Appendix C – Migratory Species Significant Impact Criteria Assessments

Common Greenshank, Curlew Sandpiper, Latham's Snipe and Sharptailed Sandpiper

Migratory Species Ecology

The Common Greenshank (*Tringia nebularia*) is listed as Endangered and Migratory under the EPBC Act and is a non-breeding visitor to Australia. The Common Greenshank inhabits a variety of inland and coastal habitat and is known to use permanent and ephemeral wetlands such swamps, lakes, creeks, floodplains and artificial water habitat. The species forages at the edge of wetlands amongst bare or emergent wetland vegetation and will roost in the wetland habitat in pools, puddles, rocks or sandbanks. BioNet identified no records of Common Greenshank on BioNet.

The Curlew Sandpiper (*Calidris ferruginea*) is listed as Critically Endangered and Migratory under the EPBC Act and is a non-breeding visitor to Australia. In inland Australia, the species inhabits ephemeral and permanent lakes, dams and bore drains. The breeding range of the Curlew Sandpiper is mainly restricted to the Arctic of northern Siberia. BioNet identified no records of Curlew Sandpiper within 10km of the Project area or in the Edward River LGA.

Latham's Snipe (*Gallinago hardwickii*) is listed as Vulnerable and Migratory under the EPBC Act and is a non-breeding visitor to Australia. Latham's Snipe breeds in Japan and far eastern Russia during the northern hemisphere summer. Habitat for Latham's Snipe includes permanent and ephemeral wetlands up to 2000 m above sea-level with low, dense vegetation. However, they can also occur in habitats with saline or brackish water, in modified or artificial habitats. BioNet identified no records of Latham's Snipe within 10km of the Project areaProject area. There are a total of two records for the Latham's Snipe in the Edward River LGA.

The Sharp-tailed Sandpiper (*Calidris acuminata*) is listed as Vulnerable and Migratory under the EPBC Act and is a non-breeding visitor to Australia. The Sharp-tailed Sandpiper breeds in northern Siberia. Preferred habitat for the Sharp-tailed Sandpiper includes lagoons, swamps, lakes and dams with inundated or emergent sedges, grass, saltmarsh or other low vegetation. They use flooded paddocks, sedgelands and other ephemeral wetlands, but leave when they dry. BioNet identified no records of Sand-tailed Sandpiper within 10km of the Project area. There are a total of three records for the Sharp-tailed Sandpiper in the Edward River LGA.

Migratory Species SIC

An action is likely to have a significant impact on a migratory species if there is a real chance or possibility that it will:	Common Greenshank (<i>Tringia</i> nebularia)	Curlew Sandpiper (<i>Calidris</i> ferruginea)	Latham's Snipe (<i>Gallinago</i> <i>hardwickii</i>)	Sharp-tailed Sandpiper (Calidris acuminata)
Species information	The Common Greenshank (<i>Tringia nebularia</i>) is listed as Endangered and Migratory under the EPBC Act.	The Curlew Sandpiper <i>(Calidris ferruginea)</i> is listed as Critically Endangered and Migratory under the EPBC Act.	Latham's Snipe <i>(Gallinago hardwickii)</i> is listed as Vulnerable and Migratory under the EPBC Act.	The Sharp-tailed Sandpiper <i>(Calidris acuminata)</i> is listed as Vulnerable and Migratory under the EPBC Act.
Substantially modify (including by fragmenting, altering fire regimes, altering nutrient cycles, or altering hydrological cycles), destroy or isolate an area of important habitat for a migratory species	There are no internationally or nationally recognised important habitat areas for migratory bird species within the Project area or broader locality, nor are the habitat values within the Project area likely to meet the definition of important habitat supporting large flocks of these migratory species during their non-breeding visits. No impacts to potential habitat of migratory species within Yanco Creek will occur. Direct impacts to potential habitat of these migratory species is restricted to areas mapped as mainly dry lakes. These locations, at the time of survey were not observed to be holding any water or supporting vegetation species that would comprise high condition habitat of these migratory species. As such, the removal of potential habitat in mapped areas is considered of low importance to these species and is likely to constitute a low (negligible) impact to any visiting populations/individuals. Impacts to 39.16 hectares of riparian vegetation set back from Yanko Creek which is associated with these species may be removed by the project, however is considered unlikely to be utilised by these species if they were to visit the Project area. The current disturbance footprint, for which impacts to these species has been calculated, is based on a general development corridor and represents the maximum potential impact to these species from the project. The area of impact is likely to be reduced following detailed surveys of the Project area during preparation of the EIS to confirm presence or absence of the species, and as the project design is developed further.			
Result in an invasive species that is harmful to the migratory species becoming established in an area of important habitat for the migratory species, or	The Project is unlikely to result in the establishment of invasive species that aren't already present in the area. Any risk will be minimised through the implementation of a Construction Environmental Management Plan (CEMP), which will detail measures to reduce the risk of novel species becoming established, and also to prevent further spread of invasive species already present within the Project area.			
Seriously disrupt the lifecycle (breeding, feeding, migration or resting behavior) of	These species breed overseas. T	herefore, there will be no disruptio	on to the breeding cycle of these s	species.

an ecologically significant proportion of the population of a migratory species.	The Project area provides potential foraging habitat for these species however they all preference larger permanent freshwater wetland environments and coastal estuarine systems as habitat whilst in Australia, which is not present with or near to the Project area. Rather, the Proposal area may provide intermittent foraging habitat as individuals move across the landscape. Therefore, these species are not anticipated to flock in large numbers when moving across Project area or surrounding region, rather they are likely to move as individuals or in smaller flocks. During operation of the proposal, there is a potential (albeit low) for individuals to be killed by blade strike. With no important habitats mapped nearby to the Proposal area and their preference of habitats closer to the coast it is unlikely that large numbers would be		
	Killed by blade strike or other trauma from wind turbine (i.e. barotrauma). For these reasons, construction and operation of the proposal is considered unlikely to seriously disrupt the lifecycle (breeding, feeding, migration or resting behaviour) of these species.		
Conclusion	 The Project is not likely to result in a significant impact to species listed as Migratory under the EPBC Act for the following reasons: Habitat within the proposal area is unlikely to be preferential to any of these species There are no nationally or internationally important habitat areas within the Proposal area or nearby and habitat within the Proposal area is unlikely to constitute important habitat. High concentrations of these important habitat areas are nearer to the coast. Visting populations of these species will likely comprise small flocks and individuals rather than large flocks. Therefore, blade strike is likely to impact small numbers of individuals (if any) These species have a broad distribution across NSW and Australia when visiting. Therefore, populations are highly dispersed and have a low likelihood of passing through the Proposal area The current disturbance footprint, for which impacts to these species from the project. The area of impact is likely to be reduced following detailed surveys of the Project area during preparation of the EIS to confirm presence or absence of the species, and as the project design is developed further. At which point the potential impact to these species will be better understood and the likelihood of a significant impact to this species can be reevaluated. 		