nosed bat occurs in its northern distribution from Cape York to south of Cooktown. Records of the species are also located on Mt Windsor Tableland and nearby Gladstone. The species is found in tropical rainforest, monsoon forest, wet sclerophyll forest and open savannah woodland. The species roosts in caves, mines, tree hollows and deserted buildings. It may share roosts on occasions with the Large-eared horseshoe bat, (<i>Rhinolophus philippinensis</i>) (DAWE 2021).	Unlikely to occur The species has not been historically recorded in the desktop search extent, DAWE note that an apparent record from Townsville is incorrect, as the specimen was collected from Cape Direction near Iron Range (DAWE 2021). The nearest historical records of the species are located in a cluster near Cooktown, approximately 500 km north of the pipeline alignment. These records were recorded between 1996 and 2016. Suitable habitat is present for the species with the presence of open woodland and hollow-bearing trees, however based on the distance to historical records, the species is considered unlikely to occur.
<i>Macroderma gigas</i> Ghost bat	V	E	PMST	The ghost bat occurs discontinuously with geographically disjunct colonies. The species' Queensland occurrence includes the Gulf of Carpentaria, from Cape York to Rockhampton, and western Queensland. The species roosts in deep natural caves or disused mines. The species occurs in habitats ranging from arid Australian locations to tropical savanna woodlands and rainforests (DAWE 2021).	May occur The species has not been historically recorded within the desktop search extent. The nearest historical record is located approximately 24 km northeast of the pipeline alignment from 2019 near Palm Creek. Although suitable foraging habitat was observed in the Project area, the species is known to forage on average within 1.9 km and typically less than 5 km from diurnal roosts (TSSC 2016a). The closest known roost is Cape Hillsborough (220 km southeast) (TSSC 2016a), although noting closer records indicate other roosts are likely to occur in the Lower Burdekin region. Given the presence of suitable foraging habitat, the species may occur.

Species name	EPBC Act status	NC Act status	Source	Habitat requirements	Likelihood of occurrence
<i>Phascolarctos cinereus</i> Koala	E	V	PMST, WO	In the region, the koala occurs through the Brigalow Belt North bioregion and Einasleigh Uplands bioregion. Throughout the species' range, koalas inhabit moist forests and woodlands mostly dominated by <i>Eucalyptus</i> species, and are also found in vegetation communities dominated by <i>Melaleuca</i> or <i>Casuarina</i> species (DAWE 2021).	Likely to occur The species has been historically recorded in the Project area. One record of the species is located approximately 2 km southwest of the pipeline alignment from 1987. Essential habitat for the koala is associated with this record. Suitable habitat was observed during the field survey, accordingly the species is considered likely to occur in low densities
<i>Rhinolophus robertsi</i> Large-eared horseshoe bat	V	E	PMST	The large-eared horseshoe bat occurs in north-eastern Queensland, from the tip of Cape York Peninsula to as far south as Townsville (Kutt 2005; Pavey and Kutt 2008 cited in TSSC 2016b). The species is found in lowland rainforest, forest-lined creeks within open eucalypt forest, <i>Melaleuca</i> forest with rainforest understorey, open savannah woodland and tall riparian woodland (Churchill 2009; Pavey and Kutt 2008 cited in DAWE 2021). Daytime roosting habitat includes caves, underground mines located in rainforest, and open eucalypt forest and woodland. Roosts have also been observed in road culverts, and it is suspected that the species uses basal hollows of large trees, dense vegetation, rockpiles and areas beneath creekbanks (DAWE 2021).	May occur The species has not been historically recorded within the desktop search extent. The DES historical records are protected from public access. According to ALA, the nearest historical record is located approximately 300 km north of the pipeline alignment near Millaa Millaa from 2019. Potentially suitable roosting habitat was observed in the Project area in the form of tree hollows. Given the presence of suitable foraging and roosting habitat, the species may occur.
<i>Saccolaimus saccolaimus nudicluniatus</i> Bare-rumped sheath-tail bat	V	E	PMST	In Queensland, the species is known to occur from Ayr to the Iron Ranges (TSSC 2016c). Most historical records have been near-coastal locations. In Queensland, the species is known to be associated with coastal lowland rainforests, as well as open forests dominated by <i>Eucalyptus</i> or <i>Corymbia</i> species intermingled with coastal lowland rainforest. The species has been recorded using deep hollows for roosting and breeding (TSSC 2016c).	Confirmed present The species was confirmed present. Anabats recorded 168 calls which were reliably attributed to the species. Suitable habitat was also observed during the field survey.
<i>Xeromys myoides</i> Water mouse	V	V	PMST	The water mouse occurs across an extensive range in coastal and near-coastal south-east and south-central Queensland (TSSC 2021). The species occurs in aquatic environments	Unlikely to occur The species has not been historically recorded in the Project area. The nearest historical record is located approximately 155 km southeast, from 2017 at Waite Creek Cannonvale. No

Species name	EPBC Act status	NC Act status	Source	Habitat requirements	Likelihood of occurrence
				including mangroves and the associated saltmarsh, sedgelands, clay pans, heathlands and freshwater wetlands (TSSC 2021).	suitable habitat was observed during the field survey, accordingly the species is unlikely to occur
Reptiles					
<i>Denisonia maculata</i> Ornamental snake	V	V	PMST	The ornamental snake is only known from the Brigalow Belt North and South bioregions. In the region, the species is known to occur in the Charters Towers area. The species' preferred habitat is close to that favoured by its prey – frogs. This includes woodlands and open forests associated with gilgai mounds and depressions in RE landzone 4. The species is likely to be found in association with <i>Acacia harpophylla</i> , <i>Acacia cambagei</i> , <i>Acacia argyrodendron</i> or <i>Eucalyptus coolabah</i> (DAWE 2021).	Unlikely to occur The species has not been historically recorded within the desktop search extent. The nearest historical record is located approximately 133 km southwest near Campaspe, along the Campaspe River in Wambiana Station from 2012 and 2013. No suitable habitat was observed in the Project area. Accordingly, the species is considered unlikely to occur.
<i>Egernia rugosa</i> Yakka skink	V	V	PMST	In the region, the yakka skink occurs in the Brigalow Belt North and Einasleigh Upland Bioregions. This species typically inhabits open dry sclerophyll forest, woodland and scrub. The species is typically found under partly buried rocks, logs, tree stumps, root cavities and abandoned burrows (DAWE 2021; DoE 2014b).	May occur The species has not been historically recorded within the desktop search extent. The DES historical records are protected from public access. According to ALA the nearest historical record is approximately 75 km southwest of the pipeline alignment from 1980, this record is protected by a 10 km buffer. Habitat of limited suitability was observed in the Project area. Accordingly, the species is considered to have a remote chance of occurring within the Project area.
<i>Lerista vittate</i> Mount Cooper striped lerista	V	V	PMST	The Mount Cooper striped skink occurs in the Mount Cooper area with a second population potentially occurring on the Chudleigh Plateau. The species inhabits ironbark (<i>E. crebra</i> , <i>E. melanophloia</i>) and bloodwood (<i>C. clarksoniana</i> , <i>C. intermedia</i>) dominated woodland with shrub and/or grassy ground layers on deep red earth (RE11.5.9), undulating plains and steep hills (RE9.12.1a), Semi-evergreen vine thicket TEC (RE11.5.15) and spinifex communities (DAWE 2021). The species is typically found under leaf litter, loose soil under logs and inside rotten logs (DAWE 2021).	May occur The species has not been historically recorded within the desktop search extent. The nearest historical records are approximately 73 km southwest of the pipeline alignment in a cluster at Mount Cooper station from 1980 to 1993. Habitat of limited suitability was observed in the Project area. On the basis of potentially suitable habitat, the species has a remote chance of occurring within the Project area.
Plants					

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<i>Bulbophyllum globuliforme</i> Miniature moss-orchid	V	NT	PMST	The miniature moss-orchid is a host-specific species, and only grows on the hoop Pine (<i>Araucaria cunninghamii</i>), where it colonises the upper branches of mature trees (Jones 2006 cited DAWE 2021). The hoop pine occurs in upland (usually 100-900 m above sea level) (Jones 2006 cited DAWE 2021) subtropical rainforest communities that have a discontinuous distribution along the Australian east coast (NSW OEH 2012o, cited DAWE 2021).	Unlikely to occur The species has not been historically recorded within the desktop search extent. No hoop pines were recorded within the Project area or historically recorded within the desktop search extent. The DES records are protected from public access. According to ALA the species has been historically recorded near Gladstone. and the Gold Coast. Accordingly, the species is considered unlikely to occur.
<i>Dichanthium setosum</i> Bluegrass	V	LC	PMST	<i>Dichanthium setosum</i> has been reported from inland NSW and Queensland. Recorded on heavy basaltic black soils and red-brown loams with clay subsoil. <i>Dichanthium setosum</i> is often found in moderately disturbed areas such as cleared woodland, grassy roadside remnants and highly disturbed pasture (DAWE 2021).	Unlikely to occur Although suitable habitat was observed in the Project area, the species has not been historically recorded within the desktop search extent. The nearest record is located approximately 200 km southeast of the pipeline alignment, near Homevale National Park from 2006. Accordingly, the species is considered unlikely to occur.
<i>Eucalyptus raveretiana</i> Black ironbox	V	LC	PMST, WO	<i>Eucalyptus raveretiana</i> is found in the region between Ayr in the north to Rockhampton in the south, and inland to Nebo. The species is generally restricted to the riparian zone of watercourses (i.e. below the high bank), growing in loams and clay soils between altitudes of 0 – 300 m. It is usually co-dominant or sub-dominant with species such as <i>M. leucadendra</i> , <i>M.a fluviatilis</i> , <i>E. tereticornis</i> and <i>C. tessellaris</i> (DAWE 2021).	Confirmed present 13 individuals were recorded along the lower terrace and lower bank of the Burdekin River.
<i>Leichhardtia brevifolia</i> Previously listed as <i>Marsdenia brevifolia</i>	V	V	PMST	<i>Leichhardtia brevifolia</i> occurs in north and central Queensland where it is known from near Townsville, Springsure and north of Rockhampton. At Hidden Valley near Paluma, plants grow in woodland on granite soils dominated by <i>E. granitica</i> , <i>C. leichhardtii</i> and <i>E. acmenoides</i> (DAWE 2021).	Unlikely to occur The species has not been historically recorded within the desktop search extent. According to DES the nearest historical record is approximately 50 km northwest of the pipeline alignment from 1996 near Peach Hollow Knobs. No suitable habitat was observed in the Project area.
<i>Omphalea celata</i>	V	V	PMST	<i>Omphalea celata</i> is a small tree growing to 12 m. This species occurs within the Burdekin and Fitzroy (Queensland) Natural Resource Management Regions. The species is known from three sites in central east Queensland, including near Eungella, Bowen and Nebo. The	Unlikely to occur The species has not been historically recorded within the desktop search extent. The nearest historical records are located 195 km southeast of the Project area, from 1973 to 2007 from Hazlewood

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				species is known to occur in semi-evergreen vine thicket TEC and Araucaria microphyll vine forest (DEWHA 2008).	Gorge, Eungella Dam. No suitable habitat was observed in the Project area.
<i>Tephrosia leveillei</i>	V	LC	PMST	<i>Tephrosia leveillei</i> is known to occur in six locations in Queensland, including near Ravenswood. The species has been recorded in <i>Eucalyptus</i> and <i>Corymbia</i> woodland and tall open forest (DAWE 2021).	May occur The species has not been historically recorded within the desktop search extent. According to ALA, the species has been recorded near the Undara Volcanic National Park 310 km northwest of the pipeline alignment from 2008. Suitable habitat was observed in the Project area.
Fish					
<i>Pristis pristis</i> Freshwater sawfish	V, Mig	LC	PMST	The species is known from several drainages in Queensland, including the Gilbert River, Mitchell River, Norman River and Leichhardt River. Juveniles and sub-adult Freshwater Sawfish predominantly occur in rivers and estuaries, while large mature animals tend to occur more often in coastal and offshore waters up to 25 m depth. They are usually found in turbid channels of large rivers over soft mud bottoms (DAWE 2021).	Unlikely to occur The species has not been historically recorded within the desktop search extent. Suitable habitat was only observed adjacent to the Project area. The species has been historically recorded 43 km northwest of the Project area at the mouth of the Burdekin River from 1936. The nearest historical record is located 470 km northwest of the pipeline alignment from Lynd river junction from 1845.

Notes:

NC Act: LC (Least Concern), SL (Special Least Concern), NT (Near Threatened), V (Vulnerable), E (Endangered), CR (Critically Endangered)

EPBC Act: V (Vulnerable), E (Endangered), CE (Critically Endangered)

WO (Wildlife Online), PMST (DAWE Protected Matters Search Tool)