

ATTACHMENT D: ASSESSMENT OF LIKELIHOOD OF OCCURRENCE

A list of threatened species, populations and ecological communities listed under the EPBC Act that have been reported or modelled to occur from within a 5-kilometre radius of the Study Area was obtained from the following databases:

- The NSW DPIE BioNet Atlas of NSW (<http://www.bionet.nsw.gov.au/>). Accessed on 24/08/2021.
- The NSW DPIE Threatened Biodiversity Data Collection (TBDC).
- The DAWE Protected Matters Search Tool (PMST) for Matters of National Environmental Significance (MNES) (<http://www.environment.gov.au/epbc/pmst/>). Accessed on 10/02/2022.

Table 1 summarises the likelihood of matters listed EPBC Act occurring within the Study Area based on the habitat requirements of each community, population or species. A brief definition of the likelihood of occurrence criteria is provided below:

- Known – species identified within the site during surveys.
- High – species known from the area, suitable habitat (such as roosting and foraging habitat) present.
- Moderate – species may be known from the area; potential habitat is present.
- Low – species not known from the area and/or marginal habitat is present within the site.
- Nil – habitat requirements not met for this species within the site.
 - The database searches identified a total of 19 threatened flora, five threatened ecological communities, 20 threatened fauna and 38 migratory species (and/or their habitats) listed under the EPBC Act that were recorded or modelled to occur within a 5 km radius of the Study Area. In addition, five listed Threatened Ecological Communities were modelled to likely to occur within the locality. Note that pelagic and marine species were excluded from the Likelihood of Occurrence assessment.
 - The PMST search also indicated that the MOD10 Development Site is within 10kms of the Myall Lakes Ramsar site. KEQ is approximately 7kms from the western portion of the Myall Lakes Ramsar site (part of Gir-um-bit National Park at Fame Point). The Fame

Point portion of the Myall Lakes Ramsar Wetland is a small area in the estuarine part of the Karuah River Catchment while the much larger expanse of the Myall Lakes Ramsar site is located beyond 10kms from KEQ. The Fame Point portion of the Myall Lakes Ramsar site is categorised as Group 1: *Marine Coast* and Group 2: *Mangroves and intertidal flats* within the Myall Lakes Ramsar Site Ecological Character Description (OEH 2012). The Myall Lakes Ramsar site also contains a variety of terrestrial habitats and ecosystems that provide a buffer around wetlands and vegetation corridors. Given the nature of the proposed action and the distance to the Fame Point portion of the Myall Lakes Ramsar site, no indirect impacts are expected. In addition, mitigation measures further reduce the potential for indirect impacts including the implementation and update (in consideration of MOD 10) to the Water management Plan and Erosion & Sediment Control Plan for KEQ. As such, referral of impacts regarding the Myall Lakes Ramsar site was not considered necessary.

Table 1: EPBC Act listed species likelihood of occurrence

Species	Legal Status*		No. records (5 km)	Source [#]	Habitat Preferences	Likelihood of occurrence	Assessment Required?
	BC Act	EPBC Act					
Flora							
<i>Angophora inopina</i> Charmhaven Apple	V	V	2	BioNet Atlas, PMST	It is generally found growing in open dry sclerophyll woodland in association with <i>Eucalyptus haemastoma</i> and <i>Corymbia gummifera</i> and with a dense shrub understorey occurring on deep white sandy soils over sandstone and often accompanied with gravelly laterite. Potentially suitable habitat within the Study Area. A large number of database records within the area. Targeted survey did not identify <i>Angophora inopina</i> within the Development or the Study Area.	Low	No
<i>Arthraxon hispidus</i> Hairy-joint Grass	V	V	-	PMST	Occurs over a wide area in south-east Queensland, and on the northern tablelands and north coast of NSW but is never common. Moisture and shade-loving grass, found in or on the edges of rainforest and in wet eucalypt forest, often near creeks or swamps. No suitable habitat within the Development Site.	Nil	No
<i>Asperula asthenes</i> Trailing Woodruff	V	V	25	BioNet Atlas, PMST	Occurs in damp sites, often along riverbanks. Potential habitat within the Development Site. This species has been previously identified within the Biodiversity Offset Area (2012) to the north of the Study Area. Targeted survey did not identify <i>Asperula asthenes</i> within the Development or the Study Area.	Moderate	Yes
<i>Cryptostylis hunteriana</i> Leafless Tongue-orchid	V	V	-	PMST	In New South Wales the species occupies a variety of habitats, ranging from scrubby swamp fringes to steep bare hillsides in tall eucalypt forest. The species grows most often on the flat plains close to the coast,	Low	No

Species	Legal Status*		No. records (5 km)	Source [#]	Habitat Preferences	Likelihood of occurrence	Assessment Required?
	BC Act	EPBC Act					
					favouring moist soils. Associated with <i>Corymbia gummifera</i> , <i>Eucalyptus sclerophylla</i> and <i>E. sieberi</i> . Marginal habitat within the Development Site. Low number of database records within the locality (Bundabah, Lemon Tree Passage and Nelson Bay, typically within 1km of the coast margin). No records in proximity to the Development Site.		
<i>Cynanchum elegans</i> White-flowered Wax Plant	E	E	-	PMST	Occurs on the edge of dry rainforest vegetation. Other associated vegetation types include littoral rainforest; Coastal Tea-tree <i>Leptospermum laevigatum</i> – Coastal Banksia (<i>Banksia integrifolia</i> subsp. <i>integrifolia</i>) coastal scrub; Forest Red Gum <i>Eucalyptus tereticornis</i> aligned open forest and woodland; Spotted Gum <i>Corymbia maculata</i> aligned open forest and woodland; and Bracelet Honey Myrtle (<i>Melaleuca armillaris</i>) scrub to open scrub. Marginally suitable habitat present within the Development Site. No database records within locality.	Low	No
<i>Diuris praecox</i> Rough Doubletail	V	V	-	Previously considered (RPS, 2013; ELA, 2014)	Grows on hills and slopes of near-coastal districts in open forests which have a grassy to fairly dense understorey. Marginal habitat within the Development Site. Species not detected during targeted field surveys during August 2018 and August 2020.	Low	No
<i>Eucalyptus glaucina</i> Slaty Red Gum	V	V	-	PMST	Observed in a variety of habitats: shallow soils or stony hillsides, but not on poor sandstones; grassy woodlands on deep, moderately fertile and well-watered soil; gentle slopes near drainage lines in alluvial and clayey soils. Associated with the following vegetation classes: Hunter-Macleay Dry Sclerophyll	Low	No

Species	Legal Status*		No. records (5 km)	Source [#]	Habitat Preferences	Likelihood of occurrence	Assessment Required?
	BC Act	EPBC Act					
					Forests; Northern Gorge Dry Sclerophyll Forests; North Coast Dry Sclerophyll Forests; Sydney Sand Flats Dry Sclerophyll Forests; Western Slopes Grasslands; Coastal Valley Grassy Woodlands; Northern Hinterland Wet Sclerophyll Forests; North Coast Wet Sclerophyll Forests. Potentially suitable habitat present within the study area. No known records within the locality.		
<i>Eucalyptus parramattensis</i> subsp. <i>decadens</i> Earp's Gum	V	V	-	PMST	Occurs in low-lying, often swampy areas and in woodlands with associates such as <i>Eucalyptus racemosa</i> , <i>E. globoidea</i> and <i>Angophora bakeri</i> on poor sandy soils. Unsuitable habitat within the Development Site. Species not detected during field surveys.	Nil	No
<i>Euphrasia arguta</i>	CE	CE	-	PMST	Occurs in 'in the open forest country around Bathurst in sub humid places', 'on the grassy country near Bathurst', and 'in meadows near rivers'. Unsuitable habitat within the Development Site. Species not detected during field surveys.	Nil	No
<i>Genoplesium littorale</i> Tuncurry Midge Orchid	CE	CE	1	BioNet Atlas	Grows in coastal heath close to the ocean in deep, well-drained sandy soils. The vegetation consists of a variety of shrub species such as <i>Leptospermum laevigatum</i> , <i>Monotoca elliptica</i> , <i>Ochrosperma lineare</i> and <i>Banksia</i> spp. Lichens and various graminoids are often present alongside the orchids. Unsuitable habitat within the Development Site. However, one database record occurs within proximity to the Development Site.	Low	No

Species	Legal Status*		No. records (5 km)	Source#	Habitat Preferences	Likelihood of occurrence	Assessment Required?
	BC Act	EPBC Act					
<i>Grevillea parviflora</i> subsp. <i>parviflora</i> Small-flower Grevillea	V	V	26	BioNet Atlas, PMST	The species occurs in heath and shrubby woodland, in sandy or lightly clay soils usually over thin shales. Suitable habitat within the Development Site. High number of database records with some occurring in proximity to the Development Site.	Known	Yes
<i>Melaleuca biconvexa</i> Biconvex Paperbark	V	V	-	PMST	The species is most commonly found in damp places, often near streams or low-lying areas on alluvial soils of low slopes or sheltered aspects, along freshwater watercourses and in association with <i>Eucalyptus saligna</i> (Sydney Bluegum) or <i>Eucalyptus robusta</i> (Swamp Mahogany). Unsuitable habitat within the Development Site. Species not detected during field surveys.	Nil	No
<i>Persicaria elatior</i> Tall Knotweed	V	V	-	PMST	This species normally grows in damp places, especially beside streams and lakes. Occasionally in swamp forest or associated with disturbance. No suitable habitat within the Development Site. No database records within the locality.	Nil	No
<i>Rhizanthella slateri</i> Eastern Underground Orchid	V	E	-	PMST	Habitat requirements are poorly understood, and no particular vegetation type has been associated with the species, although it is known to occur in sclerophyll forest. Marginal Habitat within the Development Site due to broad habitat description. No database records within the locality and not detected during targeted searches.	Low	No
<i>Rhodamnia rubescens</i> Scrub Turpentine	-	E	6	BioNet Atlas	Often found in wet sclerophyll associations in rainforest transition zones and creekside riparian vegetation. The species occupies a range of volcanically derived and sedimentary soils and is also a common pioneer species in eucalypt forests.	Low	No

Species	Legal Status*		No. records (5 km)	Source [#]	Habitat Preferences	Likelihood of occurrence	Assessment Required?
	BC Act	EPBC Act					
					Potentially suitable habitat within the Development Site. Low number of database records, all of which are in proximity to the Development Site.		
<i>Rhodymyrtus psidioides</i> Native Guava	CE	CE	-	PMST	Found in littoral, warm temperate and subtropical rainforest and wet sclerophyll forest often near creeks and drainage lines. Unsuitable habitat. No database records within the locality.	Low	No
<i>Syzygium paniculatum</i> Magenta Lilly Pilly	E	V	7	BioNet Atlas, PMST	Occurs on gravels, sands, silts and clays in riverside gallery rainforests and remnant littoral rainforest communities. Potentially suitable habitat within the Development Site. Low number of database records, none of which occur in proximity to the Development Site.	Low	No
<i>Tetradlea juncea</i> Black-eyed Susan	V	V	69	BioNet Atlas, PMST	Grows in sandy, occasionally swampy heath and in dry sclerophyll forest; chiefly in coastal districts from Bulahdelah to Lake Macquarie. Suitable habitat within the Development Site. Species identified within the Development Site.	Known	Yes
<i>Thesium australe</i> Austral Toadflax	V	V	-	PMST	Occurs in grassland on coastal headlands or grassland and grassy woodland away from the coast. Often found in association with Kangaroo Grass (<i>Themeda australis</i>). Marginal habitat within the Development Site. Species not known from the locality.	Low	No
Ecological Communities							
<i>Coastal Swamp Oak</i> (<i>Casuarina glauca</i>) Forest of New South	-	E	-	PMST	Not present within the Development Site.	Nil	No

Species	Legal Status*		No. records (5 km)	Source [#]	Habitat Preferences	Likelihood of occurrence	Assessment Required?
	BC Act	EPBC Act					
<i>Wales and South East Queensland ecological community</i>							
<i>Coastal Swamp Sclerophyll Forest of New South Wales and South East Queensland</i>	-	E	-	PMST	Not present within the Development Site.	Nil	No
<i>Lowland Rainforest of Subtropical Australia</i>	E	CE	-	PMST	Not present within the Development Site.	Nil	No
<i>Posidonia australis seagrass meadows of the Manning-Hawkesbury ecoregion</i>	-	E	-	PMST	Not present within the Development Site.	Nil	No
<i>Subtropical and Temperate Coastal Saltmarsh</i>	E	V	-	PMST	Not present within the Development Site.	Nil	No
Amphibians							
<i>Litoria aurea</i> Green and Golden Bell Frog	E	V	-	PMST	This species prefers open water bodies, fringed by reeds and other aquatic vegetation for breeding and foraging purposes. Needs fallen logs and debris for shelter and over-wintering purposes. No suitable habitat within the Development Site. Dams lack emergent vegetation and are highly turbid from runoff. Species not known from the locality.	Nil	No
<i>Mixophyes balbus</i> Stuttering Frog	E	V	-	PMST	Found in rainforest and wet, tall open forest in the foothills and escarpment on the eastern side of the Great Dividing Range.	Nil	No

Species	Legal Status*		No. records (5 km)	Source [#]	Habitat Preferences	Likelihood of occurrence	Assessment Required?
	BC Act	EPBC Act					
					No suitable habitat within the Development Site. Second order stream does not support deep pools, riffle zones or rocky margins. Species not known from the locality.		
<i>Uperoleia mahonyi</i> Mahony's Toadlet	E	E	-	PMST	Inhabits ephemeral and semi-permanent swamps and swales on the coastal fringe of its range. Known records occur in heath or wallum habitats almost exclusively associated with leached (highly nutrient impoverished) white sand. Commonly associated with acid paperbark swamps, Mahony's Toadlet also is known to occur in wallum heath, swamp mahogany-paperbark swamp forest, heath shrubland and Sydney red gum woodland. No suitable habitat within Development Site. No database records.	Nil	No
Birds							
<i>Anthochaera phrygia</i> Regent Honeyeater	CE	CE	-	PMST	Mostly recorded in box-ironbark eucalypt associations. At times of food shortage, the species also uses other woodland types and wet lowland coastal forest dominated by Swamp Mahogany or Spotted Gum. Potential foraging habitat within the Development Site during times of food shortage, particularly due to presence of Spotted Gums. Closest record is at Tanilba Bay, over 10 kms from the site.	Low	No
<i>Botaurus poiciloptilus</i> Australasian Bittern	E	E	-	PMST	Favours permanent freshwater wetlands with tall, dense vegetation, particularly bullrushes (<i>Typha sp.</i>) and spikerushes (<i>Eleocharis sp.</i>). Hides during the day amongst dense reeds or rushes and feed mainly at night on frogs, fish, yabbies, spiders, insects and snails.	Nil	No

Species	Legal Status*		No. records (5 km)	Source [#]	Habitat Preferences	Likelihood of occurrence	Assessment Required?
	BC Act	EPBC Act					
					No suitable habitat within the Development Site. Species not known from the locality.		
<i>Erythrotriorchis radiatus</i> Red Goshawk	CE	V	-	PMST	Occurs in tropical and warm-temperate woodlands and forests. Mostly occurs in northern Australia with populations also occurring in the southeast of QLD and northeast of NSW. No suitable habitat within the Development Site. Not known from locality.	Nil	No
<i>Falco hypoleucos</i> Grey Falcon	V	V	-	PMST	Usually restricted to shrubland, grassland and wooded watercourses of arid and semi-arid regions, although it is occasionally found in open woodlands near the coast. No suitable habitat within the Development Site. Not known from locality.	Nil	No
<i>Grantiella picta</i> Painted Honeyeater	V	V	-	PMST	Inhabits <i>Acacia pendula</i> , <i>Acacia harpophylla</i> , Box-Gum Woodlands and Box-Ironbark Forests. Feeds on the fruits of mistletoes growing on woodland eucalyptus and acacia. No suitable habitat within the Development Site. Species not known from the locality.	Nil	No
<i>Hirundapus caudacutus</i> White-throated Needletail	-	M	1	BioNet Atlas, PMST	Forages in high open spaces over varied habitat types although probably recorded most often above wooded or partly wooded areas, including open forest and rainforest, and may also fly between trees or in clearings. May aerially forage over the Development Site. Low number of database records. Low potential of impact on breeding habitat	Moderate	Yes
<i>Lathamus discolor</i> Swift Parrot	E	E, M	9	BioNet Atlas, PMST	This migratory species has been recorded on the mainland from a variety of habitat types including dry and wet sclerophyll forest, forested wetlands, coastal	Low	No

Species	Legal Status*		No. records (5 km)	Source#	Habitat Preferences	Likelihood of occurrence	Assessment Required?
	BC Act	EPBC Act					
					swamp forests and heathlands. Known to use <i>E. pilularis</i> . This species breeds in Tasmania. Potential foraging habitat within the Development Site. No breeding habitat within the Development Site.		
<i>Rostratula australis</i> Australian Painted Snipe	E	E	-	PMST	Prefers fringes of swamps, dams and nearby marshy areas where there is a cover of grasses, lignum, low scrub or open timber. Nests on the ground amongst tall vegetation, such as grasses, tussocks or reeds. No suitable habitat within the Development Site.	Nil	No
Mammals							
<i>Chalinolobus dwyeri</i> Large-eared Pied Bat	V	V	-	PMST	Occurs in dry open forest, open woodland, mulga woodlands, chenopod shrublands, cypress pine forest and mallee and Bimbil box woodlands. Roosts in caves, rock outcrops, mine shafts, tunnels, tree hollows and buildings. Potentially suitable foraging habitat within the Development Site. No breeding/roosting habitat (caves or tunnels) within Study Area (or within 2kms of site). Low number of database records.	Low	No
<i>Dasyurus maculatus</i> Spotted-tailed Quoll	V	E	4	BioNet Atlas, PMST	Recorded across a range of habitat types, including rainforest, open forest, woodland, coastal heath and inland riparian forest, from the sub-alpine zone to the coastline. Potential foraging habitat within the Development Site due to close proximity to larger tracts of forest. No breeding habitat due to a general lack of hollows and absence of caves within Study Area (or within 2kms of site). Low number of database records.	Low	No

Species	Legal Status*		No. records (5 km)	Source [#]	Habitat Preferences	Likelihood of occurrence	Assessment Required?
	BC Act	EPBC Act					
<i>Petrogale penicillata</i> Brush-tailed Rock-wallaby	E	V	-	PMST	Occupies rocky escarpments, outcrops and cliffs with a preference for complex structures with fissures, caves and ledges, often facing north. No suitable habitat within the study area. No caves or rocky outcrops within 2kms of site.	Nil	No
<i>Petauroides volans</i> Greater Glider	-	V	1	BioNet Atlas, PMST	Open woodland and tall remnant forests where there is suitable eucalypt trees. Rests in hollow trees during the day and feeds at night. Presence and density of Greater Gliders is related to soil fertility, eucalypt tree species, disturbance history and density of suitable tree hollows. Suitable foraging and roosting habitat within the Development Site. Typically prefers high-quality remnant vegetation, as indicated by the high number of records from the Myall River State Forest to the north-east. Only one database record within the locality, approximately 4.5km from the Development Site in 2018.	Low	No
<i>Phascolarctos cinereus</i> Koala	V	E	49	BioNet Atlas, PMST	Found in a variety of forest types with suitable feed tree species. Feeds on the foliage of more than 70 eucalypt species and 30 non-eucalypt species, but in any one area will select preferred browse species. Suitable habitat present within the Development Site due to presence of preferred feed tree species <i>Eucalyptus punctata</i> and <i>Eucalyptus microcorys</i>. Large number of database records. Some recent records within proximity to the Development Site.	Moderate	Yes
<i>Potorous tridactylus</i>	V	V	1	BioNet Atlas, PMST	Inhabits coastal heaths and dry and wet sclerophyll forests. Dense understorey with occasional open areas is an essential part of habitat, and may consist of grass-trees, sedges, ferns or heath, or of low shrubs of tea-	Low	No

Species	Legal Status*		No. records (5 km)	Source [#]	Habitat Preferences	Likelihood of occurrence	Assessment Required?
	BC Act	EPBC Act					
Long-nosed Potoroo (SE Mainland Population)					trees or melaleucas. A sandy loam soil is also a common feature. Potential habitat within the Development Site due to dense understorey and vegetation types present. One record occurs to the west of the Study Area; however, this is from 1998. It is anticipated that recent survey would have identified the species.		
<i>Pseudomys novaehollandiae</i> New Holland Mouse	-	V	-	PMST	Inhabits open heathlands, open woodlands with a heathland understorey, and vegetated sand dunes. No suitable habitat within the Development Site.	Nil	No
<i>Pteropus poliocephalus</i> Grey-headed Flying-fox	V	V	3	BioNet Atlas, PMST	Occurs across a wide range of habitat types along the eastern seaboard of Australia, depending on food availability. Fruit from myrtaceous trees and rainforest trees form the major components of their diet. Suitable foraging habitat present across the Development Site when Eucalypt species are in flower. No Grey-headed Flying-fox camp sites within proximity to the Development Site (National flying-fox spatial viewer, July 2020). Low potential for impact on breeding habitat.	Known	Yes
<i>Vespadelus troughtoni</i> Eastern Cave Bat	V	-	-	Kleinfelder 2016	A cave-roosting species that is usually found in dry open forest and woodland, near cliffs or rocky overhangs; has been recorded roosting in disused mine workings, occasionally in colonies of up to 500 individuals. Occasionally found along cliff-lines in wet eucalypt forest and rainforest. Potentially suitable foraging habitat within the Development Site. Species previously detected within the Biodiversity Offset Area in 2016. No	Low	No

Species	Legal Status*		No. records (5 km)	Source#	Habitat Preferences	Likelihood of occurrence	Assessment Required?
	BC Act	EPBC Act					
					breeding/roosting habitat (caves or tunnels) within Study Area (or within 2kms of site). Low potential for impact on breeding habitat.		
Migratory Species							
<i>Actitis hypoleucos</i> Common Sandpiper	-	M	-	PMST	Utilises a wide range of coastal wetlands and some inland wetlands, with varying levels of salinity, and is mostly found around muddy margins or rocky shores and rarely on mudflats. No suitable habitat within the Study Area.	Nil	No
<i>Anous stolidus</i> Common Noddy	-	M	-	PMST	During the breeding season, the Common Noddy usually occurs on or near islands, on rocky islets and stacks with precipitous cliffs, or on shoals or cays of coral or sand. The species also occurs on Norfolk and Lord Howe islands. No suitable habitat within the Study Area.	Nil	No
<i>Apus pacificus</i> Fork-tailed Swift	-	M	-	PMST	Forages in high open spaces over varied habitat types. May aerially forage over the Development Site. No known database records within locality. Low potential of impact on breeding habitat	Moderate	Yes
<i>Ardea ibis</i> Cattle Egret	-	M	1	BioNet Atlas	The Cattle Egret occurs in tropical and temperate grasslands, wooded lands and terrestrial wetlands. The Cattle Egret often forages away from water on low lying grasslands, improved pastures and croplands. The	Low	No

Species	Legal Status*		No. records (5 km)	Source [#]	Habitat Preferences	Likelihood of occurrence	Assessment Required?
	BC Act	EPBC Act					
					Cattle Egret roosts in trees, or amongst ground vegetation in or near lakes and swamps. No suitable foraging habitat within Development Site. Low number of known records.		
<i>Arenaria interpres</i> Ruddy Turnstone	-	M	-	PMST	Mainly found on coastal regions with exposed rock coast lines or coral reefs. It also lives near platforms and shelves, often with shallow tidal pools and rocky, shingle or gravel beaches. No suitable habitat within the Study Area.	Nil	No
<i>Ardenna carneipes</i> Flesh-footed Shearwater	V	M	1	BioNet atlas, PMST	The Flesh-footed Shearwater mainly occurs in the subtropics over continental shelves and slopes and occasionally inshore waters. The Flesh-footed Shearwater is a locally common visitor to waters of the continental shelf and continental slope off southern Australia (south-western Western Australia to south-eastern Queensland) and around Lord Howe Island. The Flesh-footed Shearwater feeds on small fish, cephalopod molluscs (squid, cuttlefish, nautilus and argonauts), crustaceans (barnacles and shrimp), other soft-bodied invertebrates. No suitable foraging habitat within the Study Area. Low number of database records, none of which occur within the Study Area.	Nil	No
<i>Calidris acuminata</i> Sharp-tailed Sandpiper	-	M	-	PMST	Prefers muddy edges of shallow fresh or brackish wetlands, with inundated or emergent sedges, grass, saltmarsh or other low vegetation. No suitable habitat within the Study Area.	Nil	No
<i>Calidris canutus</i> Red Knot	-	E,M	-	PMST	In NSW the Red Knot mainly occurs in small numbers on intertidal mudflats, estuaries, bays, inlets, lagoons, harbours and sandflats and sandy beaches of	Nil	No

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	BC Act	EPBC Act					
					sheltered coasts. It is occasionally found on sandy ocean beaches or shallow pools on exposed wave-cut rock platforms and is a rare visitor to terrestrial saline wetlands and freshwater swamps. No suitable habitat within the Study Area.		
<i>Calidris ferruginea</i> Curlew Sandpiper	E	CE, M	-	PMST	Occurs on intertidal mudflats in sheltered coastal areas, such as estuaries, bays, inlets and lagoons, and also around non-tidal swamps, lakes and lagoons near the coast, and ponds in saltworks and sewage farms. No suitable habitat within the Study Area.	Nil	No
<i>Calidris melanotos</i> Pectoral Sandpiper	-	M	-	PMST	Prefers shallow fresh to saline wetlands. The species is found at coastal lagoons, estuaries, bays, swamps, lakes, inundated grasslands, saltmarshes, river pools, creeks, floodplains and artificial wetlands. No suitable habitat within the Study Area.	Nil	No
<i>Calidris tenuirostris</i> Great Knot	V	CE, M	-	PMST	The Great Knot has been recorded around the entirety of the Australian coast. In Australasia, the species typically prefers sheltered coastal habitats, with large intertidal mudflats or sandflats. Typically, the Great Knot roosts in large groups in open areas, often at the waters edge or in shallow water close to feeding grounds. The Great Knot breeds in alpine and sub-alpine vegetation in north-east Siberia and the far north-east of Russia. No suitable foraging habitat present within the Study Area. This species does not breed in Australia.	Nil	No
<i>Charadrius bicinctus</i> Double-banded Plover	-	M	-	PMST	Found on littoral, estuarine and fresh or saline terrestrial wetlands and also saltmarsh, grasslands and pasture. No suitable habitat in the Development Site	Nil	No

Species	Legal Status*		No. records (5 km)	Source [#]	Habitat Preferences	Likelihood of occurrence	Assessment Required?
	BC Act	EPBC Act					
<i>Charadrius leschenaultii</i> Greater Sand Plover	V	V, M	-	PMST	Almost entirely restricted to coastal areas in NSW, occurring mainly on sheltered sandy, shelly or muddy beaches or estuaries with large intertidal mudflats or sandbanks. No suitable habitat in the Development Site	Nil	No
<i>Charadrius mongolus</i> Lesser Sand Plover	V	E, M	-	PMST	Inhabits intertidal sandflats and mudflats, beaches, estuary mudflats and sandbars, reef flats. No suitable habitat in the Development Site	Nil	No
<i>Cuculus optatus</i> Oriental Cuckoo	-	M	-	PMST	Inhabits monsoon forest, rainforest edges, leafy trees in paddocks; river flats, roadsides, mangroves and islands. Marginal habitat within the Development Site.	Low	No
<i>Gallinago hardwickii</i> Latham's Snipe	-	M	-	PMST	Occurs in permanent and ephemeral wetlands up to 2000 m above sea-level with low, dense vegetation (e.g. swamps, flooded grasslands or heathlands, around bogs and other water bodies). No suitable habitat in the Development Site	Low	No
<i>Gallinago megala</i> Swinhoe's Snipe	-	M	-	PMST	Occurs at the edges of wetlands, such as wet paddy fields, swamps and freshwater streams. No suitable habitat in the Development Site	Low	No
<i>Gallinago stenura</i> Pin-tailed Snipe	-	M	-	PMST	Occurs most often in or at the edges of shallow freshwater swamps, ponds and lakes with emergent, sparse to dense cover of grass/sedge or other vegetation. No suitable habitat in the Development Site	Low	No
<i>Hirundapus caudacutus</i>	-	M	1	BioNet Atlas, PMST	Forages in high open spaces over varied habitat types although probably recorded most often above wooded or partly wooded areas, including open forest and	Moderate	Yes

Species	Legal Status*		No. records (5 km)	Source [#]	Habitat Preferences	Likelihood of occurrence	Assessment Required?
	BC Act	EPBC Act					
White-throated Needletail					rainforest, and may also fly between trees or in clearings. May aerially forage over the Development Site. Low number of database records. Low potential of impact on breeding habitat		
<i>Hydroprogne caspia</i> Caspian Tern	-	M	1	BioNet Atlas	Widespread east of the Great Divide, mainly in coastal regions, and also in the Riverina and Lower and Upper Western Regions, with occasional records elsewhere. The Caspian Tern breeds on variable types of sites including low islands, cays, spits, banks, ridges, beaches of sand or shell, terrestrial wetlands and stony or rocky islets or banks. Breeding is recorded from the Menindee Lakes (western NSW). The Caspian Tern usually forages in open wetlands, including lakes and rivers. No suitable foraging or breeding habitat present within the Study Area. Low number of database records.	Nil	No
<i>Limosa lapponica</i> Bar-tailed Godwit	-	M		PMST	Inhabits intertidal mudflats, rarely far from the coast. No suitable habitat in the study area. Low number of database records.	Nil	No
<i>Limosa lapponica menzbieri</i> Northern Siberian Bar-tailed Godwit	-	CE, M	-	PMST	This migratory species breeds in Siberia and has been recorded coastally in all Australian states. It forages on coastal water edges, estuaries and harbours. No suitable habitat present within the Study Area and no known records within the locality.	Nil	No
<i>Monarcha melanopsis</i> Black-faced Monarch	-	M	-	PMST	Found in rainforests, eucalypt woodlands, coastal scrub and damp gullies. It may be found in more open woodland when migrating. Suitable foraging habitat within the Development Site, particularly due to close proximity to gully and	Moderate	Yes

Species	Legal Status*		No. records (5 km)	Source [#]	Habitat Preferences	Likelihood of occurrence	Assessment Required?
	BC Act	EPBC Act					
					creek line. Marginal breeding habitat within the Development Site.		
<i>Monarcha trivirgatus</i> Spectacled Monarch	-	M	-	PMST	Inhabits the understorey of mountain/ lowland rainforests, thickly wooded gullies and waterside vegetation including mangroves. No suitable habitat within the Development Site.	Low	No
<i>Myiagra cyanoleuca</i> Satin Flycatcher	-	M	-	PMST	Found in tall forests, preferring wetter habitats such as heavily forested gullies. No suitable habitat within the Development Site.	Low	No
<i>Numenius madagascariensis</i> Eastern Curlew	-	M	2	BioNet Atlas, PMST	Occupies coastal lakes, inlets, bays and estuarine habitats, and in New South Wales is mainly found in intertidal mudflats and sometimes saltmarsh of sheltered coasts. It forages in or at the edge of shallow water, occasionally on exposed algal mats or waterweed, or on banks of beach-cast seagrass or seaweed. It roosts on sandy spits and islets. No suitable foraging or roosting habitat present within the Development Site. Low number of database records.	Nil	No
<i>Numenius minutus</i> Little Curlew	-	M	-	PMST	Most often found feeding in short, dry grassland and sedgeland, including dry floodplains and blacksoil plains, which have scattered, shallow freshwater pools or areas seasonally inundated. No suitable habitat within the Development Site.	Nil	No
<i>Numenius phaeopus</i> Whimbrel	-	M	2	BioNet Atlas	The Whimbrel is often found on the intertidal mudflats of sheltered coasts. The Whimbrel generally forages on intertidal mudflats, along the muddy banks of estuaries and in coastal lagoons, either in open unvegetated areas or among mangroves. The Whimbrel nests in the branches of mangroves, around mudflats and in	Nil	No

Species	Legal Status*		No. records (5 km)	Source [#]	Habitat Preferences	Likelihood of occurrence	Assessment Required?
	BC Act	EPBC Act					
					estuaries. No suitable nesting or foraging habitat present within the Study Area.		
<i>Pandion haliaetus</i> Osprey	-	M	1	NPWS Atlas, PMST	Favours coastal areas, especially the mouths of large rivers, lagoons and lakes. Feeds on fish over clear, open water. Nests are made high up in dead trees or in dead crowns of live trees, usually within one kilometre of the sea. No suitable foraging habitat within the Study Area. Unlikely breeding habitat due to distance from the coast. Low number of database records. No large stick nests identified during habitat searches.	Low	No
<i>Pluvialis fulva</i> Pacific Golden Plover	-	M	-	PMST	Inhabits coastal habitats, though it occasionally occurs around inland wetlands. No suitable nesting or foraging habitat present within the Study Area.	Nil	No
<i>Pluvialis squatarola</i> Grey Plover	-	M	-	PMST	Occurs almost entirely in coastal areas, where they usually inhabit sheltered embayments, estuaries and lagoons with mudflats and sandflats, and occasionally on rocky coasts with wave-cut platforms or reef-flats, or on reefs within muddy lagoons. No suitable nesting or foraging habitat present within the Study Area.	Nil	No
<i>Rhipidura rufifrons</i> Rufous Fantail	-	M	-	PMST	Found in rainforest, dense wet forests, swamp woodlands and mangroves, preferring deep shade, and is often seen close to the ground. Suitable habitat within the Development Site, particularly due to close proximity to gully and creek line.	Moderate	Yes
<i>Sternula albifrons</i> Little Tern	E	M	-	PMST	Inhabits sheltered coastal environments, including lagoons, estuaries, river mouths and deltas, lakes, bays, harbours and inlets, especially those with	Nil	No

Species	Legal Status*		No. records (5 km)	Source [#]	Habitat Preferences	Likelihood of occurrence	Assessment Required?
	BC Act	EPBC Act					
					exposed sandbanks or sand-spits, and also on exposed ocean beaches. No suitable nesting or foraging habitat present within the Study Area.		
<i>Thalasseus bergii</i> Crested Tern	-	M	1	BioNet Atlas	Habitat includes ocean beaches, offshore islands and over deeper pelagic waters, inshore on estuaries, bays, harbours, coastal lagoons, inland on major rivers and occasionally on saline lakes. No suitable nesting or foraging habitat present within the Study Area.	Nil	No
<i>Tringa brevipes</i> Grey-tailed Tattler	-	M	-	PMST	Often found on sheltered coasts with reefs and rock platforms or with intertidal mudflats. No suitable nesting or foraging habitat present within the Study Area.	Nil	No
<i>Tringa nebularia</i> Common Greenshank	-	M	-	PMST	Found in a wide variety of inland wetlands and sheltered coastal habitats of varying salinity. No suitable nesting or foraging habitat present within the Study Area.	Nil	No
<i>Tringa stagnatilis</i> Marsh Sandpiper	-	M	-	PMST	Prefers permanent or ephemeral wetlands of varying salinity, including swamps, lagoons, billabongs, saltpans, saltmarshes, estuaries, pools on inundated floodplains, and intertidal mudflats and also regularly at sewage farms and saltworks. No suitable nesting or foraging habitat present within the Study Area.	Nil	No
<i>Xenus cinereus</i> Terek Sandpiper	V	M	-	PMST	Mostly forages in the open, on soft wet intertidal mudflats or in sheltered estuaries, embayments, harbours or lagoons. Prefers to roost in or among mangroves, birds may perch in branches or roots up to	Nil	No

Species	Legal Status*		No. records (5 km)	Source [#]	Habitat Preferences	Likelihood of occurrence	Assessment Required?
	BC Act	EPBC Act					
					2 m from the ground, or beneath them in the shade on hot days. No suitable nesting or foraging habitat present within the Study Area.		