Appendix A:
Impact and Risk Assessment summary

Project activity	Event (ID no.)	Impact description	Receptor	Receptor sensitivity (Table 5.1)	Rationale for Sensitivity Ranking	Initial impact assessment			Residual impact assessment			
						Initial mitigation	Magnitude (Table 5.2, 5.3)	Consequence (Table 5.4, 5.5)	Assessment criteria (i.e. standards, guidance docs and requirements used to determine acceptable levels of impact)	Final mitigation	Magnitude (Table 5.7)	Consequence (Table 5.4, 5.5)
	Short statement – will be used to frame the risk heading in the risk assessment sections (include ID)		*Short statement describing value or receptor*	*High, Medium or Low*	*Consideration of behaviour, ecology, sensitivity to impact and protection status*	*These are mitigation/ management measures that are legally required, or are firm project commitments (e.g. bubble curtains), i.e. the project could/would not go ahead without these measures already in place*	*In terms of 'extent', 'duration' and 'severity' Negligible – Very High*	*Sensitivity x Magnitude*				*Additional to designed in and/or required by legislation*
Construction												
Trenchless shore crossing activities (onshore)	Physical presence, noise, light and vibration from trenchless shore crossing activities: seabird and shorebird disturbance	Change in fauna behaviour and habitat use	Hooded plover (E, v) Red knot (E, Ma, Mi) Fairy tern (V) Little tern (Ma, Mi, ce)	Low	Listed species (migratory, threatened). Behaviour, migration, foraging, reproduction and/or survival rates are not likely to be affected. Species and their habitat at low risk of being impacted by shore crossing activities. Proposed shore crossing site was not identified as an important shorebird/tern roosting, feeding or breeding habitat during the baseline study program.	Trenchless installation method (inherent design to reduce impacts to shoreline) Siting (location avoids important bird habitats) National light pollution guidelines for wildlife (Commonwealth 2023). FL management plan - activity management onshore	Low	Negligible (E)	**National light pollution guidelines** Artificial light will be managed so that wildlife is (1) not disrupted within, nor displaced from, important habitats and (2) can undertake critical behaviours such as foraging, reproduction and dispersal **MNES Significant Impact Guidelines 1.1 - endangered or critically endangered species** The project will not interfere substantially with the recovery of the species. **MNES Significant Impact Guidelines 1.1 - vulnerable species** The project will not: - substantially modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline - lead to a long-term decrease in the size of an important population of a species - reduce the area of occupancy of an important population - fragment an existing important population into two or more populations - adversely affect habitat critical to the survival of a species **MNES Significant Impact Guidelines 1.1 – migratory** The project will not seriously disrupt the lifecycle (breeding, feeding, migration or resting behaviour) of an ecologically significant proportion of the population of a migratory species. **MNES Significant Impact Guidelines 1.1 – Commonwealth marine areas** The project will not have a substantial adverse effect on a population of a marine species or cetacean including its life cycle (for example, breeding, feeding, migration behaviour, life expectancy) and spatial distribution **MNES Significant Impact Guidelines 1.1 – wetlands of international importance** The project is designed, sited and managed such that there is no significant impact on the ecological character of a wetland of international importance **Wildlife conservation plan for migratory shorebirds** The project is designed, sited and managed such that anthropogenic threats to migratory shorebirds in Australia are minimised **Recovery Plan for the Australian Fairy Tern** The project will not increase the key threats to the population **FFG Act Action Statement - Little Tern** The project will not disturb breeding sites or increase key threats to the population **FFG Act Action Statement - Hooded Plover** The project will not increase threats to populations and habitat, not lead to future population decline	*Not required*	Low	Negligible (E)
Shore crossing activities (onshore)	Physical presence, noise, light and vibration from HDD activities: seabird and shorebird disturbance	Change in fauna behaviour and habitat use	Double-banded plover (Mi) Red-necked stint (Ma, Mi, V) Sanderling (Ma, Mi)	Low	Listed species (migratory, marine and/or threatened). Behaviour unlikely to be significantly affected, therefore migration, foraging, reproduction and/or survival rates are not likely to be affected. Species and their habitat at low risk of being impacted by HDD activities. Proposed shore crossing site was not identified as an important shorebird/tern roosting, feeding or breeding habitat during the baseline study program.	HDD (inherent design to reduce impacts to shoreline) Siting (location avoids important bird habitats) National light pollution guidelines for wildlife (Commonwealth 2023).	Negligible	Negligible (E)	**National light pollution guidelines** **MNES Significant Impact Guidelines 1.1 - migratory species** **MNES Significant Impact Guidelines 1.1 – Commonwealth marine areas** **Wildlife conservation plan for migratory shorebirds**	*Not required*	Negligible	Negligible (E)
Shore crossing activities (onshore)	Physical presence, noise, light and vibration from HDD activities: seabird and shorebird disturbance	Change in fauna behaviour and habitat use	Australian pied oystercatcher Masked lapwing Banded Lapwing Black-fronted Dotterel Pied stilt Greater crested tern (Ma, Mi) Silver gull (Ma)	Low	Some listed species (migratory, threatened). Short-term, highly localised impacts unlikely to be detectable above natural conditions. Behaviour, migration, foraging, reproduction and/or survival rates are not likely to be affected. Species and their habitat at low risk of being impacted by HDD activities. Proposed shore crossing site was not identified as an important shorebird/tern roosting, feeding or breeding habitat during the baseline study program.	HDD (inherent design to reduce impacts to shoreline) Siting (location avoids important bird habitats) National light pollution guidelines for wildlife (Commonwealth 2023).	Low	Negligible (E)	**National light pollution guidelines** **MNES Significant Impact Guidelines 1.1 - migratory species** **MNES Significant Impact Guidelines 1.1 – Commonwealth marine areas**	*Not required*	Low	Negligible (E)
Shore crossing activities (offshore)	Seabed disturbance - increased turbidity	Change in fauna behaviour, including displacement	Black-faced cormorant (Ma) Little pied cormorant Australasian gannet (Ma) Caspian tern (Ma, Mi) Little tern (Ma, Mi) Greater crested tern (Ma, Mi)	Low	Behaviour, migration, foraging, reproduction and/or survival rates are not likely to be affected. Species broadly distributed and/or seasonally present, abundant. Potential foraging habitat encompasses a large area.	HDD selected methods over more invasive techniques FL Management Plan	Low	Negligible (E)	**MNES Significant Impact Guidelines 1.1 – migratory** **MNES Significant Impact Guidelines 1.1 – Commonwealth marine areas** **Wildlife Conservation Plan for Seabirds**	*Not required*	Low	Negligible (E)

Project activity	Event (ID no.)	Impact description	Receptor	Receptor sensitivity (Table 5.1)	Rationale for Sensitivity Ranking	Initial impact assessment			Residual impact assessment			
						Initial mitigation	Magnitude (Table 5.2, 5.3)	Consequence (Table 5.4, 5.5)	Assessment criteria (i.e. standards, guidance docs and requirements used to determine acceptable levels of impact)	Final mitigation	Magnitude (Table 5.7)	Consequence (Table 5.4, 5.5)
Shore crossing activities (offshore)	Seabed disturbance - increased turbidity	Change in water quality (turbidity/ sediment plumes)	Little penguin (Ma) Black-faced cormorant (Ma) Little pied cormorant Pied Cormorant Common diving petrel (Ma, Mi) Australasian gannet (Ma) Little tern (Ma, Mi) Fairy Tern (Vu, cr, Ma) Common tern (Ma) White-fronted tern (Ma) Silver gull (Ma) Pacific gull (Ma) Kelp gull (Ma)	Low	Water quality effects localised, behaviour unlikely to be significantly affected, therefore migration, foraging, reproduction and/or survival rates are not likely to be affected. Species broadly distributed and/or seasonally present, abundant. Potential foraging habitat encompasses a large area.	HDD selected methods over more invasive techniques FL Management Plan	Low	Negligible (E)	**MNES Significant Impact Guidelines 1.1 – migratory** **MNES Significant Impact Guidelines 1.1 – Commonwealth marine areas** **Wildlife Conservation Plan for Seabirds**	*Not required*	Low	Negligible (E)
Construction vessel activities	Artificial light emissions	Changes in fauna behaviour (foraging and/or disruption of feeding)	Shorebirds	Low	Listed threatened, marine and/or migratory. Impacts of disturbance or displacement are expected to be of low spatial extent, intermittent and medium-term duration. The channel used by vessels is not an important shorebird foraging area; thus, foraging, reproduction and/or survival rates are not likely to be affected. Potential foraging habitat encompasses a large area with some of the most important foraging and roosting sites located to the north including Clonmel Island, Box Bank and Dream Island (Minton et al. 2012).	Use of prescribed shipping routes between a port and project area. Limit the number and frequency of vessel activity within the offshore project area to essential requirements only and where possible.	Low	Negligible (E)	**MNES Significant Impact Guidelines 1.1 – migratory** **MNES Significant Impact Guidelines 1.1 – Commonwealth marine areas** **Wildlife Conservation Plan for Seabirds**		Low	Negligible (E)
Construction vessel activities	Artificial light emissions	Changes in fauna behaviour - attraction to light, disorientation and potential fall out/grounding	Short-tailed shearwater (Ma, Mi) Fluttering shearwater (Ma, Mi) Hutton's shearwater (Ma, Mi)	Medium	Listed marine and/or migratory. Species sensitive to bright white lights that are likely to be present on vessels. While only seasonally present, the area is an important habitat overlapping the area of disturbance, with some sensitivity to the defined stressor. Recorded in moderate to high numbers in Project area.	National light pollution guidelines for wildlife (Commonwealth 2023). Minimum safe lighting for navigation FL Management Plan - procedures for the management of grounded birds compliance with relevant COLREGS and SOLAS	Medium	Moderate (C)	**National light pollution guidelines** **MNES Significant Impact Guidelines 1.1 – Commonwealth marine areas** **MNES Significant Impact Guidelines 1.1 – migratory species** **Wildlife Conservation Plan for Seabirds** **Agreement of the Conservation and Albatrosses and Petrels** No management actions relevant to offshore wind projects were identified. However, reducing, or eliminating key threats at breeding, non-breeding and foraging sites is considered critical to the long-term conservation of the populations. **National Recovery Plan for Albatrosses and Petrels** - Offshore project and marine monitoring activities will not result in invasive species becoming established that are harmful to petrel and albatross species nor introduce diseases that may cause the species to decline. Bird handling procedures will prevent possible disease transfer. No on-island monitoring for these species will be conducted. - There will be no measurable impact to albatross and petrel habitats critical to survival as a result of project construction, operation or decommissioning. - The project will not modify, destroy, fragment, isolate or disturb an important or substantial area of habitat such that an adverse impact on marine ecosystem functioning or integrity in a Commonwealth marine area results. - The project will not modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline.	*Seabird light attraction SOP and adaptive management plan* *active management of lighting to suit work task. Factor in certain kinds of weather events and/or time of year (e.g. fog).*	Low	Minor (D)
Construction vessel activities	Artificial light emissions	Changes in fauna behaviour - attraction to light, disorientation and potential fall out/grounding	Common Diving Petrel Fairy Prion	Medium	Listed marine and/or migratory. Species sensitive to bright white lights that are likely to be present on vessels. Some sensitivity to the defined stressor. Recorded in low numbers in Project area but breed on islands nearby (within 15 km EMBA).	National light pollution guidelines for wildlife (Commonwealth 2023). Minimum safe lighting for navigation FL Management Plan - procedures for the management of grounded birds compliance with relevant COLREGS and SOLAS	Medium	Moderate (C)	As above	*Seabird light attraction SOP and adaptive management plan* *active management of lighting to suit work task. Factor in certain kinds of weather events and/or time of year (e.g. fog).*	Low	Minor (D)
Construction vessel activities	Artificial light emissions	Changes in fauna behaviour - attraction to light, disorientation and potential fall out/grounding	Flesh-footed shearwater (Ma, Mi) Sooty shearwater (Ma, Mi, V) Wedge-tailed shearwater (Ma, Mi) Wilson's storm-petrel (Ma, Mi) White-chinned petrel (Ma, Mi) Grey-faced petrel (Ma, Mi) White-faced storm-petrel (Ma, Mi)	Low	Listed marine and/or migratory. Species sensitive to bright white lights that are likely to be present on vessels. While only seasonally present, the area is an important habitat overlapping the area of disturbance, with some sensitivity to the defined stressor. Recorded in small numbers within the project area.	National light pollution guidelines for wildlife (Commonwealth 2023). Minimum safe lighting for navigation FL Management Plan - procedures for the management of grounded birds compliance with relevant COLREGS and SOLAS	Medium	Minor (D)	As above	*Seabird light attraction SOP and adaptive management plan* *active management of lighting to suit work task. Factor in certain kinds of weather events and/or time of year (e.g. fog).*	Low	Negligible (E)
Construction vessel activities	Artificial light emissions	Changes in fauna behaviour - attraction to light, disorientation and potential fall out/grounding	Gould's petrel (EN, Ma) Buller's shearwater (Ma) Cape Petrel (Ma) White-headed petrel (Ma) Soft-plumaged petrel (V, Ma) Antarctic prion (Ma) Grey-backed storm-petrel (Ma) Providence petrel (Ma)	Medium	Listed marine, migratory and/or threatened. Only seasonally present and recorded in low numbers in the OWFA. Species sensitive to bright white lights that are likely to be present on vessels. Seasonally present and in low numbers but with some sensitivity to the defined stressor.	National light pollution guidelines for wildlife (Commonwealth 2023). Minimum safe lighting for navigation FL Management Plan compliance with relevant COLREGS and SOLAS	Low	Minor (D)	As above	*Seabird light attraction SOP and adaptive management plan* *active management of lighting to suit work task. Factor in certain kinds of weather events and/or time of year (e.g. fog).*	Low	Minor (D)

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						Initial mitigation	Magnitude (Table 5.2, 5.3)	Consequence (Table 5.4, 5.5)	Assessment criteria (i.e. standards, guidance docs and requirements used to determine acceptable levels of impact)	Final mitigation	Magnitude (Table 5.7)	Consequence (Table 5.4, 5.5)
Construction vessel activities	Artificial light emissions	Changes in fauna behaviour - attraction to light, disorientation and potential fall out/grounding	Shy Albatross (E, Ma, Mi) White-capped albatross (V, Ma, Mi) Black-browed albatross (V, Ma, Mi) Indian yellow-nosed albatross (V, Ma, Mi) Northern giant petrel (V, Ma, Mi) Southern giant petrel (En, en, Ma, Mi) Wandering albatross (Vu, cr, Ma, Mi) Buller's albatross (Vu, en, Ma, Mi)	Low	Listed marine, migratory and threatened. Behaviour unlikely to be significantly affected, therefore migration, foraging, reproduction and/or survival rates are not likely to be affected. "Surface-nesting petrels such as fulmars or albatrosses have not been recorded at fallout events nor in light attraction events at sea, to the best of our knowledge" (Atchoi et al. 2020). Ref: Is seabird light-induced mortality explained by the visual system development https://conbio.onlinelibrary.wiley.com/doi/full/10.1111/csp2.195	National light pollution guidelines for wildlife (Commonwealth 2023). Minimum safe lighting for navigation FL Management Plan compliance with relevant COLREGS and SOLAS	Low	Negligible (E)	As above	*Seabird light attraction SOP*	Negligible	Negligible (E)
Construction vessel activities	Artificial light emissions	Changes in fauna behaviour - attraction to light, disorientation and potential fall out/grounding	Great cormorant (Ma) Little-black cormorant (Ma Black-faced formorant (Ma) Pied cormorant (Ma) Little pied cormorant (Ma)	Low	Low levels of protection (Marine-listed). Diurnal foragers. Behaviour unlikely to be significantly affected, therefore migration, foraging, reproduction and/or survival rates are not likely to be affected.	National light pollution guidelines for wildlife (Commonwealth 2023). Minimum safe lighting for navigation FL Management Plan compliance with relevant COLREGS and SOLAS	Low	Negligible (E)	**National light pollution guidelines** **MNES Significant Impact Guidelines 1.1 – Commonwealth marine areas**	*Seabird light attraction SOP*	Negligible	Negligible (E)
Construction vessel activities	Artificial light emissions	Changes in fauna behaviour - attraction to light and potential prey aggregation	Silver gull (Ma) Pacific gull (Ma) Kelp gull (Ma) Caspian tern (Ma, Mi) Little tern (Ma, Mi) Fairy Tern (Vu, cr, Ma) Common tern (Ma) White-fronted tern (Ma) Greater crested tern (Ma, Mi) Little penguin (Ma) Australasian gannet (Ma) Arctic jaeger (Ma, Mi) Pomarine jaeger (Ma, Mi) Brown skua (Ma, Mi)	Low	Listed marine, migratory and threatened. Diurnal foragers. Behaviour unlikely to be significantly affected, therefore migration, foraging, reproduction and/or survival rates are not likely to be affected. Broadly distributed and/or seasonally present, abundant.	National light pollution guidelines for wildlife (Commonwealth 2023). Minimum safe lighting for navigation FL Management Plan compliance with relevant COLREGS and SOLAS	Negligible	Negligible (E)	**National light pollution guidelines** **MNES Significant Impact Guidelines 1.1 – Commonwealth marine areas** **MNES Significant Impact Guidelines 1.1 – migratory species** **Wildlife Conservation Plan for Seabirds**	*Not required*	Negligible	Negligible (E)
Construction vessel activities	Increased underwater noise levels above background level	Change in fauna behaviour, including displacement	Little penguin (Ma) Black-faced cormorant (Ma) Little pied cormorant Common diving petrel (Ma, Mi) Australasian gannet (Ma) Short-tailed shearwater (Ma, Mi) Fluttering shearwater (Ma, Mi) Hutton's shearwater (Ma, Mi) Sooty shearwater (Ma, Mi) Wedge-tailed shearwater (Ma, Mi) Flesh-footed Shearwater (Ma, Mi) White-chinned Petrel (Ma, Mi)	Low	Listed marine and/or migratory. Species broadly distributed and/or seasonally present, abundant, not sensitive to the defined stressor. Behaviour unlikely to be significantly affected, therefore migration, foraging, reproduction and/or survival rates are not likely to be affected. Species broadly distributed and/or seasonally present, abundant, not sensitive to the defined stressor. Potential foraging habitat encompasses a large area.	FL Management Plan. Intial choice of vessels, where possible, to select smaller/quieter vessels	Low	Negligible (E)	**MNES Significant Impact Guidelines 1.1 – Commonwealth marine areas** **Wildlife Conservation Plan for Seabirds** **Use of DBBC during piling**	*Soft start prcedures for marine mammals (benefit penguins)*	Low	Negligible (E)
Construction vessel activities	Physical presence, noise and vibration: seabird disturbance	Change in fauna behaviour, including displacement (offshore)	All seabirds (excluding Little Penguin)	Low	Listed threatened, marine and/or migratory. Impacts of disturbance or displacement are expected to be of low spatial extent, intermittent and medium-term duration. As activities will only occur in a small proportion of the total OPA at any one time, it is expected that only birds within the vicinity of these activities will be affected directly and are expected to return to the area once the activity has ceased. Behaviour including migration, foraging, reproduction and/or survival rates are not likely to be affected. Species broadly distributed and/or seasonally present, abundant, not sensitive to the defined stressor. Potential foraging habitat encompasses a large area.	Use of prescribed shipping routes between a port and project area. Limit the number and frequency of vessel activity within the offshore project area to essential requirements only and where possible, smaller and quieter vessels will be selected. Short-term effect as vessels in given location for periods of hours - days only	Low	Negligible (E)	**MNES Significant Impact Guidelines 1.1 – Commonwealth marine areas** **Wildlife Conservation Plan for Seabirds** **National Recovery Plan for Albatrosses and Petrels**	*Not required*	Low	Negligible (E)
Construction vessel activities	Physical presence, noise and vibration: seabird disturbance	Change in fauna behaviour, including displacement (offshore)	Little Penguin (Ma)	Medium	Marine species. Identified as being sensitive to disturbance. Impacts of disturbance or displacement are expected to be of low spatial extent, intermittent and medium-term duration. As activities will only occur in a small proportion of the total OPA at any one time, it is expected that only birds within the vicinity of these activities will be affected directly and are expected to return to the area once the activity has ceased. However, foraging, reproduction and/or survival rates are not likely to be affected. Potential foraging habitat encompasses a large area.	Use of prescribed shipping routes between a port and project area. Limit the number and frequency of vessel activity within the offshore project area to essential requirements only and where possible, smaller and quieter vessels will be selected. Short-term effect as vessels in given location for periods of hours - days only	Low	Minor (D)	**MNES Significant Impact Guidelines 1.1 – Commonwealth marine areas** **Wildlife Conservation Plan for Seabirds**	*Soft start procedure*	Low	Minor (D)

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						Initial mitigation	Magnitude (Table 5.2, 5.3)	Consequence (Table 5.4, 5.5)	Assessment criteria (i.e. standards, guidance docs and requirements used to determine acceptable levels of impact)	Final mitigation	Magnitude (Table 5.7)	Consequence (Table 5.4, 5.5)
Construction vessel activities	Physical presence, noise and vibration: seabird disturbance	Change in fauna behaviour, including displacement (inshore)	Shorebirds	Low	Listed threatened, marine and/or migratory. Impacts of disturbance or displacement are expected to be of low spatial extent, intermittent and medium-term duration. The channel used by vessels is not an important shorebird foraging area; thus,foraging, reproduction and/or survival rates are not likely to be affected. Potential foraging habitat encompasses a large area with some of the most important foraging and roosting sites located to the north including Clonmel Island, Box Bank and Dream Island (Minton et al. 2012).	Use of prescribed shipping routes between a port and project area. Limit the number and frequency of vessel activity within the offshore project area to essential requirements only and where possible, smaller and quieter vessels will be selected.	Low	Negligible (E)	**MNES Significant Impact Guidelines 1.1 – Commonwealth marine areas** **Wildlife Conservation Plan for migratory shorebirds** **MNES Significant Impact Guidelines 1.1 – migratory species**		Low	Negligible (E)
Construction piling of foundations	Increased underwater noise levels above background level	Change in fauna behaviour, including displacement or TTS in hearing	Diving Seabirds: Little penguin (Ma) Little pied cormorant Common diving petrel (Ma, Mi) Australasian gannet (Ma) Short-tailed shearwater (Ma, Mi) Fluttering shearwater (Ma, Mi) Hutton's shearwater (Ma, Mi) Sooty shearwater (Ma, Mi) Wedge-tailed shearwater (Ma, Mi)	Low	Behavioural effects likely to be localised, therefore migration, foraging, reproduction and/or survival rates are not likely to be affected. Species broadly distributed and/or seasonally present, abundant, not sensitive to the defined stressor. Relative to the impact area, the potential foraging habitat encompasses a large area.	Application of noise mitigation technology such as double big bubble curtains to reduce noise ensonified areas FL Management Plan Gradual ramp up in underwater noise to deter penguins from immediate area only	Medium	Minor (D)	**MNES Significant Impact Guidelines 1.1 – Commonwealth marine areas** **Wildlife Conservation Plan for Seabirds**	*Not required*	Medium	Minor (D)
Construction piling of foundations	Increased underwater noise levels above background level	Changes in fauna behaviour - potential changes in prey distribution (indirect effect)	Diving Seabirds: Little penguin (Ma) Black-faced cormorant (Ma) Little pied cormorant Common diving petrel (Ma, Mi) Australasian gannet (Ma) Short-tailed shearwater (Ma, Mi) Fluttering shearwater (Ma, Mi) Hutton's shearwater (Ma, Mi) Sooty shearwater (Ma, Mi) Wedge-tailed shearwater (Ma, Mi)	Low	Diving species with a higher chance of being impacted. Changes to the behaviour of fish/crustaceans is likely to be localised. Impacts of disturbance or displacement are expected to be of low spatial extent, intermittent and medium-term duration. Migration, foraging, reproduction and/or survival rates are not likely to be affected. Species broadly distributed and/or seasonally present, abundant. Relative to the impact area, the potential foraging habitat encompasses a large area.	Application of noise mitigation technology such as double big bubble curtains to reduce noise ensonified areas FL Management Plan Gradual ramp-up in activity	Medium	Minor (D)	**MNES Significant Impact Guidelines 1.1 – Commonwealth marine areas** **MNES Significant Impact Guidelines 1.1 – migratory species** **Wildlife Conservation Plan for Seabirds**	*Not required*	Medium	Minor (D)
Seabed clearance and levelling	Seabed disturbance - increased turbidity	Change in fauna behaviour, including displacement	Silver gull (Ma) Pacific gull (Ma) Caspian tern (Ma, Mi) Little tern (Ma, Mi) Fairy Tern (Vu, cr, Ma) Common tern (Ma) White-fronted tern (Ma) Australasian gannet (Ma) Arctic jaeger (Ma, Mi) Pomarine jaeger (Ma, Mi) Brown skua (Ma, Mi)	Low	Behaviour unlikely to be significantly affected because levels of turbidity is low, therefore migration, foraging, reproduction and/or survival rates are not likely to be affected. Species broadly distributed, present in small numbers and/or seasonally present, abundant. Relative to the impact area, the potential foraging habitat encompasses a large area.	Installation techniques selected/designed in to reduce impact FL Management Plan. Effects will be localised and short-term	Low	Negligible (E)	**MNES Significant Impact Guidelines 1.1 – migratory species** **MNES Significant Impact Guidelines 1.1 – Commonwealth marine areas** **Wildlife Conservation Plan for Seabirds**	*Not required*	Low	Negligible (E)
Foundation and cable installation (including scour protection)	Seabed disturbance - increased turbidity	Change in fauna behaviour, including displacement	Little penguin (Ma) Black-faced cormorant (Ma) Little pied cormorant Pied Cormorant Common diving petrel (Ma, Mi) Greater crested tern (Ma, Mi) Australasian gannet (Ma)	Medium	Behaviour affected on a local scale only due to turbidity and ability to detect prey, but migration, foraging, reproduction and/or survival rates are not likely to be affected. Species broadly distributed and/or seasonally present, abundant. Potential foraging habitat encompasses a large area.	Installation techniques selected/designed in to reduce impact FL Management Plan Effects will be localised and short-term	Low	Minor (D)	**MNES Significant Impact Guidelines 1.1 – migratory species** **MNES Significant Impact Guidelines 1.1 – Commonwealth marine areas** **Wildlife Conservation Plan for Seabirds**	*Not required*	Low	Minor (D)
Foundation and cable installation (including scour protection)	Seabed disturbance - increased turbidity	Change in fauna behaviour, including displacement	Silver gull (Ma) Pacific gull (Ma) Caspian tern (Ma, Mi) Little tern (Ma, Mi) Fairy Tern (Vu, cr, Ma) Common tern (Ma) White-fronted tern (Ma) Arctic jaeger (Ma, Mi) Pomarine jaeger (Ma, Mi) Brown skua (Ma, Mi)	Low	Behaviour unlikely to be affected, therefore migration, foraging, reproduction and/or survival rates are not likely to be affected. Species broadly distributed and/or seasonally present, abundant. Potential foraging habitat encompasses a large area. Localised impacts. Impact over a small spatial scale with a short duration.	Installation techniques selected/designed in to reduce impact FL Management Plan Effects will be localised and short-term	Low	Negligible (E)	**MNES Significant Impact Guidelines 1.1 – migratory species** **MNES Significant Impact Guidelines 1.1 – Commonwealth marine areas** **Wildlife Conservation Plan for Seabirds**	*Not required*	Low	Negligible (E)
Construction drilling and trenching	Seabed disturbance - increased turbidity	Change in fauna behaviour, including displacement	Little penguin (Ma) Short-tailed Shearwater (Ma, Mi) Black-faced cormorant (Ma) Little pied cormorant Pied Cormorant Common diving petrel (Ma, Mi) Australasian gannet (Ma) Greater crested tern (Ma, Mi)	Medium	Behaviour affected on a local scale only and over a short time period due to turbidity and ability of birds to detect prey, but migration, foraging, reproduction and/or survival rates are not likely to be affected. Species broadly distributed and/or seasonally present, abundant. Potential foraging habitat encompasses a large area.	Installation techniques selected/designed in to reduce impact FL Management Plan Effects will be localised and short-term	Low	Minor (D)		*Not required*	Low	Minor (D)
Construction drilling and trenching	Seabed disturbance - increased turbidity	Change in fauna behaviour, including displacement	Silver gull (Ma) Pacific gull (Ma) Caspian tern (Ma, Mi) Little tern (Ma, Mi) Fairy Tern (Vu, cr, Ma) Common tern (Ma) White-fronted tern (Ma) Arctic jaeger (Ma, Mi) Pomarine jaeger (Ma, Mi) Brown skua (Ma, Mi)	Low	Behaviour unlikely to be affected, therefore migration, foraging, reproduction and/or survival rates are not likely to be affected. Low to medium levels of protection. Species broadly distributed and/or seasonally present, abundant.	Installation techniques selected/designed in to reduce impact FL Management Plan Effects will be localised and short-term	Low	Negligible (E)	**MNES Significant Impact Guidelines 1.1 – migratory species** **MNES Significant Impact Guidelines 1.1 – Commonwealth marine areas** **Wildlife Conservation Plan for Seabirds**	*Not required*	Low	Negligible (E)

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						Initial mitigation	Magnitude (Table 5.2, 5.3)	Consequence (Table 5.4, 5.5)	Assessment criteria (i.e. standards, guidance docs and requirements used to determine acceptable levels of impact)	Final mitigation	Magnitude (Table 5.7)	Consequence (Table 5.4, 5.5)
Construction vessel activities	Routine discharges	Change in water quality affecting fauna behaviour	All seabirds and shorebirds	Low	Behaviour unlikely to be significantly affected, therefore migration, foraging, reproduction and/or survival rates are not likely to be affected. Species broadly distributed and/or seasonally present, abundant.		Low	Negligible (E)	**MNES Significant Impact Guidelines 1.1 – migratory species** **MNES Significant Impact Guidelines 1.1 – Commonwealth marine areas** **Wildlife Conservation Plan for Seabirds** **Wildlife Conservation Plan for Migratory Shorebirds** **National Recovery Plan for Albatrosses and Petrels**	*Not required*	Low	Negligible (E)
Operations												
Operational wind turbines and infrastucture	Physical presence - operational turbines	Permanent displacement of foraging birds (loss of available habitat) from the wind farm array	Black-faced cormorant (Ma) Greater Crested Tern (Ma, Mi) Australasian Gannet (Ma)	Medium	Low levels of conservation protection (marine listed). Moderately (Black-faced Cormorant) to widely (Greater Crested Tern) broadly distributed and/or seasonally present, abundant. Potentially sensitive to displacement but may also be attracted to offshore infrastructure. Behaviour is unlikely to be significantly affected resulting in permanent displacement, therefore migration, foraging, reproduction and/or survival rates are not likely to be affected.	It is likely that any displacement effect will be reduced by design of the wind farm layout. The maximum design scenario involves a total of 147 turbines with a WTG spacing of at least 1062 metres (see Appendix 3). The reduced complement of turbines will have greater distances between them. These factors can be expected to reduce any potential displacement as a response by susceptible species of seabirds. Furthermore, a permanent displacement is not predicted.	Low	Minor (D)	**MNES Significant Impact Guidelines 1.1 – migratory species** **MNES Significant Impact Guidelines 1.1 – Commonwealth marine areas** **Wildlife Conservation Plan for Seabirds**	*Not required*	Low	Minor (D)
Operational wind turbines and infrastucture	Physical presence - operational turbines	Displacement of foraging birds (loss of available habitat)	Little penguin (Ma) Pied Cormorant Little pied cormorant Caspian tern (Ma, Mi) Common tern (Ma) White-fronted tern (Ma) Silver gull (Ma) Pacific gull (Ma) Kelp gull (Ma) Little tern (ce, Ma, Mi) Australian Fairy Tern (V)	Low	Low levels of conservation protection (marine listed), except Little Tern and Fairy Tern, which is protected. Broadly distributed and/or seasonally present, abundant. Behaviour is unlikely to be significantly affected resulting in permanent displacement, therefore migration, foraging, reproduction and/or survival rates are not likely to be affected.	As above	Low	Negligible (E)	**MNES Significant Impact Guidelines 1.1 – migratory species** **MNES Significant Impact Guidelines 1.1 – Commonwealth marine areas** **Wildlife Conservation Plan for Seabirds**	*Not required*	Low	Negligible (E)
Operational wind turbines and infrastucture	Physical presence - operational turbines	Displacement of foraging birds (loss of available habitat)	Fairy prion (Ma, Mi) Common Diving Petrel (Ma, Mi) Short-tailed shearwater (Ma, Mi) Flesh-footed shearwater (Ma, Mi) Sooty shearwater (Ma, Mi, V) Fluttering shearwater (Ma, Mi) Hutton's shearwater (Ma, Mi) Wedge-tailed shearwater (Ma, Mi) White-chinned petrel (Ma, Mi) Grey-faced petrel (Ma, Mi) Common diving petrel (Ma, Mi) Fairy prion (Ma, Mi) White-faced storm-petrel (Ma, Mi)	Low	Low levels of conservation protection (marine listed), broadly distributed and/or seasonally present, abundant. Behaviour unlikely to be significantly affected resulting in permanent displacement, therefore migration, foraging, reproduction and/or survival rates are not likely to be affected. Typically inshore foragers with few individuals sighted during baseline program.	As above	Low	Negligible (E)	**MNES Significant Impact Guidelines 1.1 – migratory species** **MNES Significant Impact Guidelines 1.1 – Commonwealth marine areas** **Wildlife Conservation Plan for Seabirds** **National Recovery Plan for Albatrosses and Petrels**	*Not required*	Low	Negligible (E)
Operational wind turbines and infrastucture	Physical presence - operational turbines	Displacement of foraging birds (loss of available habitat)	Shy Albatross (E, Ma, Mi) White-capped albatross (V, Ma, Mi) Black-browed albatross (V, Ma, Mi) Indian yellow-nosed albatross (V, Ma, Mi) Northern giant petrel (V, Ma, Mi) Southern giant petrel (En, en, Ma, Mi) Wandering albatross (Vu, cr, Ma, Mi) Buller's albatross (Vu, en, Ma, Mi)	Medium	High levels of conservation protection (Threatened). While there is some uncertainty about how albatrosses and large petrels will behave around offshore wind farm infrastructure, the OWFA area supports fewer individuals compared to the Bass Canyon. Albatrosses and giant-petrels are distant breeding species, whose primary habitat is located on the outer margins of the continental shelf, shelf break and/or near seafloor features that create upwelling. Their foraging habitat is extensive andresidence time in the OWFA is likely small. Thus, these species are not likely to be significantly impacted and permanenty displaced	As above	Low	Minor (D)	**MNES Significant Impact Guidelines 1.1 – migratory species** **MNES Significant Impact Guidelines 1.1 – Commonwealth marine areas** **Wildlife Conservation Plan for Seabirds** **National Recovery Plan for Albatrosses and Petrels**		Low	Minor (D)
Operational wind turbines and infrastucture	Physical presence - operational turbines	Barrier effects to migrating birds (leading to energetic effects)	Black-faced cormorant (Ma) Greater Crested Tern (Mi)	Low	Locally breeding species that may also be sensitive to displacement. Low to moderate levels of conservation protection. Species not expected to travel significantly longer distances (i.e. to some point beyond the OWF) that result in energetic expenditure that results in a biological significance to them or their offspring.		Low	Negligible (E)			Low	Negligible (E)

Project activity	Event (ID no.)	Impact description	Receptor	Receptor sensitivity (Table 5.1)	Rationale for Sensitivity Ranking	Initial impact assessment			Residual impact assessment			
						Initial mitigation	Magnitude (Table 5.2, 5.3)	Consequence (Table 5.4, 5.5)	Assessment criteria (i.e. standards, guidance docs and requirements used to determine acceptable levels of impact)	Final mitigation	Magnitude (Table 5.7)	Consequence (Table 5.4, 5.5)
Operational wind turbines and infrastucture	Physical presence - operational turbines	Barrier effects to migrating birds (leading to energetic effects)	Australasian Gannet (Mi)	Low	Low levels of conservation protection (marine listed), broadly distributed and/or seasonally present, abundant. Behaviour unlikely to be significantly affected resulting in displacement, therefore migration, foraging, reproduction and/or survival rates are not likely to be affected.	As above	Low	Negligible (E)			Low	Negligible (E)
Operational wind turbines and infrastucture	Physical presence - operational turbines	Barrier effects to migrating birds (leading to energetic effects)	Little penguin (Ma) Little pied cormorant Caspian tern (Ma, Mi) Common tern (Ma) White-fronted tern (Ma) Silver gull (Ma) Pacific gull (Ma) Kelp gull (Ma) Little tern (ce, Ma, Mi) Australian Fairy Tern (Vu) Short-tailed shearwater (Ma, Mi) Flesh-footed shearwater (Ma, Mi) Sooty shearwater (Ma, Mi, V) Fluttering shearwater (Ma, Mi) Hutton's shearwater (Ma, Mi) Wedge-tailed shearwater (Ma, Mi) White-chinned petrel (Ma, Mi) Grey-faced petrel (Ma, Mi) Common diving petrel (Ma, Mi) Fairy prion (Ma, Mi) White-faced storm-petrel (Ma, Mi)	Low	Low to moderate levels of conservation protection, broadly distributed and/or seasonally present. Low levels of conservation protection (marine listed), broadly distributed and/or seasonally present, abundant. Behaviour unlikely to be significantly affected resulting in barrier effects, therefore migration, foraging, reproduction and/or survival rates are not likely to be affected.	As above	Low	Negligible (E)			Low	Negligible (E)
Operational wind turbines and infrastucture	Physical presence - operational turbines	Barrier effects to migrating birds (leading to energetic effects)	Shy Albatross (E, Ma, Mi) White-capped albatross (V, Ma, Mi) Black-browed albatross (V, Ma, Mi) Indian yellow-nosed albatross (V, Ma, Mi) Northern giant petrel (V, Ma, Mi) Southern giant petrel (En, en, Ma, Mi) Wandering albatross (Vu, cr, Ma, Mi) Buller's albatross (Vu, en, Ma, Mi)	Low	High levels of conservation protection (Threatened). Behaviour unlikely to be significantly affected, therefore migration, foraging, reproduction and/or survival rates are not likely to be affected.	As above	Low	Negligible (E)			Low	Negligible (E)
Operational wind turbines and infrastucture	Physical presence - sub stations and foundations	Roosting on offshore structure - attracting spp from known locations	Greater crested tern (Ma, Mi) Black-faced cormorant (Ma) Australasian gannet (Ma) Silver Gull (Ma) Pacific Gull (Ma)	Low	Low levels of conservation protection, broadly distributed and/or seasonally present, abundant. Terns, gannets and cormorants diurnal foragers. Behaviour unlikely to be significantly affected although attraction and establishment of roosting/nesting sites may occur if not managed effectively. Migration, foraging, reproduction and/or survival rates are not likely to be significantly affected.	None currently proposed	Medium	Minor (D)	**MNES Significant Impact Guidelines 1.1 – migratory** **MNES Significant Impact Guidelines 1.1 – Commonwealth marine areas** **Wildlife Conservation Plan for Seabirds**	*bird deterrent devices will be considered to prevent establishment (pending final design of structures) - design of top side structures to deter roosting birds*	Medium	Minor (D)
Operational wind turbines and infrastucture	Physical presence - sub stations and foundations	Roosting on offshore structure - attracting spp from known locations	Pied cormorant Little pied cormorant (Ma) Little black cormorant	Low	Low levels of conservation protection, broadly distributed and only small numbers of individuals recorded. Behaviour unlikely to be significantly affected, therefore migration, foraging, reproduction and/or survival rates are not likely to be affected.	None currently proposed	Medium	Minor (D)	**MNES Significant Impact Guidelines 1.1 – migratory** **MNES Significant Impact Guidelines 1.1 – Commonwealth marine areas** **Wildlife Conservation Plan for Seabirds**	*bird deterrent devices will be considered to prevent establishment (pending final design of structures) - design of top side structures to deter roosting birds*	Medium	Minor (D)

Project activity	Event (ID no.)	Impact description	Receptor	Receptor sensitivity (Table 5.1)	Rationale for Sensitivity Ranking	Initial impact assessment			Residual impact assessment			
						Initial mitigation	Magnitude (Table 5.2, 5.3)	Consequence (Table 5.4, 5.5)	Assessment criteria (i.e. standards, guidance docs and requirements used to determine acceptable levels of impact)	Final mitigation	Magnitude (Table 5.7)	Consequence (Table 5.4, 5.5)
Operational wind turbines and infrastucture	Artificial light emissions - safety and navigational lighting, vessels, offshore instracture	Changes in fauna behaviour - attraction to light, disorientation and potential fall out/grounding	Short-tailed shearwater (Ma, Mi) Fluttering shearwater (Ma, Mi) Hutton's shearwater (Ma, Mi) Common diving petrel (Ma, Mi) Fairy prion (Ma, Mi)	Low	Low levels of conservation protection (marine listed, shearwater Vulnerable), broadly distributed and/or seasonally present, abundant. Behaviour unlikely to be significantly affected, due to typically low light levels and minimal use of bright white lights, therefore migration, foraging, reproduction and/or survival rates are not likely to be affected.	National light pollution guidelines for wildlife (Commonwealth 2023). Minimum safe lighting for navigation FL Management Plan Compliance with relevant COLREGS and SOLAS	Low	Negligible (E)	**National light pollution guidelines** **MNES Significant Impact Guidelines 1.1 – migratory** **MNES Significant Impact Guidelines 1.1 – Commonwealth marine areas** **Wildlife Conservation Plan for Seabirds** **National Recovery Plan for Albatrosses and Petrels** **lighting management plan and consideration for lowering light levels wherever possible**	*Aviation lighting will be subject to reduction in lighting intensity, to a minimum of 200 cd, when the visibility in all direction from every wind turbine is more than 5 km.* *Minimise nighttime operations within the wind far whenever possible.* *Smaller vessels to decrease amount of light pollution* *A lighting mgt plan will be needed to implement the changes.* *Adaptive monitoring and management to determine whether light attraction is casuing attraction for nocturnal species*	Negligible	Negligible (E)
Operational wind turbines and infrastucture	Artificial light emissions - safety and navigational lighting, offshore infrastructure	Changes in fauna behaviour - attraction to light, disorientation and potential fall out/grounding	Flesh-footed shearwater (Ma, Mi) Wedge-tailed shearwater (Ma, Mi) White-chinned petrel (Ma, Mi) Grey-faced petrel (Ma, Mi) White-faced storm-petrel (Ma, Mi) Gould's petrel (EN, Ma) Buller's shearwater (Ma) Cape Petrel (Ma) White-headed petrel (Ma) Soft-plumaged petrel (V, Ma) Antarctic prion (Ma) Wilson's storm-petrel (Ma, Mi) Grey-backed storm-petrel (Ma) Providence petrel (Ma) Sooty shearwater (Ma, Mi, V)	Low	Low to high levels of conservation protection (marine listed, sooty shearwater = Vulnerable), broadly distributed and/or seasonally present, but infrequently/not recorded in OPA. Behaviour unlikely to be significantly affected, due to typically low light levels and minimal use of bright white lights, therefore migration, foraging, reproduction and/or survival rates are not likely to be affected.	National light pollution guidelines for wildlife (Commonwealth 2023). Minimum safe lighting for navigation FL Management Plan Compliance with relevant COLREGS and SOLAS	Low	Negligible (E)	**National light pollution guidelines** **MNES Significant Impact Guidelines 1.1 – migratory** **MNES Significant Impact Guidelines 1.1 – Commonwealth marine areas** **Wildlife Conservation Plan for Seabirds** **National Recovery Plan for Albatrosses and Petrels**	*Not required*	Low	Negligible (E)
Operational wind turbines and infrastucture	Artificial light emissions - safety and navigational lighting, vessels, offshore instracture	Changes in fauna behaviour - attraction to light, disorientation and potential fall out/grounding	Australasian gannet (Ma) Greater crested tern (Ma, Mi) Black-faced cormorants (Ma) Little pied cormorants (Ma)	Low	Low to moderate levels of conservation protection, broadly distributed and/or seasonally present, abundant. Diurnal foragers. Behaviour unlikely to be significantly affected, due to typically low light levels and minimal use of bright white lights, therefore migration, foraging, reproduction and/or survival rates are not likely to be affected.	National light pollution guidelines for wildlife (Commonwealth 2023). Minimum safe lighting for navigation FL Management Plan compliance with relevant COLREGS and SOLAS	Negligible	Negligible (E)	**National light pollution guidelines** **MNES Significant Impact Guidelines 1.1 – migratory** **MNES Significant Impact Guidelines 1.1 – Commonwealth marine areas** **Wildlife Conservation Plan for Seabirds**	*Not required*	Negligible	Negligible (E)
Operational wind turbines and infrastucture	Physical presence (Attraction)	Attraction of birds to infrastructure for roosting and/or foraging	Australasian gannet (Ma) Greater crested tern (Ma, Mi) Black-faced cormorants (Ma) Little pied cormorants (Ma)	Low	Low to moderate levels of conservation protection, broadly distributed and/or seasonally present, abundant. Diurnal foragers. Behaviour unlikely to be significantly affected, therefore migration, foraging, reproduction and/or survival rates are not likely to be affected.	National light pollution guidelines for wildlife (Commonwealth 2023). Minimum safe lighting for navigation FL Management Plan compliance with relevant COLREGS and SOLAS	Negligible	Negligible (E)	**National light pollution guidelines** **MNES Significant Impact Guidelines 1.1 – migratory** **MNES Significant Impact Guidelines 1.1 – Commonwealth marine areas** **Wildlife Conservation Plan for Seabirds**	*Not required*	Negligible	Negligible (E)
Construction vessel activities	Physical presence, noise and vibration: seabird disturbance	Change in fauna behaviour, including displacement (offshore)	All seabirds (excluding Black-faced Cormorant and Little Penguin)	Low	Marine species. Identified as being sensitive to disturbance. Species broadly distributed and/or seasonally present, abundant, not sensitive to the defined stressor. Foraging, reproduction and/or survival rates are not likely to be affected.	Use of prescribed shipping routes between a port and project area. Limit the number and frequency of vessel activity within the offshore project area to essential requirements only and where possible, smaller and quieter vessels will be selected. Short-term effect as vessels in given location for periods of hours - days only	Low	Negligible (E)	**MNES Significant Impact Guidelines 1.1 – Commonwealth marine areas** **Wildlife Conservation Plan for Seabirds** **National Recovery Plan for Albatrosses and Petrels**	*Not required*	Low	Negligible (E)
Construction vessel activities	Physical presence, noise and vibration: seabird disturbance	Change in fauna behaviour, including displacement (offshore)	Black-faced cormorant (Ma) Little Penguin (Ma)	Medium	Marine species. Identified as being sensitive to disturbance. Species broadly distributed and/or seasonally present, abundant, not sensitive to the defined stressor. Foraging may be affected but reproduction and/or survival rates are not likely to be affected.	Use of prescribed shipping routes between a port and project area. Limit the number and frequency of vessel activity within the offshore project area to essential requirements only and where possible, smaller and quieter vessels will be selected. Short-term effect as vessels in given location for periods of hours - days only	Low	Minor (D)	**MNES Significant Impact Guidelines 1.1 – Commonwealth marine areas** **Wildlife Conservation Plan for Seabirds**	*Not required*	Low	Minor (D)

Project activity	Event (ID no.)	Impact description	Receptor	Receptor sensitivity (Table 5.1)	Rationale for Sensitivity Ranking	Initial impact assessment			Residual impact assessment			
						Initial mitigation	Magnitude (Table 5.2, 5.3)	Consequence (Table 5.4, 5.5)	Assessment criteria (i.e. standards, guidance docs and requirements used to determine acceptable levels of impact)	Final mitigation	Magnitude (Table 5.7)	Consequence (Table 5.4, 5.5)
Project vessel activities	Artificial light emissions	Changes in fauna behaviour - attraction to light and potential fall out	Short-tailed shearwater (Ma, Mi) Common diving petrel (Ma, Mi) Fairy prion (Ma, Mi)	Medium	Marine and/or migratory species. Identified as being sensitive to disturbance. Species broadly distributed and/or seasonally present, abundant, not sensitive to the defined stressor. Foraging may be affected but reproduction and/or survival rates are not likely to be affected.	National light pollution guidelines for wildlife (Commonwealth 2023). Minimum safe lighting for navigation FL Management Plan Compliance with relevant COLREGS and SOLAS	Medium	Moderate (C)	**National light pollution guidelines** **MNES Significant Impact Guidelines 1.1 – migratory** **MNES Significant Impact Guidelines 1.1 – Commonwealth marine areas** **Wildlife Conservation Plan for Seabirds** **National Recovery Plan for Albatrosses and Petrels**	*Seabird light attraction SOP*	Low	Minor (D)
Project vessel activities	Artificial light emissions	Changes in fauna behaviour - attraction to light and potential fall out	Fluttering shearwater (Ma, Mi) Hutton's shearwater (Ma, Mi) Gould's petrel (EN, Ma) Sooty shearwater (Ma, Mi, V) Soft-plumaged petrel (V, Ma)	Medium	Marine and/or migratory species. Identified as being sensitive to disturbance. Species broadly distributed and/or seasonally present, abundant, not sensitive to the defined stressor. Foraging may be affected but reproduction and/or survival rates are not likely to be affected.	National light pollution guidelines for wildlife (Commonwealth 2023). Minimum safe lighting for navigation FL Management Plan Compliance with relevant COLREGS and SOLAS	Medium	Moderate (C)	**National light pollution guidelines** **MNES Significant Impact Guidelines 1.1 – migratory** **MNES Significant Impact Guidelines 1.1 – Commonwealth marine areas** **Wildlife Conservation Plan for Seabirds** **National Recovery Plan for Albatrosses and Petrels**	*Seabird light attraction SOP*	Low	Minor (D)
Project vessel activities	Artificial light emissions	Changes in fauna behaviour - attraction to light, disorientation and potential fall out/grounding	Buller's shearwater (Ma) Cape Petrel (Ma) White-headed petrel (Ma) Antarctic prion (Ma) Wilson's storm-petrel (Ma, Mi) Grey-backed storm-petrel (Ma) Providence petrel (Ma) White-faced storm-petrel (Ma, Mi) Flesh-footed shearwater (Ma, Mi) Wedge-tailed shearwater (Ma, Mi) White-chinned petrel (Ma, Mi) Grey-faced petrel (Ma, Mi)	Low	Low to moderate levels of conservation protection (Soft-plumaged petrel = Vulnerable), broadly distributed and/or seasonally present, abundant. Species may be sensitive to bright white lights that are likely to be present on vessels. While only seasonally present, the area is an important habitat overlapping the area of disturbance, with some sensitivity to the defined stressor. Unmitigated, there is the potential for several individuals to be disturbed annually.	National light pollution guidelines for wildlife (Commonwealth 2023). Minimum safe lighting for navigation FL Management Plan compliance with relevant COLREGS and SOLAS	Low	Negligible (E)	**National light pollution guidelines** **MNES Significant Impact Guidelines 1.1 – migratory** **MNES Significant Impact Guidelines 1.1 – Commonwealth marine areas** **Wildlife Conservation Plan for Seabirds** **National Recovery Plan for Albatrosses and Petrels**	*Seabird light attraction SOP*	Negligible	Negligible (E)
Project vessel activities	Artificial light emissions	Changes in fauna behaviour - attraction to light, disorientation and potential fall out/grounding	Shy Albatross (E, Ma, Mi) White-capped albatross (V, Ma, Mi) Black-browed albatross (V, Ma, Mi) Indian yellow-nosed albatross (V, Ma, Mi) Northern giant petrel (V, Ma, Mi) Southern giant petrel (En, en, Ma, Mi) Wandering albatross (Vu, cr, Ma, Mi) Buller's albatross (Vu, en, Ma, Mi)	Low	Listed threatened species. Behaviour unlikely to be significantly affected, therefore migration, foraging, reproduction and/or survival rates are not likely to be affected. "Surface-nesting petrels such as fulmars or albatrosses have not been recorded at fallout events nor in light attraction events at sea, to the best of our knowledge" (Atchoi et al. 2020). Ref: Is seabird light-induced mortality explained by the visual system development https://conbio.onlinelibrary.wiley.com/doi/full/10.1111/csp2.195	National light pollution guidelines for wildlife (Commonwealth 2023). Minimum safe lighting for navigation FL Management Plan	Negligible	Negligible (E)	**National light pollution guidelines** **MNES Significant Impact Guidelines 1.1 – Commonwealth marine areas** **MNES Significant Impact Guidelines 1.1 – migratory species** **MNES Significant Impact Guidelines 1.1 – critically endangered, endangered species or vulnerable species** **National Recovery Plan for Albatrosses and Petrels**	*Not required*	Negligible	Negligible (E)
Project vessel activities	Artificial light emissions	Changes in fauna behaviour - attraction to light and potential prey aggregation	Silver gull (Ma) Pacific gull (Ma) Caspian tern (Ma, Mi) Little tern (Ma, Mi) Greater crested tern (Ma, Mi) Little penguin (Ma) Australasian gannet (Ma) Arctic jaeger (Ma, Mi) Brown skua (Ma, Mi)	Low	Diurnal foragers. Behaviour unlikely to be significantly affected, therefore migration, foraging, reproduction and/or survival rates are not likely to be affected. broadly distributed and/or seasonally present, abundant.	National light pollution guidelines for wildlife (Commonwealth 2023). Minimum safe lighting for navigation FL Management Plan Compliance with relevant COLREGS and SOLAS	Negligible	Negligible (E)	**National light pollution guidelines** **MNES Significant Impact Guidelines 1.1 – migratory** **MNES Significant Impact Guidelines 1.1 – Commonwealth marine areas** **Wildlife Conservation Plan for Seabirds**	*Not required*	Negligible	Negligible (E)
Operational wind turbines	Increased underwater noise levels above background level	Change in fauna behaviour	Little Penguin Short-tailed shearwater (Ma, Mi)	Medium	Marine and/or migratory species. Identified as being sensitive to disturbance. Species broadly distributed and/or seasonally present, abundant, not sensitive to the defined stressor. Foraging may be affected but reproduction and/or survival rates are not likely to be affected. Existing high levels of vessel traffic/noise in this region- turbine activities not likely to have significantly greater impact than existing.	Maintenance of turbines to reduce unnecessary underwater noise	Low	Minor (D)	**MNES Significant Impact Guidelines 1.1 – migratory species** **MNES Significant Impact Guidelines 1.1 – Commonwealth marine areas** **Wildlife Conservation Plan for Seabirds**	*Not required*	Low	Minor (D)
Operational vessel activities	Increased underwater noise levels above background level	Change in fauna behaviour	Black-faced cormorant (Ma) Little pied cormorant Common diving petrel (Ma, Mi) Australasian gannet (Ma) Fluttering shearwater (Ma, Mi) Hutton's shearwater (Ma, Mi) Sooty shearwater (Ma, Mi) Wedge-tailed shearwater (Ma, Mi)	Low	Behaviour unlikely to be significantly affected, therefore migration, foraging, reproduction and/or survival rates are not likely to be affected. Species broadly distributed and/or seasonally present, abundant, not sensitive to the defined stressor. Existing high levels of vessel traffic/noise in this region- turbine activities not likely to have significantly greater impact than existing.	FL Management Plan	Negligible	Negligible (E)	**MNES Significant Impact Guidelines 1.1 – Commonwealth marine areas** **Wildlife Conservation Plan for Seabirds**	*Soft-start procedures*	*Negligible*	Negligible (E)

Project activity	Event (ID no.)	Impact description	Receptor	Receptor sensitivity (Table 5.1)	Rationale for Sensitivity Ranking	Initial impact assessment			Residual impact assessment			
						Initial mitigation	Magnitude (Table 5.2, 5.3)	Consequence (Table 5.4, 5.5)	Assessment criteria (i.e. standards, guidance docs and requirements used to determine acceptable levels of impact)	Final mitigation	Magnitude (Table 5.7)	Consequence (Table 5.4, 5.5)
Operational wind turbines	Increased underwater noise levels above background level	Change in fauna behaviour, including displacement or TTS in hearing	Little Penguin Short-tailed shearwater (Ma, Mi)	Medium	Species broadly distributed and/or seasonally present, abundant, not sensitive to the defined stressor. Low levels of noise, behaviour unlikely to be significantly affected, therefore migration, foraging, reproduction and/or survival rates are not likely to be affected. Species broadly distributed and/or seasonally present, abundant, not sensitive to the defined stressor. Existing high levels of vessel traffic/noise in this region- turbine activities not likely to have significantly greater impact than existing.	Maintenance of turbines to reduce unnecessary underwater noise	Low	Minor (D)	**MNES Significant Impact Guidelines 1.1 – migratory species** **MNES Significant Impact Guidelines 1.1 – Commonwealth marine areas** **Wildlife Conservation Plan for Seabirds**	*Not required*	Low	Minor (D)
Operational vessel activities	Increased underwater noise levels above background level	Change in fauna behaviour, including displacement or TTS in hearing	Black-faced cormorant (Ma) Little pied cormorant Common diving petrel (Ma, Mi) Australasian gannet (Ma) Fluttering shearwater (Ma, Mi) Hutton's shearwater (Ma, Mi) Sooty shearwater (Ma, Mi) Wedge-tailed shearwater (Ma, Mi)	Low	Behaviour unlikely to be significantly affected, therefore migration, foraging, reproduction and/or survival rates are not likely to be affected. Species broadly distributed and/or seasonally present, abundant, not sensitive to the defined stressor. Existing high levels of vessel traffic/noise in this region- turbine activities not likely to have significantly greater impact than existing.	FL Management Plan	Negligible	Negligible (E)	**MNES Significant Impact Guidelines 1.1 – Commonwealth marine areas** **Wildlife Conservation Plan for Seabirds**	*Soft-start procedures*	*Low*	Minor (D)
Operational vessel activities	Routine discharges	Change in water quality affecting fauna behaviour	Little penguin (Ma) Black-faced cormorant (Ma) Little pied cormorant Common diving petrel (Ma, Mi) Australasian gannet (Ma) Caspian tern (Ma, Mi) Little tern (ce, Ma, Mi) Greater crested tern (Ma, Mi)	Low	Behaviour unlikely to be significantly affected, therefore migration, foraging, reproduction and/or survival rates are not likely to be affected. Species broadly distributed and/or seasonally present, abundant.	Minimal discharge and highly localised. Standard vessel operating procedures	Low	Negligible (E)	**MNES Significant Impact Guidelines 1.1 – migratory** **MNES Significant Impact Guidelines 1.1 – Commonwealth marine areas** **Wildlife Conservation Plan for Seabirds**	*Not required*	Low	Negligible (E)
Operational wind turbines and infrastucture	Electromagnetic interference	Change in fauna behaviour	Little Penguin Black faced cormorant	Low	Behaviour unlikely to be significantly affected, therefore migration, foraging, reproduction and/or survival rates are not likely to be affected. Species broadly distributed and/or seasonally present, abundant. No evidence to suggest that either species is using electro/magnetic cues for navigation or would be exposed to signficant levels of EMI. BFC not exposed for any significant period to be affected. LPs more likley to be using visual cues for navigation. Small potential to be affected via prey species of fish in close proximity to power cables		Low	Negligible (E)		*not required*	Low	Negligible (E)
Decommissioning												
Decommissioning vessel activities	Artificial light emissions	Changes in fauna behaviour - attraction to light, disorientation and potential fall out/grounding	Short-tailed shearwater (Ma, Mi) Flesh-footed shearwater (Ma, Mi) Sooty shearwater (Ma, Mi, V) Fluttering shearwater (Ma, Mi) Hutton's shearwater (Ma, Mi) Wedge-tailed shearwater (Ma, Mi) White-chinned petrel (Ma, Mi) Grey-faced petrel (Ma, Mi) Common diving petrel (Ma, Mi) Fairy prion (Ma, Mi) White-faced storm-petrel (Ma, Mi)	Medium	Species sensitive to bright white lights that are likely to be present on vessels. While only seasonally present, the area is an important habitat overlapping the area of disturbance, with some sensitivity to the defined stressor.	National light pollution guidelines for wildlife (Commonwealth 2023). Minimum safe lighting for navigation FL Management Plan compliance with relevant COLREGS and SOLAS	Low	Minor (D)	**National light pollution guidelines** **MNES Significant Impact Guidelines 1.1 – migratory** **MNES Significant Impact Guidelines 1.1 – Commonwealth marine areas** **Wildlife Conservation Plan for Seabirds**	*Seabird light attraction SOP*	Low	Negligible (E)
Decommissioning vessel activities	Artificial light emissions	Changes in fauna behaviour - attraction to light, disorientation and potential fall out/grounding	Gould's petrel (EN, Ma) Buller's shearwater (Ma) Cape Petrel (Ma) White-headed petrel (Ma) Soft-plumaged petrel (V, Ma) Antarctic prion (Ma) Wilson's storm-petrel (Ma, Mi) Grey-backed storm-petrel (Ma) Providence petrel (Ma)	Medium	Species sensitive to bright white lights that are likely to be present on vessels. While only seasonally present, the area is an important habitat overlapping the area of disturbance, with some sensitivity to the defined stressor.	National light pollution guidelines for wildlife (Commonwealth 2023). Minimum safe lighting for navigation FL Management Plan compliance with relevant COLREGS and SOLAS	Low	Minor (D)	**National light pollution guidelines** **MNES Significant Impact Guidelines 1.1 – migratory** **MNES Significant Impact Guidelines 1.1 – Commonwealth marine areas** **Wildlife Conservation Plan for Seabirds** **National Recovery Plan for Albatrosses and Petrels**	*Not required*	Low	Minor (D)
Decommissioning vessel activities	Artificial light emissions	Changes in fauna behaviour - attraction to light, disorientation and potential fall out/grounding	Shy Albatross (E, Ma, Mi) White-capped albatross (V, Ma, Mi) Black-browed albatross (V, Ma, Mi) Indian yellow-nosed albatross (V, Ma, Mi) Northern giant petrel (V, Ma, Mi) Southern giant petrel (En, en, Ma, Mi) Wandering albatross (Vu, cr, Ma, Mi) Buller's albatross (Vu, en, Ma, Mi)	Low	Behaviour unlikely to be significantly affected, therefore migration, foraging, reproduction and/or survival rates are not likely to be affected. "Surface-nesting petrels such as fulmars or albatrosses have not been recorded at fallout events nor in light attraction events at sea, to the best of our knowledge" (Atchoi et al. 2020). Ref: Is seabird light-induced mortality explained by the visual system development https://conbio.onlinelibrary.wiley.com/doi/full/10.1111/csp2.195	National light pollution guidelines for wildlife (Commonwealth 2023). Minimum safe lighting for navigation FL Management Plan compliance with relevant COLREGS and SOLAS	Low	Negligible (E)	**National light pollution guidelines** **MNES Significant Impact Guidelines 1.1 – Commonwealth marine areas** **MNES Significant Impact Guidelines 1.1 – migratory species** **MNES Significant Impact Guidelines 1.1 – critically endangered, endangered species or vulnerable species** **National Recovery Plan for Albatrosses and Petrels**	*Not required*	Low	Negligible (E)

Project activity	Event (ID no.)	Impact description	Receptor	Receptor sensitivity (Table 5.1)	Rationale for Sensitivity Ranking	Initial impact assessment			Residual impact assessment			
						Initial mitigation	Magnitude (Table 5.2, 5.3)	Consequence (Table 5.4, 5.5)	Assessment criteria (i.e. standards, guidance docs and requirements used to determine acceptable levels of impact)	Final mitigation	Magnitude (Table 5.7)	Consequence (Table 5.4, 5.5)
Decommissioning vessel activities	Artificial light emissions	Changes in fauna behaviour - attraction to light and potential prey aggregation	Silver gull (Ma) Pacific gull (Ma) Kelp gull (Ma) Caspian tern (Ma, Mi) Little tern (Ma, Mi) Fairy Tern (Vu, cr, Ma) Common tern (Ma) White-fronted tern (Ma) Greater crested tern (Ma, Mi) Little penguin (Ma) Australasian gannet (Ma) Arctic jaeger (Ma, Mi) Pomarine jaeger (Ma, Mi) Brown skua (Ma, Mi)	Low	Diurnal foragers. Behaviour unlikely to be significantly affected, therefore migration, foraging, reproduction and/or survival rates are not likely to be affected. broadly distributed and/or seasonally present, abundant.	National light pollution guidelines for wildlife (Commonwealth 2023). Minimum safe lighting for navigation FL Management Plan compliance with relevant COLREGS and SOLAS	Negligible	Negligible (E)	**National light pollution guidelines** **MNES Significant Impact Guidelines 1.1 – migratory species** **MNES Significant Impact Guidelines 1.1 – Commonwealth marine areas** **Wildlife Conservation Plan for Seabirds**	*Not required*	Negligible	Negligible (E)
De-construction vessel activities	Physical presence, noise and vibration: seabird disturbance	Change in fauna behaviour, including displacement	Little Penguin (Ma)	Medium	Marine species. Identified as being sensitive to disturbance. Impacts of disturbance or displacement are expected to be of low spatial extent, intermittent and medium-term duration. As activities will only occur in a small proportion of the total OPA at any one time, it is expected that only birds within the vicinity of these activities will be affected directly and are expected to return to the area once the activity has ceased. Foraging may be affected but reproduction and/or survival rates are not likely to be affected.	Use of prescribed shipping routes between a port and project area. Limit the number and frequency of vessel activity within the offshore project area to essential requirements only and where possible, smaller and quieter vessels will be selected.	Low	Minor (D)	**MNES Significant Impact Guidelines 1.1 – Commonwealth marine areas** **Wildlife Conservation Plan for Seabirds**	*Not required*	Low	Minor (D)
Construction vessel activities	Physical presence, noise and vibration: seabird disturbance	Change in fauna behaviour, including displacement (offshore)	All seabirds (excluding Little Penguin)	Low	Listed threatened, marine and/or migratory. Impacts of disturbance or displacement are expected to be of low spatial extent, intermittent and medium-term duration. As activities will only occur in a small proportion of the total OPA at any one time, it is expected that only birds within the vicinity of these activities will be affected directly and are expected to return to the area once the activity has ceased. Behaviour including migration, foraging, reproduction and/or survival rates are not likely to be affected. Species broadly distributed and/or seasonally present, abundant, not sensitive to the defined stressor.	Use of prescribed shipping routes between a port and project area. Limit the number and frequency of vessel activity within the offshore project area to essential requirements only and where possible, smaller and quieter vessels will be selected. Short-term effect as vessels in given location for periods of hours - days only	Low	Negligible (E)	**MNES Significant Impact Guidelines 1.1 – Commonwealth marine areas** **Wildlife Conservation Plan for Seabirds** **National Recovery Plan for Albatrosses and Petrels**	*Not required*	Low	Negligible (E)
Decommissioning vessel activities	Increased underwater noise levels above background level	Change in fauna behaviour, including displacement	Diving Seabirds: Little penguin (Ma) Black-faced cormorant (Ma) Little pied cormorant Common diving petrel (Ma, Mi) Australasian gannet (Ma) Short-tailed shearwater (Ma, Mi) Fluttering shearwater (Ma, Mi) Hutton's shearwater (Ma, Mi) Sooty shearwater (Ma, Mi) Wedge-tailed shearwater (Ma, Mi)	Low	Species broadly distributed and/or seasonally present, abundant, not sensitive to the defined stressor. Behaviour unlikely to be significantly affected, therefore migration, foraging, reproduction and/or survival rates are not likely to be affected. Species broadly distributed and/or seasonally present, abundant, not sensitive to the defined stressor.	FL Management Plan. Intial choice of vessels, where possible, to select smaller/quieter vessels	Medium	Minor (D)	**National light pollution guidelines** **MNES Significant Impact Guidelines 1.1 – migratory species** **MNES Significant Impact Guidelines 1.1 – Commonwealth marine areas** **Wildlife Conservation Plan for Seabirds**	*Not required*	Low	Negligible (E)
Decommissioning of foundations	Increased underwater noise levels above background level	Change in fauna behaviour, including displacement	Diving Seabirds: Little penguin (Ma) Black-faced cormorant (Ma) Little pied cormorant Common diving petrel (Ma, Mi) Australasian gannet (Ma) Short-tailed shearwater (Ma, Mi) Fluttering shearwater (Ma, Mi) Hutton's shearwater (Ma, Mi) Sooty shearwater (Ma, Mi) Wedge-tailed shearwater (Ma, Mi)	Low	Behaviour unlikely to be significantly affected, therefore migration, foraging, reproduction and/or survival rates are not likely to be affected. Species broadly distributed and/or seasonally present, abundant, not sensitive to the defined stressor. Potential foraging habitat encompasses a large area. Application of noise mitigation around operations to reduce potential impact.	Application of noise mitigation technology such as double big bubble curtains to reduce noise ensonified areas FL Management Plan Gradual ramp up in underwater noise	Medium	Minor (D)	**National light pollution guidelines** **MNES Significant Impact Guidelines 1.1 – migratory species** **MNES Significant Impact Guidelines 1.1 – Commonwealth marine areas** **Wildlife Conservation Plan for Seabirds**	*Not required*	Medium	Minor (D)
Foundation and cable removal (including scour protection)	Seabed disturbance - increased turbidity	Change in water quality (turbidity/ sediment plumes)	Little penguin (Ma) Black-faced cormorant (Ma) Little pied cormorant Pied Cormorant Common diving petrel (Ma, Mi) Australasian gannet (Ma) Caspian tern (Ma, Mi) Little tern (Ma, Mi) Greater crested tern (Ma, Mi)	Low	Behaviour unlikely to be significantly affected, therefore migration, foraging, reproduction and/or survival rates are not likely to be affected. Species broadly distributed and/or seasonally present, abundant.	Installation techniques selected/designed in to reduce impact	Low	Negligible (E)	**National light pollution guidelines** **MNES Significant Impact Guidelines 1.1 – migratory species** **MNES Significant Impact Guidelines 1.1 – Commonwealth marine areas** **Wildlife Conservation Plan for Seabirds**	*Not required*	Low	Negligible (E)
Decommissioning drilling and trenching	Seabed disturbance - increased turbidity	Change in water quality (turbidity/ sediment plumes)	Little penguin (Ma) Black-faced cormorant (Ma) Little pied cormorant Pied Cormorant Common diving petrel (Ma, Mi) Australasian gannet (Ma) Caspian tern (Ma, Mi) Little tern (Ma, Mi) Greater crested tern (Ma, Mi)	Low	Behaviour unlikely to be significantly affected, therefore migration, foraging, reproduction and/or survival rates are not likely to be affected. Species broadly distributed and/or seasonally present, abundant.	Installation techniques selected/designed in to reduce impact	Low	Negligible (E)	**National light pollution guidelines** **MNES Significant Impact Guidelines 1.1 – migratory species** **MNES Significant Impact Guidelines 1.1 – Commonwealth marine areas** **Wildlife Conservation Plan for Seabirds**	*Not required*	Low	Negligible (E)

Project activity	Event (ID no.)	Impact description	Receptor	Receptor sensitivity (Table 5.1)	Rationale for Sensitivity Ranking	Initial impact assessment			Residual impact assessment			
						Initial mitigation	Magnitude (Table 5.2, 5.3)	Consequence (Table 5.4, 5.5)	Assessment criteria (i.e. standards, guidance docs and requirements used to determine acceptable levels of impact)	Final mitigation	Magnitude (Table 5.7)	Consequence (Table 5.4, 5.5)
Decommissioning drilling and trenching	Seabed disturbance - increased turbidity	Change in fauna behaviour, including displacement	Little penguin (Ma) Black-faced cormorant (Ma) Little pied cormorant Pied Cormorant Common diving petrel (Ma, Mi) Australasian gannet (Ma) Caspian tern (Ma, Mi) Little tern (Ma, Mi) Greater crested tern (Ma, Mi)	Low	Behaviour unlikely to be significantly affected, therefore migration, foraging, reproduction and/or survival rates are not likely to be affected. Species broadly distributed and/or seasonally present, abundant.	Installation techniques selected/designed in to reduce impact	Low	Negligible (E)	**National light pollution guidelines** **MNES Significant Impact Guidelines 1.1 – migratory species** **MNES Significant Impact Guidelines 1.1 – Commonwealth marine areas** **Wildlife Conservation Plan for Seabirds**	*Not required*	Low	Negligible (E)
Decommissioning vessel activities	Routine discharges	Change in water quality affecting fauna behaviour	Little penguin (Ma) Black-faced cormorant (Ma) Little pied cormorant Pied Cormorant Common diving petrel (Ma, Mi) Australasian gannet (Ma) Caspian tern (Ma, Mi) Little tern (Ma, Mi) Greater crested tern (Ma, Mi)	Low	Discharges minimal and localised. Behaviour unlikely to be significantly affected, therefore migration, foraging, reproduction and/or survival rates are not likely to be affected. Species broadly distributed and/or seasonally present, abundant.	FL Management Plan - discharge management	Low	Negligible (E)	**National light pollution guidelines** **MNES Significant Impact Guidelines 1.1 – migratory species** **MNES Significant Impact Guidelines 1.1 – Commonwealth marine areas** **Wildlife Conservation Plan for Seabirds**	*Not required*	Low	Negligible (E)

Project activity	Event (ID no.)	Impact description	Receptor	Receptor sensitivity (Table 5.1)	Rationale for Sensitivity Ranking	Initial impact assessment			Residual impact assessment			
						Initial mitigation	Magnitude significance (Tables 5.2, 5.3)	Consequence (Tables 5.4, 5.5)	Assessment criteria (i.e. acceptable levels)	Final mitigation (Table 5.6)	Magnitude (Table 5.7)	Consequence (Tables 5.4, 5.5)
	Short statement – will be used to frame the risk heading in the risk assessment sections (include ID)		*Short statement describing value or receptor*	*High, Medium or Low*	*Consideration of behaviour, sensitivity to impact and protection status*	*These are mitigation/ management measures that are legally required, or are firm project commitments (e.g. bubble curtains), i.e. the project could/would not go ahead without these measures already in place*	*In terms of 'extent', 'duration' and 'severity' Negligible – Very High*	*Sensitivity x Magnitude*				*Additional to designed in and/or required by legislation*
Construction												
Shore crossing activities (onshore)	Physical presence, noise, light and vibration: bird disturbance	Change in fauna behaviour and habitat use	Orange-belled Parrot (CE, Ma)	Medium	High levels of protection. All available evidence suggests Orange-bellied parrot migrate through the western and, to a lesser extent, central Bass Strait. Behaviour unlikely to be significantly affected, therefore migration, foraging, reproduction and/or survival rates are not likely to be affected by shore crossing activities.	HDD (inherent design to reduce impacts to shoreline) Siting (location avoids important bird habitats) National light pollution guidelines for wildlife (Commonwealth 2023).	Negligible	Negligible (E)	**National light pollution guidelines** **MNES Significant Impact Guidelines 1.1 – migratory species**	*Not required*	Negligible	Negligible (E)
Shore crossing activities (onshore)	Physical presence, noise, light and vibration: bird disturbance	Change in fauna behaviour and habitat use	Swift Parrot (CE, Ma) Blue-winged Parrot (V, Ma)	Medium	Limited available evidence suggests that the species is likely to utilise Wilson's Promontory for migration departure and arrival. Moderate to high levels of protection. Behaviour unlikely to be significantly affected, therefore migration, foraging, reproduction and/or survival rates are not likely to be affected by shore crossing activities.	HDD (inherent design to reduce impacts to shoreline) Siting (location avoids important bird habitats) National light pollution guidelines for wildlife (Commonwealth 2023).	Low	Minor (D)	**National light pollution guidelines** **MNES Significant Impact Guidelines 1.1 – migratory species**	*Not required*	Negligible	Negligible (E)
Shore crossing activities (onshore)	Physical presence, noise, light and vibration: bird disturbance	Change in fauna behaviour and habitat use	Fork-tailed (Pacific) swift (V, Ma, Mi) White-throated needletail (V, Ma, Mi) Swamp harrier Welcome Swallow Tree Martin Flame Robin Grey Fantail Silvereye Other terrestrial migrants	Low	Low to moderate levels of protection. Behaviour unlikely to be significantly affected, therefore migration, foraging, reproduction and/or survival rates are not likely to be affected by shore crossing activities.	HDD (inherent design to reduce impacts to shoreline) Siting (location avoids important bird habitats) National light pollution guidelines for wildlife (Commonwealth 2023).	Negligible	Negligible (E)	**National light pollution guidelines**	*Not required*	Negligible	Negligible (E)
Shore crossing activities (onshore)	Physical presence, noise, light and vibration: bat disturbance	Change in fauna behaviour and habitat use	Grey-headed Flying-fox White-striped Free-tail Bat other bat species	Low	Low to moderate levels of protection. Behaviour unlikely to be significantly affected, therefore migration, foraging, reproduction and/or survival rates are not likely to be affected by shore crossing activities.	HDD (inherent design to reduce impacts to shoreline) Siting (location avoids important bat habitats) National light pollution guidelines for wildlife (Commonwealth 2023).	Negligible	Negligible (E)	**National light pollution guidelines**	*Not required*	Negligible	Negligible (E)
Construction vessel activities	Artificial light emissions	Changes in fauna behaviour - attraction to light and potential fall out/ground	Fork-tailed (Pacific) swift (V, Ma, Mi) White-throated needletail (V, Ma, Mi) Swamp harrier Welcome Swallow Tree Martin Flame Robin Grey Fantail Silvereye Other terrestrial migrants	Low	Low to moderate levels of protection. Behaviour unlikely to be significantly affected, therefore migration, foraging, reproduction and/or survival rates are not likely to be affected	National light pollution guidelines for wildlife (Commonwealth 2023). Minimum safe lighting for navigation FL Management Plan	Negligible	Negligible (E)	**National light pollution guidelines** **MNES Significant Impact Guidelines 1.1 – migratory species** **MNES Significant Impact Guidelines 1.1 – Commonwealth marine areas**	*Not required*	Negligible	Negligible (E)
Construction vessel activities	Artificial light emissions	Changes in fauna behaviour - attraction to light and potential fall out/ground	White-striped Free-tailed Bat Eastern bent-wing Bat	Medium	Low to moderate levels of protection. Behaviour unlikely to be significantly affected, therefore migration, foraging, reproduction and/or survival rates are not likely to be affected	National light pollution guidelines for wildlife (Commonwealth 2023). Minimum safe lighting for navigation FL Management Plan	Negligible	Negligible (E)	**National light pollution guidelines**	*Not required*	Negligible	Negligible (E)
Operations												
Operational wind turbines and infrastucture	Physical presence - operational turbines	Displacement of migrating terrestrial birds leading to energetic effects	Fork-tailed (Pacific) swift (V, Ma, Mi) White-throated needletail (V, Ma, Mi) Swamp harrier Welcome Swallow Tree Martin Flame Robin Grey Fantail Silvereye Other terrestrial migrants	Low	Low to moderate conservation status. Behaviour unlikely to be significantly affected, therefore migration, foraging, reproduction and/or survival rates are not likely to be affected. Relatively large population size contributes to resilience.		Low	Negligible (E)	**National light pollution guidelines** **MNES Significant Impact Guidelines 1.1 – migratory** **MNES Significant Impact Guidelines 1.1 – Commonwealth marine areas**	*Not required*	Medium	Minor (D)
Operational wind turbines and infrastucture	Physical presence - operational turbines	Displacement of migrating terrestrial bats leading to energetic effects	Grey-headed Flying-fox White-striped Free-tailed Bat Eastern Bent-winged Bat other bat species	Low	Low to moderate levels of protection. OWFA not likely to be an important migratory pathway, therefore migration, foraging, reproduction and/or survival rates are not likely to be affected.		Low	Negligible (E)		*Not required*	Medium	Minor (D)
Operational wind turbines and infrastucture	Artificial light emissions	Changes in fauna behaviour - attraction to light and potential fallout/grounding	Fork-tailed (Pacific) swift (V, Ma, Mi) White-throated needletail (V, Ma, Mi) Swamp harrier Welcome Swallow Tree Martin Flame Robin Grey Fantail Silvereye Other terrestrial migrants	Low	Low to moderate conservation status. Behaviour unlikely to be significantly affected, therefore migration, foraging, reproduction and/or survival rates are not likely to be affected. Relatively large population size contributes to resilience.	National light pollution guidelines for wildlife (Commonwealth 2023). Minimum safe lighting for navigation FL Management Plan	Medium	Minor (D)	**National light pollution guidelines** **MNES Significant Impact Guidelines 1.1 – migratory** **MNES Significant Impact Guidelines 1.1 – Commonwealth marine areas**	*Not required*	Medium	Minor (D)
Operational wind turbines and infrastucture	Artificial light emissions	Changes in fauna behaviour - attraction to light and potential fallout/grounding	Grey-headed Flying-fox White-striped Free-tailed Bat Eastern Bent-winged Bat other bat species	Low	Low to moderate conservation status. Behaviour unlikely to be significantly affected by low level operational lighting, therefore migration, foraging, reproduction and/or survival rates are not likely to be affected. Relatively large population size contributes to resilience.	National light pollution guidelines for wildlife (Commonwealth 2023). Minimum safe lighting for navigation FL Management Plan	Low	Negligible (E)	**National light pollution guidelines**	*Not required*	Medium	Minor (D)

Project activity	Event (ID no.)	Impact description	Receptor	Receptor sensitivity (Table 5.1)	Rationale for Sensitivity Ranking	Initial impact assessment			Residual impact assessment			
						Initial mitigation	Magnitude significance (Tables 5.2, 5.3)	Consequence (Tables 5.4, 5.5)	Assessment criteria (i.e. acceptable levels)	Final mitigation (Table 5.6)	Magnitude (Table 5.7)	Consequence (Tables 5.4, 5.5)
Project vessel activities	Artificial light emissions	Changes in fauna behaviour - attraction to light and potential fall out	Fork-tailed (Pacific) swift (V, Ma, Mi) White-throated needletail (V, Ma, Mi) Swamp harrier Welcome Swallow Tree Martin Flame Robin Grey Fantail Silvereye Other terrestrial migrants	Low	Low to moderate conservation status. Behaviour unlikely to be significantly affected, therefore migration, foraging, reproduction and/or survival rates are not likely to be affected. Relatively large population size contributes to resilience.	National light pollution guidelines for wildlife (Commonwealth 2023). Minimum safe lighting for navigation FL Management Plan	Low	Negligible (E)	**National light pollution guidelines** **MNES Significant Impact Guidelines 1.1 – migratory** **MNES Significant Impact Guidelines 1.1 – Commonwealth marine areas**	*Not required*	Low	Negligible (E)
Project vessel activities	Artificial light emissions	Changes in fauna behaviour - attraction to light and potential fall out	Grey-headed Flying-fox White-striped Free-tailed Bat Eastern Bent-winged Bat other bat species	Low	There's little to suggest bats are strongly attracted to lights. Lighting is more likely to be detrimental by alienating otherwise unlit habitat (e.g. Linley et al. 2015). Low to moderate levels of protection. OWFA not likely to be an important migratory pathway, therefore migration, foraging, reproduction and/or survival rates are not likely to be affected by navigational lighting on project vessels.	National light pollution guidelines for wildlife (Commonwealth 2023). Minimum safe lighting for navigation FL Management Plan	Low	Negligible (E)	**National light pollution guidelines**	*Not required*	Low	Negligible (E)
Decommissioning												
Assume the same as construction throughout												
Shore crossing activities (onshore)	Physical presence, noise, light and vibration: bird disturbance	Change in fauna behaviour and habitat use	Fork-tailed (Pacific) swift (V, Ma, Mi) White-throated needletail (V, Ma, Mi) Swamp harrier Welcome Swallow Tree Martin Flame Robin Grey Fantail Silvereye Other terrestrial migrants	Low	Low to moderate levels of protection. Behaviour unlikely to be significantly affected, therefore migration, foraging, reproduction and/or survival rates are not likely to be affected by HDD activities.	HDD (inherent design to reduce impacts to shoreline) Siting (location avoids important bird habitats) National light pollution guidelines for wildlife (Commonwealth 2023).	Negligible	Negligible (E)	**National light pollution guidelines** **MNES Significant Impact Guidelines 1.1 – migratory** **MNES Significant Impact Guidelines 1.1 – Commonwealth marine areas**	*Not required*	Negligible	Negligible (E)
Shore crossing activities (onshore)	Physical presence, noise, light and vibration: bat disturbance	Change in fauna behaviour and habitat use	Grey-headed Flying-fox White-striped Free-tailed Bat other bat species	Low	Low to moderate levels of protection. Behaviour unlikely to be significantly affected, therefore migration, foraging, reproduction and/or survival rates are not likely to be affected by shore crossing activities.	HDD (inherent design to reduce impacts to shoreline) Siting (location avoids important bird habitats) National light pollution guidelines for wildlife (Commonwealth 2023).	Negligible	Negligible (E)	**National light pollution guidelines**	*Not required*	Negligible	Negligible (E)
De-construction vessel activities	Artificial light emissions	Changes in fauna behaviour - attraction to light and potential fall out/ground	Fork-tailed (Pacific) swift (V, Ma, Mi) White-throated needletail (V, Ma, Mi) Swamp harrier Welcome Swallow Tree Martin Flame Robin Grey Fantail Silvereye Other terrestrial migrants	Low	Low to moderate levels of protection. Behaviour unlikely to be significantly affected, therefore migration, foraging, reproduction and/or survival rates are not likely to be affected	National light pollution guidelines for wildlife (Commonwealth 2023). Minimum safe lighting for navigation FL Management Plan	Negligible	Negligible (E)	**National light pollution guidelines** **MNES Significant Impact Guidelines 1.1 – migratory** **MNES Significant Impact Guidelines 1.1 – Commonwealth marine areas**	*Not required*	Negligible	Negligible (E)
De-construction vessel activities	Artificial light emissions	Changes in fauna behaviour - attraction to light and potential fall out/ground	Grey-headed Flying-fox White-striped Free-tailed Bat other bat species	Medium	Low to moderate levels of protection. Behaviour unlikely to be significantly affected, therefore migration, foraging, reproduction and/or survival rates are not likely to be affected	National light pollution guidelines for wildlife (Commonwealth 2023). Minimum safe lighting for navigation FL Management Plan	Negligible	Negligible (E)	**National light pollution guidelines**	*Not required*	Negligible	Negligible (E)

Project activity	Event (ID no.)	Receptor	Receptor sensitivity (Table 5.1)	Rationale for Sensitivity Ranking	Initial risk assessment					Residual risk assessment				
					Initial mitigation	Magnitude significance (Table 5.2, 5.3)	Consequence (Table 5.4, 5.5)	Likelihood (Table 5.6)	Initial risk (Table 5.7)	Final mitigation	Magnitude (Table 5.2, 5.3)	Consequence (Table 5.4, 5.5)	Likelihood (Table 5.6)	Residual risk (Table 5.7)
	Short statement – will be used to frame the risk heading in the risk assessment sections (include ID)	*Short statement describing value or receptor*	*High, Medium or Low*	*Consideration of behaviour, sensitivity to impact and protection status*	*These are mitigation/ management measures that are legally required, or are firm project commitments (e.g. bubble curtains), i.e. the project could/would not go ahead without these measures already in place*	*In terms of 'extent', 'duration' and 'severity' Negligible – Very High*	*Sensitivity x Magnitude*	*Probability of an unexpected (accidental) event occurring*	*Consequence x Likelihood*	*Additional to designed in and/or required by legislation*	*In terms of 'extent', 'duration' and 'severity'*	*Sensitivity x Magnitude*	*Probability of an unexpected (accidental) event occurring*	*Consequence x Likelihood*
Construction														
Project vessel activities	Physical presence of vessel: propeller injury or death (includes vessel transit from ports)	Little Penguin (Ma)	Medium	Marine listed species, broadly distributed, seasonally present only, abundant, not significantly sensitive to the defined stressor. Potential to be impacted within the offshore project area (particularly during winter months), and construction vessels transiting to/from ports.		Medium	Moderate (C)	Possible	Medium	Installation of propeller guards on vessels	Negligible	Negligible (E)	Rare	Very low
Vessel to vessel collision	Unplanned hydrocarbon release - oiled birds within the EMBA	All seabirds	High	All receptors sensitive to unplanned hydrocarbon release. Limited ability to adapt behaviour therefore survival and reproduction rates may be affected.	*vessel management plans communication procedures/management of SIMOPS Oil pollution emergency plan*	Medium	Major (B)	*Rare*	*Medium*	*vessel management plans communication procedures/management of SIMOPS Oil pollution emergency plan*	Negligible	Minor (D)	*Rare*	*Very low*
Vessel to vessel collision	Unplanned hydrocarbon release - toxicity	All seabirds	High	All receptors sensitive to unplanned hydrocarbon release. Limited ability to adapt behaviour therefore survival and reproduction rates may be affected.	*vessel management plans communication procedures/management of SIMOPS Oil pollution emergency plan*	Medium	Major (B)	*Rare*	*Medium*	*vessel management plans communication procedures/management of SIMOPS Oil pollution emergency plan*	Negligible	Minor (D)	*Rare*	*Very low*
Construction piling of foundations / Project vessel activities / HDD activities (onshore)	Trash or debris leading to entanglement or ingestion	All seabirds and shorebirds	Medium	Compliance with marine debris threat abatement plan to avoid entangelement. Behaviour unlikely to be significantly affected, therefore migration, foraging, reproduction and/or survival rates are not likely to be affected. Species broadly distributed and/or seasonally present, abundant, not sensitive to the defined stressor.	Compliance with Threat abatement plan for the impacts of marine debris on the vertebrate wildlife of Australia's coasts and ocean	Low	Minor (D)	*Unlikely*	*Very low*	*Not applicable*	Low	Minor (D)	*Unlikely*	*Very low*
Operations														
Project vessel activities	Physical presence of vessel: propeller injury or death (includes vessel transit from ports)	Little Penguin (Ma)	Medium	Marine listed species, broadly distributed, seasonally present only, abundant, not significantly sensitive to the defined stressor. Potential to be impacted within the offshore project area (particularly during winter months), and construction vessels transiting to/from ports.		Medium	Moderate (C)	Possible	Medium	Installation of propeller guards on vessels	Negligible	Negligible (E)	Rare	Very low
Wind turbine operations	Physical presence of operational turbines resulting in bird strike in significant numbers leading to a population level effect	Shy Albatross (E, Ma, Mi)	High	Species with high protection status. Limited tolerance and ability to adapt behaviour therefore survival and reproduction rates could be affected if high numbers of collisions occur. Worst case vmodelling scenario - 50% Shy albatross on site CRM of worst-case WTG scenario suggests up to 4.31 individuals may be impacted per annum from a total Aus popn size of ~31,000, but noting avoidance capacity is unknown. 95% (n=322) of indivduals observed flying at heights < 30 m during MEBS in weather conditions for suitable for boat-based surveys.	35 m airgap (increased from 25 m) in response to data from site showing great majority of flights occur below 35 m	Medium	Major (B)	*Unlikely*	Medium	focus on the outcome - no population level impact for Shy Albatross. Monitoring at the turbine/ biologging to determine avoidance rates and any potential collisions. IF collision mortality identified, exploration of -mitigations options and offsets as necessary. Technology developing rapidly - to be further investigated following installation/prior to operation	Medium	Major (B)	*Unlikely*	*Medium*
Wind turbine operations	Physical presence of operational turbines resulting in bird strike in significant numbers leading to a population level effect	White-capped albatross (V, Ma, Mi)	Medium	Species with high protection status in Australia, breeding in NZ. Limited tolerance and ability to adapt behaviour therefore survival and reproduction rates could be affected if high numbers of collisions occur. Worst case scenario - 90% White-capped albatross on site CRM of worst-case WTG scenario suggests up to 7.75 individuals may be impacted per annum, but noting popn size is 775,000 individuals and avoidance capacity is unknown. 95% (n=322) of indivduals observed flying at heights < 30 m during MEBS in weather conditions for suitable for boat-based surveys.	35 m airgap (increased from 25 m) in response to data from site showing great majority of flights occur below 35 m	Medium	Moderate (C)	*Unlikely*	Low	Monitoring at the turbine/ biologging to determine avoidance rates and any potential collision. If collision mortality identified, exploration-of offsets as necessary. Technology developing rapidly - to be further investigated following installation/prior to operation	Medium	Moderate (C)	*Unlikely*	*Low*

Project activity	Event (ID no.)	Receptor	Receptor sensitivity (Table 5.1)	Rationale for Sensitivity Ranking	Initial risk assessment					Residual risk assessment				
					Initial mitigation	Magnitude significance (Table 5.2, 5.3)	Consequence (Table 5.4, 5.5)	Likelihood (Table 5.6)	Initial risk (Table 5.7)	Final mitigation	Magnitude (Table 5.2, 5.3)	Consequence (Table 5.4, 5.5)	Likelihood (Table 5.6)	Residual risk (Table 5.7)
Wind turbine operations	Physical presence of operational turbines resulting in bird strike in significant numbers leading to a population level effect	Black-browed albatross (V, Ma, Mi) Indian yellow-nosed albatross (V, Ma, Mi) Northern giant petrel (V, Ma, Mi) Southern giant petrel (En, en, Ma, Mi) Wandering (Snowy) albatross (Vu, cr, Ma, Mi) Gibson's albatross (Vu, Ma) Amsterdam albatross (E, Ma, Mi) Antipodean albatross (Vu, Ma, Mi) Tristan albatross (E, Ma, Mi) Campbell albatross (Vu, Ma, Mi) Buller's albatross (Vu, en, Ma, Mi) Gould's petrel (EN, Ma)	Medium	Few records in the OPA. Species with moderate protection status. Limited tolerance and ability to adapt behaviour therefore survival and reproduction rates may be affected per annum CRM of worst-case WTG scenario suggests up to 0.67 black-browed albatross and 0.24 Indian Yellow-nosed albatross may be impacted per annum, but noting avoidance capacity is not measured for these species	35 m airgap (increased from 25 m) in response to data from site showing great majority of flights occur below 35 m	Medium	Moderate (C)	*Rare*	Low	Monitoring at the turbine to determine avoidance rates and any potential collision. If collision mortality identified, exploration of ultrasonic bird repellers and/or 'smart curtailment' as necessary. Technology developing rapidly - to be further investigated following installation/prior to operation	Medium	Moderate (C)	*Rare*	*Low*
Wind turbine operations	Physical presence of operational turbines resulting in bird strike in significant numbers leading to a population level effect	Sooty shearwater (Ma, Mi, V) Soft-plumaged petrel (V, Ma)	Low	Species with moderate conservation status (Vulnerable species) but infrequently observed in OWFA and at height that are below the RSA. Tolerant – broadly distributed and/or seasonally present, abundant, not sensitive to the defined stressor. Flight heights typically lower than rotor swept area. Predicted annual collisions are orders of magnitude less than natural losses and deaths from other sources. Very low predicted worst case scenarios for sooty shearwater (0.23), but noting avoidance capacity is unknown. CRM not completed for Soft-plumaged petrel due to absence of flight height observations in OWFA.	35 m airgap (increased from 25 m) in response to data from site showing great majority of flights occur below 35 m	Medium	Minor (D)	*Rare*	Very low	Not applicable	Medium	Minor (D)	*Rare*	*Very low*
Wind turbine operations	Physical presence of operational turbines resulting in bird strike in significant numbers leading to a population level effect	Short-tailed shearwater (Ma, Mi) Fluttering shearwater (Ma, Mi) Hutton's shearwater (Ma, Mi) Fairy prion (Ma, Mi) Buller's shearwater (Ma) Common Diving Petrel (Ma)	Low	Tolerant – broadly distributed and/or seasonally present, abundant, not sensitive to the defined stressor. Flight heights typically lower than rotor swept area. Predicted annual collisions are orders of magnitude less than natural losses and deaths from other sources. CRM of worst case WTG scenario is greatest for fluttering shearwater (25.48 individuals per annum), short-tailed shearwater (19.77), fairy prion (7.74) huttons shearwater (6.55), then sooty shearwater (0.21), but noting avoidance capacity is unknown	35 m airgap (increased from 25 m) in response to data from site showing great majority of flights occur below 35 m	Medium	Minor (D)	*Rare*	Very low	Not applicable	Medium	Minor (D)	*Rare*	*Very low*
Wind turbine operations	Physical presence of operational turbines resulting in bird strike in significant numbers leading to a population level effect	Wedge-tailed shearwater (Ma, Mi) Cape Petrel (Ma) White-headed petrel (Ma) Antarctic prion (Ma) Wilson's storm-petrel (Ma, Mi) Grey-backed storm-petrel (Ma) Providence petrel (Ma)	Low	Species with low conservation status and/or infrequently observed in OWFA. Tolerant – broadly distributed and/or seasonally present, abundant, not sensitive to the defined stressor. Flight heights typically lower than rotor swept area. Predicted annual collisions are orders of magnitude less than natural losses and deaths from other sources.	35 m airgap (increased from 25 m) in response to data from site showing great majority of flights occur below 35 m	Medium	Minor (D)	*Rare*	Very low	Not applicable	Medium	Minor (D)	*Rare*	*Very low*
Wind turbine operations	Physical presence of operational turbines resulting in bird strike in significant numbers leading to a population level effect	Great cormorant (Ma) Little-black cormorant (Ma) Black-faced formorant (Ma) Pied cormorant (Ma) Little pied cormorant (Ma)	Low	Species with low conservation status but small to moderate population size. Tolerant – broadly distributed and/or seasonally present, abundant, not sensitive to the defined stressor. Flight heights typically lower than rotor swept area.	Species with low conservation significance. 35 m airgap (increased from 25 m) in response to data from site showing great majority of flights occur below 35 m	Medium	Minor (D)	*Rare*	Very low		Medium	Minor (D)	*Rare*	*Very low*
Wind turbine operations	Physical presence of operational turbines resulting in bird strike in significant numbers leading to a population level effect	Australasian gannet (Ma) Greater crested tern (Ma, Mi) Pacific Gull (Ma)	Medium	Species with low protection status. Some tolerance and ability to adapt behaviour - migration and foraging may be affected but reproduction and survival rates are unlikely to be affected. However, results from CRM indicate the species may be sensitive to collision. Diurnal foraging behaviour. Predicted annual collisions are orders of magnitude less than natural losses and deaths from other sources. Recommended avoidance rate for Northern Gannett (SNCB's) is higher at 0.992. A two-year at-turbine monitoring study in Aberdeen, UK, showed high avoidance and concluded very low risk of collision during daylight hours (Tjørnløv et al. 2023)	35 m airgap (increased from 25 m) in response to data from site showing great majority of flights occur below 35 m	Medium	Moderate (C)	*Rare*	Low	Not applicable	Medium	Moderate (C)	*Rare*	*Low*
Wind turbine operations	Physical presence of operational turbines resulting in bird strike in significant numbers leading to a population level effect	Little tern (Ma, Mi, v) Fairy tern (V)	Low	Species with moderate protection status. Some tolerance. Typically inshore foragers, remaining close to shore (< 5km) while breeding (Perrow et al. 2006; Paton & Rogers 2009), i.e. outside OWFA. Observed in small numbers within the OWFA.	35 m airgap (increased from 25 m) in response to data from site showing great majority of flights occur below 35 m	Medium	Minor (D)	*Rare*	Very low	Not applicable	Medium	Minor (D)	*Rare*	*Very low*

Project activity	Event (ID no.)	Receptor	Receptor sensitivity (Table 5.1)	Rationale for Sensitivity Ranking	Initial risk assessment					Residual risk assessment				
					Initial mitigation	Magnitude significance (Table 5.2, 5.3)	Consequence (Table 5.4, 5.5)	Likelihood (Table 5.6)	Initial risk (Table 5.7)	Final mitigation	Magnitude (Table 5.2, 5.3)	Consequence (Table 5.4, 5.5)	Likelihood (Table 5.6)	Residual risk (Table 5.7)
Wind turbine operations	Physical presence of operational turbines resulting in bird strike in significant numbers leading to a population level effect	Silver gull (Ma) Kelp gull (Ma) Caspian tern (Ma, Mi) Little tern (Ma, Mi) Fairy Tern (Vu, cr, Ma) Common tern (Ma) White-fronted tern (Ma) Greater crested tern (Ma, Mi)	Low	Species with low to moderate protection status. Tolerant – broadly distributed and/or seasonally present, abundant, not sensitive to the defined stressor. CRM of worst case WTG scenario suggests up to 1.26 silver gulls may be impacted, but noting moderate avoidance rate. A two-year at-turbine monitoring study showed high avoidance by gulls and concluded very low risk of collision during daylight hours (Tjørnløv et al. 2023)	35 m airgap (increased from 25 m) in response to data from site showing great majority of flights occur below 35 m	Medium	Minor (D)	*Rare*	Very low	Not applicable	Medium	Minor (D)	*Rare*	*Very low*
Wind turbine operations	Physical presence of operational turbines resulting in bird strike in significant numbers leading to a population level effect	Arctic jaeger (Ma, Mi) Pomarine jaeger (Ma, Mi) Brown skua (Ma, Mi)	Low	Species with moderate protection status. Broadly distributed and/or seasonally present. Small numbers of individuals observed in the OPA, i.e. Arctic Skua n=73, Pomarine Jaeger n=7, Brown Skua n=14. CRM of worst case WTG scenario suggests up to 0.33 Arctic Jaeger and 0.27 Pomarine Jaeger and 1.73 Brown Skua may be impacted per annum, but noting moderate avoidance rate (0.985).		Medium	Minor (D)	*Rare*	Very low	Not applicable	Medium	Minor (D)	*Rare*	*Very low*
Wind turbine operations	Physical presence of operational turbines resulting in bird strike in significant numbers leading to a population level effect	Black swan	Low	Species with low protection status and broadly distributed. Some tolerance and ability to adapt behaviour, migration and foraging may be affected but reproduction and survival rates are unlikely to be affected. Flys both day and night. Collision risk high in UK (Rees 2012) but low in Japan (Moriguchi et al 2019) due to avoidance behaviours and unstudied in Australia.	35 m airgap (increased from 25 m) in response to data from site showing great majority of flights occur below 35 m	Medium	Minor (D)	*Rare*	Very low	Not applicable	Medium	Minor (D)	*Rare*	*Very low*
Wind turbine operations	Physical presence of operational turbines resulting in bird strike in significant numbers leading to a population level effect	Cape Barren goose (Ma)	Low	Species with low protection status (eastern subspecies). Not sensitive to the defined stressor because of diurnal habits and low flight altitudes (under 30m) (Cook et al. 2012, Reid et al. 2023). Relatively large population size and fecundity contributes to resilience.	35 m airgap (increased from 25 m) in response to data from site showing great majority of flights occur below 35 m	Medium	Minor (D)	*Rare*	Very low	Not applicable	Medium	Minor (D)	*Rare*	*Very low*
Wind turbine operations	Physical presence of operational turbines resulting in bird strike in significant numbers leading to a population level effect	Musk duck (Ma) Blue-billed duck Australian wood duck Australian shelduck Pink-eared duck Chestnut teal Grey teal Hardhead Pacific black duck Australian shoveler	Low	Species with low protection status. Some tolerance and ability to adapt behaviour, migration and foraging may be affected but reproduction and survival rates are unlikely to be affected. Flys both day and night. Collision risk is considered moderate for most species except Musk duck (Reid et al. 2023). High fecundity contributes to resilience.	35 m airgap (increased from 25 m) in response to data from site showing great majority of flights occur below 35 m	Medium	Minor (D)	*Rare*	Very low	Not applicable	Medium	Minor (D)	*Rare*	*Very low*
Wind turbine operations	Physical presence of operational turbines resulting in bird strike in significant numbers leading to a population level effect	<u>Populations overwintering in Victoria</u> Bar-tailed godwit (EN, vu, Mi) Curlew Sandpiper (CR, cr, Mi) Grey Plover (VU, Mi) Red Knot (VU, en, Mi) Red-necked Stint (Mi)	Low	Moderate to high levels of protection under the EBPC Act and FFG Act and >1% of the population overwintering in Corner Inlet. Available evidence suggests species migrate at considerable height likely to be greater than rotor swept height. The OPA is not considered an important habitat for the species. Migration, foraging, reproduction and/or survival rates are not likely to be affected.		Medium	Minor (D)	*Rare*	Very low	Not applicable	Medium	Minor (D)	*Rare*	*Very low*
Wind turbine operations	Physical presence of operational turbines resulting in bird strike in significant numbers leading to a population level effect	<u>Populations overwintering in Victoria</u> Common Greenshank (EN, en, Mi) Great Knot (VU, cr, Mi) Greater Sand Plover (VU, vu, Mi) Lesser (Mongolian) Sand Plover (EN, en, Mi) Grey-tailed Tattler (cr) Latham's Snipe (VU, Mi) Ruddy Turnstone (VU, en, Mi) Sanderling (Mi) Sharp-tailed Sandpiper (VU, Mi)	Low	Moderate to high levels of protection under the EBPC Act and FFG Act and <1% of the population overwintering in Corner Inlet. Available evidence suggests species migrate at considerable height likely to be greater than rotor swept height. Important habitat does not overlap the OPA. Migration, foraging, reproduction and/or survival rates are not likely to be affected.		Medium	Minor (D)	*Rare*	Very low	Not applicable	Medium	Minor (D)	*Rare*	*Very low*
Wind turbine operations	Physical presence of operational turbines resulting in bird strike in significant numbers leading to a population level effect	<u>Populations overwintering in Victoria</u> Whimbrel (en, Mi)	Medium	Moderate to high levels of protection under the EBPC Act and FFG Act and <1% of the population overwintering in Corner Inlet. Important habitat does not overlap the OPA. Migration, foraging, reproduction and/or survival rates are not likely to be affected.		Medium	Moderate (C)	*Rare*	Low	Not applicable	Medium	Minor (D)	*Rare*	*Very low*
Wind turbine operations	Physical presence of operational turbines resulting in bird strike in significant numbers leading to a population level effect	<u>Populations overwintering in Victoria</u> Far Eastern Curlew (CR, cr, Mi)	Medium	High level of protection under the EBPC Act and FFG Act and up to 4.2% of the population overwintering in Corner Inlet. Important habitat does not overlap the OPA. Migration, foraging, reproduction and/or survival rates are not likely to be affected.		Medium	Moderate (C)	*Rare*	Low	Not applicable	Medium	Moderate (C)	*Rare*	*Low*

Project activity	Event (ID no.)	Receptor	Receptor sensitivity (Table 5.1)	Rationale for Sensitivity Ranking	Initial risk assessment					Residual risk assessment				
					Initial mitigation	Magnitude significance (Table 5.2, 5.3)	Consequence (Table 5.4, 5.5)	Likelihood (Table 5.6)	Initial risk (Table 5.7)	Final mitigation	Magnitude (Table 5.2, 5.3)	Consequence (Table 5.4, 5.5)	Likelihood (Table 5.6)	Residual risk (Table 5.7)
Wind turbine operations	Physical presence of operational turbines resulting in bird strike in significant numbers leading to a population level effect	Populations overwintering in Victoria Double-banded Plover (Mi)	Medium	Moderate level of protection under the EBPC Act and >1% of the population overwintering in Corner Inlet. Important habitat does not overlap the OPA. Migration may be affected but foraging, reproduction and/or survival rates are not likely to be affected.		Medium	Moderate (C)	*Possible*	Medium	Not applicable	Medium	Moderate (C)	*Unlikely*	*Low*
Wind turbine operations	Physical presence of operational turbines resulting in bird strike in significant numbers leading to a population level effect	Populations overwintering in Tasmania Red-necked Stint (Mi) Ruddy Turnstone (VU, en, Mi) Sanderling (Mi)	Medium	Moderate to high levels of protection under the EBPC Act and FFG Act and <1% of the population overwintering in Corner Inlet. Available evidence suggests species migrate at considerable height likely to be greater than rotor swept height. Important habitat does not overlap the OPA. Migration, foraging, reproduction and/or survival rates are not likely to be affected.		Medium	Moderate (C)	*Rare*	Low	Not applicable	Medium	Moderate (C)	*Rare*	*Low*
Wind turbine operations	Physical presence of operational turbines resulting in bird strike in significant numbers leading to a population level effect	Populations overwintering in Tasmania Bar-tailed godwit (EN, vu, Mi) Common Greenshank (EN, en, Mi) Curlew Sandpiper (CR, cr, Mi) Great Knot (VU, cr, Mi) Greater Sand Plover (VU, vu, Mi) Red Knot (VU, en, Mi) Sharp-tailed Sandpiper (VU, Mi)	Low	Moderate to high levels of protection under the EBPC Act and FFG Act and <1% of the population overflying Bass Strait. Available evidence suggests species migrate at considerable height, likely to be greater than rotor swept height. It is assumed the migration front is broad and the OPA represents a very narrow area; thus potential exposure to the OPA is limited. In the event any individuals overfly OPA, it is likely to represent a very small proprtion of the total Australian population. The OPA is not considered an important habitat for the species. Migration, foraging, reproduction and/or survival rates are not likely to be affected.		Medium	Minor (D)	*Rare*	Very low	Not applicable	Medium	Minor (D)	*Rare*	*Very low*
Wind turbine operations	Physical presence of operational turbines resulting in bird strike in significant numbers leading to a population level effect	Populations overwintering in Tasmania Whimbrel (en, Mi)	Low	Moderate levels of protection under the EBPC Act and FFG Act but very small numbers (n=21, 0.08% of the population overwintering in Tasmania) overflying Bass Strait. The OPA is not considered an important habitat for the species. Migration, foraging, reproduction and/or survival rates are not likely to be affected.		Medium	Minor (D)	*Rare*	Very low	Not applicable	Medium	Minor (D)	*Rare*	*Very low*
Wind turbine operations	Physical presence of operational turbines resulting in bird strike in significant numbers leading to a population level effect	Population overwintering in Tasmania Latham's Snipe (VU, Mi)	Low	High level of protection under the EBPC Act and FFG Act and 0.82% of the population overwintering in Tasmania and overflying Bass Strait. Available evidence suggests species migrate at heights that may put them at risk of turbine collision when overflying the sea. It is assumed the migration front is broad and the OPA represents a very narrow area; thus potential exposure to the OPA is limited. In the event any individuals overfly OPA, it is likely to represent a very small proprtion of the total Australian population. The OPA is not considered an important habitat for the species. Migration, foraging, reproduction and/or survival rates are not likely to be affected.		Medium	Minor (D)	*Rare*	Very low	Not applicable	Medium	Minor (D)	*Rare*	*Very low*
Wind turbine operations	Physical presence of operational turbines resulting in bird strike in significant numbers leading to a population level effect	Populations overwintering in Tasmania Far Eastern Curlew (CR, cr, Mi)	Medium	High level of protection under the EBPC Act and FFG Act and 0.82% of the population overwintering in Tasmania and overflying Bass Strait. Available evidence suggests species migrate at heights that may put them at risk of turbine collision when overflying the sea. It is assumed the migration front is broad and the OPA represents a very narrow area; thus potential exposure to the OPA is limited. In the event any individuals overfly OPA, it is likely to represent a very small proprtion of the total Australian population. The OPA is not considered an important habitat for the species. Migration may be affected for a small number of individuals but reproduction and survival rates are unlikely to be affected.		Medium	Moderate (C)	*Rare*	Low	Not applicable	Medium	Moderate (C)	*Rare*	*Low*
Wind turbine operations	Physical presence of operational turbines resulting in bird strike in significant numbers leading to a population level effect	Populations overwintering in Tasmania Double-banded Plover (Mi)	Medium	Moderate level of protection under the EBPC Act and >52% of the Australian population overwintering in Tasmania. Flight path not known but if flights are direct from New Zealand, birds not likely to overfly the OPA. Migration may be affected but reproduction and survival rates are unlikely to be affected.		Medium	Moderate (C)	*Unlikely*	Low	Not applicable	Medium	Moderate (C)	*Unlikely*	*Low*

Project activity	Event (ID no.)	Receptor	Receptor sensitivity (Table 5.1)	Rationale for Sensitivity Ranking	Initial risk assessment					Residual risk assessment				
					Initial mitigation	Magnitude significance (Table 5.2, 5.3)	Consequence (Table 5.4, 5.5)	Likelihood (Table 5.6)	Initial risk (Table 5.7)	Final mitigation	Magnitude (Table 5.2, 5.3)	Consequence (Table 5.4, 5.5)	Likelihood (Table 5.6)	Residual risk (Table 5.7)
Wind turbine operations	Physical presence of operational turbines resulting in bird strike in significant numbers leading to a population level effect	Populations moving between Victoria, Flinders Island, King Island and Tasmania Australian Pied Oystercatcher Sooty Oystercatcher	Low	Low level of protection under the EBPC Act and FFG Act. While there is no empirical flight height data for the Australian Pied Oystercatcher or Sooty Oystercatcher, the Eurasian Oystercatcher has been shown to exploit the ground effect, flying close to the waters surface to save energy (Finn et al. 2012). While it is possible that some individuals pass through the OWFA on migration, numbers are likely to represent a very small proportion of the total Australian population, and any movements through the area are probably infrequent. Migration, foraging, reproduction and/or survival rates are not likely to be affected.		Low	Negligible (E)	*Rare*	Very low	Not applicable	Low	Negligible (E)	*Rare*	*Very low*
Vessel to vessel collision or vessel-to-turbine collision	unplanned hydrocarbon release - oiled birds within the EMBA	All seabirds and shorebirds	High	All receptors sensitive to unplanned hydrocarbon release. Limited ability to adapt behaviour therefore survival and reproduction rates may be affected. Relatively large population size and fecundity contributes to resilience.	*Vessel management plans* *communication procedures/management of SIMOPS* *Oil pollution emergency plan*	Medium	Major (B)	*Rare*	*Medium*		Negligible	Minor (D)	*Rare*	*Very low*
Decommissioning														
ASSUME SAME AS CONSTRUCTION														
Project vessel activities	Vessel propeller injury or death (includes vessel transit from ports)	Little penugins (Ma)	Medium	Marine listed species, broadly distributed, seasonally present only, abundant, not significantly sensitive to the defined stressor. Potential to be impacted within the offshore project area (particularly during winter months), and construction vessels transiting to/from ports.		Medium	Moderate (C)	Possible	Medium	*Installation of propeller guards on vessels* *Potential for speed restrictions*	Negligible	Negligible (E)	Rare	Very low
Vessel to vessel collision	unplanned hydrocarbon release - oiled birds within the EMBA	All seabirds and shorebirds	High	All receptors sensitive to unplanned hydrocarbon release. Limited ability to adapt behaviour therefore survival and reproduction rates may be affected.	*vessel management plans* *communication procedures/management of SIMOPS* *oil spill response plan*	Medium	Major (B)	*Rare*	*Medium*		Negligible	Minor (D)	*Rare*	*Very low*
Project vessel activities	Trash or debris leading to entanglement or ingestion	All seabirds and shorebirds	Low	Compliance with marine debris threat abatement plan to avoid entangelement. Behaviour unlikely to be significantly affected, therefore migration, foraging, reproduction and/or survival rates are not likely to be affected. Species broadly distributed and/or seasonally present, abundant, not sensitive to the defined stressor.	Compliance with Threat abatement plan for the impacts of marine debris on the vertebrate wildlife of Australia's coasts and ocean	Low	Negligible (E)	*Unlikely*	*Very low*	*Not applicable*	Low	Negligible (E)	*Unlikely*	*Very low*

Project activity	Event (ID no.)	Receptor	Receptor sensitivity (Table 5.1)	Rationale for Sensitivity Ranking	Initial risk assessment					Residual risk assessment				
					Initial mitigation	Magnitude (Tables 5.2, 5.3)	Consequence (Tables 5.4, 5.5)	Likelihood (Table 5.6)	Initial risk (Table 5.7)	Final mitigation	Magnitude (Tables 5.2, 5.3)	Consequence (Tables 5.4, 5.5)	Likelihood (Table 5.6)	Residual risk (Table 5.7)
	Short statement – will be used to frame the risk heading in the risk assessment sections (include ID)	*Short statement describing value or receptor*	*High, Medium or Low*	*Consideration of behaviour, sensitivity to impact and protection status*	*These are mitigation/ management measures that are legally required, or are firm project commitments (e.g. bubble curtains), i.e. the project could/would not go ahead without these measures already in place*	*In terms of 'extent', 'duration' and 'severity' Negligible – Very High*	*Sensitivity x Magnitude*	*Probability of an unexpected (accidental) event occurring*	*Consequence x Likelihood*	*Additional to designed in and/or required by legislation*	*In terms of 'extent', 'duration' and 'severity'*	*Sensitivity x Magnitude*	*Probability of an unexpected (accidental) event occurring*	*Consequence x Likelihood*
Construction														
	onshore light and noise **out of scope for offshore**													
Operations														
Wind turbine operations	Physical presence of operational turbines resulting in bird strike	Orange-bellied Parrot (CE, Ma)	Low	High level of protection. No evidence or logic to suggest OBPs would fly through the wind farm, based on probable migration pathway identified in recovery plan. Behaviour unlikely to be significantly affected, therefore migration, foraging, reproduction and/or survival rates are not likely to be affected	wind farm located away from known/presumed migration routes	Low	Negligible (E)	*Unlikely*	Very low		Low	Negligible (E)	*Unlikely*	Very low
Wind turbine operations	Physical presence of operational turbines resulting in bird strike	Swift Parrot (CE, Ma) Blue-winged Parrot (V, Ma)	Medium	Moderate-high level of protection. OWFA not likely to be an important migration route. Behaviour unlikely to be significantly affected, therefore migration, foraging, reproduction and/or survival rates are not likely to be affected	wind farm located offshore away from known/presumed migration routes	Medium	Moderate (C)	*Unlikely*	Low		Medium	Moderate (C)	*Unlikely*	*Low*
Wind turbine operations	Physical presence of operational turbines resulting in bird strike	Swamp harrier Welcome Swallow Tree Martin Flame Robin Grey Fantail Silvereye Fork-tailed (Pacific) swift (Ma, Mi) Other obligate terrestrial migrants	Low	Low to moderate conservation status. Relatively large population size contributes to resilience. Behaviour unlikely to be significantly affected, therefore migration, foraging, reproduction and/or survival rates are not likely to be affected	wind farm located offshore away from known/presumed migration routes	Medium	Minor (D)	*Unlikely*	Low		Medium	Minor (D)	*Unlikely*	Low
Wind turbine operations	Physical presence of operational turbines resulting in bird strike	White-throated needletail (V, Ma, Mi)	Medium	Moderate level of protection. It's movements over Bass Strait may not be truly migratory, but could be simple day-to-day movements within SE Aust. Known to be impacted by turbine strike at onshore wind farms. SMEs of the view this species is potentially behaving differently to other terrestrial migrants. Additional information may assist to inform potential risk to this species and reduce levels of uncertainty. Worst case scenario is 0.81 birds annually could be affected. Behaviour unlikely to be significantly affected, therefore migration, foraging, reproduction and/or survival rates are not likely to be affected		Medium	Moderate (C)	*Unlikely*	Low		Medium	Moderate (C)	*Unlikely*	Low
Wind turbine operations	Physical presence of operational turbines resulting in bat strike	Grey-headed Flying-fox White-striped Free-tailed Bat Eastern Bent-winged Bat other bat species	Low	Low level of protection, broadly distributed with assumed seaonal presence (February-April) or no confirmed presence in Tasmania. Behaviour unlikely to be significantly affected, therefore migration, foraging, reproduction and/or survival rates are not likely to be affected	wind farm located offshore away from known important habitat	Low	Negligible (E)	*Unlikely*	Very low		Low	Negligible (E)	*Unlikely*	Very low
Decommissioning														
ASSUME SAME AS CONSTRUCTION														