Attachment H: Significant impact assessments

The following significant impact assessments have been undertaken as described in the Matters of National Environmental Significance: Significant Impact Guidelines 1.1 (DoE, 2013).

Table 1 Significant Impact Assessment: White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland – critically endangered

An action is likely to have a significant impact on a critically endangered or endangered ecological community if there is a real chance or possibility that it will:	
Reduce the extent of an ecological community	**Yes.** The Proposed Action would result in the loss of 2.37 ha of native vegetation across 11 areas that meets the condition thresholds for the White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland critically endangered ecological community (mainly in the east and western ends of the new alignments). The majority (2.29 ha) is in the derived state, with 0.02 ha supporting a high quality understorey with multiple important species. All zones were assessed as Class B due to the sparse cover (or absence) of canopy species. While the Proposed Action has been positioned to avoid areas of BGW where possible (including areas supporting mature and hollow-bearing trees), six trees would be permanently removed, and a further 10 would require modification (canopy reduction) to maintain standards required under overhead powerlines. This impact is restricted to the eastern end of the new alignments where the powerlines would be closest to the ground. The patches of BGW that would be impacted form part of and are on the edge of a much larger patch of woodland and derived native grassland in the broader landscape, which includes areas protected in the Woodstock and Molonglo River Nature Reserves. The reduction in extent of 2.37 ha of BGW caused by the Proposed Action is minimal in the context of the wide distribution of BGW within the surrounding landscape, especially noting that the impacted BGW is made up of many small, dispersed patches, mostly in a low quality, derived state.
Fragment or increase fragmentation of an ecological community, for example by clearing vegetation for roads or transmission lines	**No.** The Proposed Action would result in the loss of 2.37 ha of native vegetation across 11 areas that meets the condition thresholds for the White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland critically endangered ecological community (mainly in the eastern and western ends of the new alignments). While the Proposed Action has been positioned to avoid areas of BGW where possible (including areas supporting mature and hollow-bearing trees), six trees would be permanently removed, and a further 10 would require modification modified (canopy reduction) to maintain standards required under overhead powerlines. This impact is restricted to the eastern end of the new alignments where the powerlines would be closest to the ground. The impacted patches of BGW form part of and are on the edge of a much larger patch of woodland and derived native grassland in the broader landscape, which includes areas protected in the Woodstock and Molonglo River Nature Reserves. Due to the small loss of BGW caused by the Proposed Action (2.37 ha) relative to the wide distribution of BGW within the surrounding landscape, the Proposed Action is considered unlikely to fragment or increase fragmentation of the critically endangered ecological community. As the Proposed Action does not require the broadscale removal of vegetation underneath the lines, other than trees taller than 6 m which have already been avoided as much as possible, existing BGW would persist beneath the new alignments and the Proposed Action would not fragment or increase the fragmentation of BGW in the landscape.

An action is likely to have a significant impact on a critically endangered or endangered ecological community if there is a real chance or possibility that it will:	
Adversely affect habitat critical to the survival of an ecological community	**Yes.** The BGW Recovery Plan identifies "habitat critical to the survival of Box Gum Grassy Woodland is on the moderate to highly fertile soils of the western slopes of NSW and Queensland, the northern slopes of Victoria, and the tablelands of the Great Dividing Range from southern Queensland through NSW and the ACT. Given the currently highly fragmented and degraded state of this ecological community, all areas of Box Gum Grassy Woodland that meet the minimum condition criteria … should be considered critical to the survival of this ecological community". Based on this advice, the Proposed Action would result in the loss of 2.37 ha of BGW that is considered critical to the survival of the ecological community. However, the total area of BGW to be impacted is small and distributed across 11 locations within the Disturbance Footprint. The majority (2.29 ha) is in the derived state, with just 0.02 ha supporting high quality understorey with multiple important species. On this basis the impact is not considered to be significant.
Modify or destroy abiotic (non-living) factors (such as water, nutrients, or soil) necessary for an ecological community's survival, including reduction of groundwater levels, or substantial alteration of surface water drainage patterns	**No.** The Proposed Action would not result in the modification or destruction of abiotic factors such as water, nutrients, or soil, which are necessary for the survival of the community in adjacent areas. Impacts on abiotic factors potentially influencing adjacent areas will be managed to prevent impacts outside of the Disturbance Footprint, including controls for preventing the spread of invasive species and for managing erosion and sedimentation during construction. Refer to Section 6.2 of the BAR (Attachment F to the referral) for more information on the management measures to be implemented by the Proposed Action.
Cause a substantial change in the species composition of an occurrence of an ecological community, including causing a decline or loss of functionally important species, for example through regular burning or flora or fauna harvesting	**No.** The Proposed Action would not cause changes that would result in broader changes in the species composition of an occurrence of the critically endangered ecological community. Following the clearance of the site there would be no ongoing disturbance to the community. No ongoing flora or fauna harvesting would occur, and the Proposed Action does not require or propose regular burning. Areas of BGW along the new alignments that are outside the Disturbance Footprint would be subject to current land management practices (grazing).
Cause a substantial reduction in the quality or integrity of an occurrence of an ecological community, including, but not limited to: • assisting invasive species, that are harmful to the listed ecological community, to become established, or • causing regular mobilisation of fertilisers, herbicides or other chemicals or pollutants into the ecological community which kill or inhibit the growth of species in the ecological community	**No.** The Disturbance Footprint is located in an agricultural landscape, and the critically endangered ecological community in this area is consequently subject to existing threats associated with invasive species and agricultural activities independent of the Proposed Action. The Proposed Action is unlikely to substantially change these threats. During construction there is an increased risk of invasive weed species becoming established through soil disturbance and vehicle movements. This increased risk will be managed through the implementation of appropriate mitigation and management measures to prevent potential reductions in the quality or integrity of adjacent occurrences of the ecological community (see Section 6.2 of the BAR (Attachment F to the referral)). No chemicals or hazardous materials are proposed to be stored on site once the Proposed Action is operational. The Proposed Action would therefore be unlikely to a cause a substantial reduction in the quality or integrity of the ecological community where it occurs adjacent to the Disturbance Footprint.

An action is likely to have a significant impact on a critically endangered or endangered ecological community if there is a real chance or possibility that it will:	
Interfere with the recovery of an ecological community	**No.** Degradation of higher quality box gum woodland remnants as a result of public infrastructure development is identified as a key threat to BGW in the BGW Recovery Plan. However, the loss of 2.37 ha of BGW across 11 different areas, comprising 0.08 ha of woodland (ACT16.1), 0.02 ha of moderate-high quality derived native grassland (ACT16.4) and 2.27 ha of low quality derived native grassland (ACT16.5) is small compared to the extent of box gum woodland and derived native grassland located within the broader landscape. Key recovery actions for BGW identified in the BGW Recovery Plan include collecting baseline information, the protection of BGW in reserves, community engagement and further research. BGW Recovery Plan objectives also include achieving no net loss of BGW throughout its geographic distribution, increasing protection of sites with high recovery potential, increasing restoration and increasing transitional areas, and changing attitudes of participating land managers. While the Proposed Action would result in the net loss of 2.37 ha of BGW, it is largely in the derived state with sparse, or no, canopy cover. It is also in the context of a broader agricultural landscape. As such, it is considered that, despite the clearance of 2.37 ha of BGW, the Proposed Action would not interfere with the BGW Recovery Plan objectives listed above, or the recovery of the ecological community.
Conclusion	**Not significant** The Proposed Action would result in the loss of 2.37 ha of BGW across 11 locations within the Disturbance Footprint. The majority (2.29 ha) is in the derived state, with just 0.02 ha supporting moderate-high quality understorey with multiple important species. All zones were assessed as Class B due to the sparse cover (or absence) of canopy species. The BGW Recovery Plan states that all areas of BGW should be considered critical to the survival of this ecological community. Based on this advice, the Proposed Action would result in the loss of 2.37 ha of BGW that is considered critical to the survival of the ecological community. While the Proposed Action has been positioned to avoid areas of BGW where possible (including areas supporting mature and hollow-bearing trees), six trees would be permanently removed, and a further 10 would require modification (canopy reduction) to maintain standards required under overhead powerlines. This impact is restricted to the eastern end of the new alignments where the powerlines would be closest to the ground. The patches of BGW that would be impacted form part of and are on the edge of a much larger patch of woodland and derived native grassland in the broader landscape, which includes areas protected in the Woodstock and Molonglo River Nature Reserves. The reduction in extent of 2.37 ha of BGW caused by the Proposed Action is minimal in the context of the wide distribution of BGW within the surrounding landscape, especially noting that the impacted BGW is made up of many small, dispersed patches, mostly in a low quality, derived state. As such, it is considered unlikely that the Proposed Action would have a significant impact on the BGW TEC through a reduction in extent of BGW or via adverse impacts on habitat critical to the survival of the community.

Table 2 Significant Impact Assessment: Natural Temperate Grassland of the South Eastern Highlands – critically endangered

An action is likely to have a significant impact on a critically endangered or endangered ecological community if there is a real chance or possibility that it will:	
Reduce the extent of an ecological community	**Yes.** The Proposed Action would result in the loss of 0.01 ha of NTG. This patch meets the high to very high condition threshold for NTG (patches with good native coverage and high native plant diversity) as it has at least 12 non-grass native species and over 50% ground cover foliage of kangaroo grass. This patch is located adjacent to Stockdill Drive, east of the Molonglo River. It is bordered to the north by a patch of ACT01.4 (tablelands dry tussock grassland), which is dominated by exotic grass species and does not meet the EPBC Act listing criteria on its own, and exotic grassland to the south (see Figure 6 in Attachment A to the referral). The reduction in extent of 0.01 ha of NTG caused by the Proposed Action is minimal in the context of the broader distribution of NTG predicted to occur in the region, particularly along the Molonglo River corridor as shown on ACTmapi, especially noting that the impacted NTG is surrounded by exotic-dominated grasslands that do not align with the EPBC Act NTG listing criteria.
Fragment or increase fragmentation of an ecological community, for example by clearing vegetation for roads or transmission lines	**No.** The loss of 0.01 ha of NTG would not fragment the TEC, as this patch of NTG is located at the edge of the patch adjacent to exotic-dominated grassland.
Adversely affect habitat critical to the survival of an ecological community	**Yes.** The NTG Conservation Advice considers areas critical to the survival of the TEC to "cover all patches that meet the key diagnostic characteristics and condition thresholds for the ecological community plus buffer zones". A buffer zone is defined as a "...contiguous area immediately adjacent to a patch of the ecological community that is important for protecting its integrity. The purpose of the buffer zone is to help protect and manage the national ecological community… As the area of the buffer lies to the outside, around a patch, it is not part of the ecological community and is not formally protected as a matter of national environmental significance. Where the buffer on a particular property is subject to existing land uses, such as cropping, ploughing, grazing, spraying, etc., they can continue. However, practical application of a buffer zone is strongly recommended. The recommended minimum buffer zone for the ecological community is 30 metres from the edge of a patch. A larger buffer zone may be applied, where practical, to protect patches that are of particularly high conservation value, or if patches are down slope of drainage lines or a source of nutrient enrichment." To take a conservative approach, a buffer zone width of 40 m has been adopted around the patch of NTG in the Disturbance Footprint, which is equivalent to the width of the exotic grassland (ACT01.4) adjacent to the patch of NTG. The buffer zone covers a total area of 0.50 ha, comprising: • 0.01 ha of ACT01.1 (which is consistent with the EPBC Act NTG listing criteria), all of which would be directly impacted by the Proposed Action • 0.30 ha of ACT01.4 (which is not consistent with the NTG listing criteria), of which approximately 0.28 ha would be directly impacted by the Proposed Action • 0.19 ha of exotic vegetation, of which approximately 0.06 ha would be directly impacted by the Proposed Action.

An action is likely to have a significant impact on a critically endangered or endangered ecological community if there is a real chance or possibility that it will:	
	Based on the NTG Conservation Advice, the Proposed Action would result in the loss of 0.01 ha of NTG that is considered critical to the survival of the TEC. Construction activities will be closely managed to ensure that indirect impacts do not occur on vegetation adjacent to the NTG patch, including 0.34 ha of exotic-dominated grassland within the buffer zone which would also be considered critical to the survival of the TEC as per the above advice. This includes controls to prevent the spread of invasive species and to prevent off-site erosion and sedimentation during construction. Close attention will be paid to any soil disturbance activities which could cause a shift in nutrient levels and endanger downslope areas of the TEC or its buffer zone. Refer to Section 6.2 of the BAR (Attachment F to the referral) for further information about the mitigation and management measures to be implemented by the Proposed Action.
Modify or destroy abiotic (non-living) factors (such as water, nutrients, or soil) necessary for an ecological community's survival, including reduction of groundwater levels, or substantial alteration of surface water drainage patterns	**No.** The Proposed Action would not result in modification or destruction of abiotic (non-living) factors necessary for the survival of the community in adjacent areas, such as water, nutrients, or soil. Natural temperate grasslands have experienced declines due to substantial clearing and fragmentation, nutrient enrichment from fertilisers and livestock, invasive flora and fauna, livestock grazing and changed fire regimes. Current guidelines note that disturbances that alter the hydrology and nutrient status of a patch should be avoided. These include avoiding the influx of nutrients and water to reduce the spread and establishment of invasive species and avoiding the use of fertilisers in and around patches of the TEC. The Proposed Action will implement a range of management measures to ensure that indirect impacts arising from these sources do not occur. This will include controls for preventing the spread of invasive species and for managing erosion and sedimentation during construction. Close attention will be paid to any soil disturbance caused by construction activities to avoid disturbing any areas that contain NTG and which could cause a shift in nutrient levels and endanger the TEC. Refer to Section 6.2 of the BAR (Attachment F to the referral) for more information about the mitigation and management measures to be implemented by the Proposed Action.
Cause a substantial change in the species composition of an occurrence of an ecological community, including causing a decline or loss of functionally important species, for example through regular burning or flora or fauna harvesting	**No.** The Proposed Action would not cause changes that would result in broader changes in the species composition of any NTG patches. Following the clearance of the construction footprint, there would be no ongoing disturbance to the community such as clearance or flora or fauna harvesting. Areas of NTG along the new alignments which would not be impacted by the Proposed Action (e.g. underneath the powerlines) will be managed consistent with current practices (grazing).
Cause a substantial reduction in the quality or integrity of an occurrence of an ecological community, including, but not limited to: • assisting invasive species, that are harmful to the listed ecological community, to become established, or	**No.** The Proposed Action is located in an agricultural landscape, and the NTG in this area is consequently subject to existing threats associated with invasive species and agricultural activities independent of the Proposed Action. The Proposed Action is unlikely to substantially change these threats. During construction there is an increased risk of invasive weed species becoming established through soil disturbance and vehicle movements. This increased risk will be managed through the implementation of appropriate mitigation and management measures to prevent potential reductions in the quality or integrity of adjacent areas of NTG, such as the demarcation of approved clearance boundaries and fencing and access control (see Section 6.2 of the BAR (Attachment F to the referral) for further information).

An action is likely to have a significant impact on a critically endangered or endangered ecological community if there is a real chance or possibility that it will:	
• causing regular mobilisation of fertilisers, herbicides or other chemicals or pollutants into the ecological community which kill or inhibit the growth of species in the ecological community	The Proposed Action would therefore be unlikely to a cause a substantial reduction in the quality or integrity of the TEC where it occurs adjacent to the Disturbance Footprint.
Interfere with the recovery of an ecological community	**No.** The NTG Conservation Advice states that loss due to clearing is a key threat to NTG. However, due to the small area of the loss resulting from the Proposed Action (0.01 ha), the Proposed Action is unlikely to interfere with the recovery of the TEC.
Conclusion	**Not significant** The Proposed Action would result in the loss of 0.01 ha of high quality NTG which would reduce the extent of the TEC in the landscape by a very minor amount, and adversely affect habitat critical to the survival of the TEC as defined under the NTG Conservation Advice. However, this patch is located at the edge of a patch of NTG adjacent to exotic-dominated grassland (ACT01.4 and other exotics) where its loss would not lead to fragmentation of the TEC. Additionally, a range of mitigation and management measures will be implemented by the Proposed Action to ensure that indirect impacts on adjacent areas of grassland, including areas of exotic grassland considered to be part of the NTG buffer zone as defined in the NTG Conservation Advice, will not occur. It is therefore considered unlikely that the Proposed Action would have a significant impact on the NTG TEC through a reduction in the extent of NTG or via adverse impacts on habitat critical to the survival of the community.

Table 3 Significant Impact Assessment: Pink-tailed worm-lizard (*Aprasia parapulchella*) – vulnerable

An action is likely to have a significant impact on a vulnerable species if there is a real chance or possibility that it will:	
Lead to a long-term decrease in the size of an important population of a species	**No.** The Pink-tailed Worm-lizard Conservation Advice does not define any important populations of pink-tailed worm-lizard. The Disturbance Footprint supports a total of 1.09 ha of potential habitat for pink-tailed worm-lizard across 20 separate patches. Only 0.15 ha is considered high quality. Given the small amount of potential habitat within the Disturbance Footprint, it is unlikely that it supports a population that would be considered important. Given the small impact on potential pink-tailed worm-lizard habitat, and that the impacted habitat is unlikely to support an important population, it is unlikely that the Proposed Action would lead to a long term decrease in the size of an important population of pink-tailed worm-lizard.
Reduce the area of occupancy of an important population Response	**No.** The Pink-tailed Worm-lizard Conservation Advice does not define any important populations of the pink-tailed worm-lizard and states that the species is distributed widely, but patchily. The Disturbance Footprint supports a total of 1.09 ha of potential habitat for pink-tailed worm-lizard across 20 separate patches. Only 0.15 ha is considered high quality. Given the small amount of available habitat within the Disturbance Footprint, it is unlikely that it supports a population that would be considered important.

An action is likely to have a significant impact on a vulnerable species if there is a real chance or possibility that it will:	
	Given the small impact on potential pink-tailed worm-lizard habitat that is unlikely to support an important population, and the extent of suitable habitat in the broader landscape that is known to be occupied by pink-tailed worm-lizard, the Proposed Action is unlikely to reduce the area of occupancy of an important population of pink-tailed worm-lizard.
Fragment an existing important population into two or more populations	**No.** The Pink-tailed Worm-lizard Conservation Advice does not define any important populations of pink-tailed worm-lizard and states that the species is distributed widely, but patchily. The Disturbance Footprint supports a total of 1.09 ha of potential habitat for pink-tailed worm-lizard across 20 separate patches. Only 0.15 ha is considered high quality. Given the small amount of available habitat within the Disturbance Footprint, it is unlikely that it supports a population that would be considered important. Pink-tailed worm-lizard is known to occur along the Murrumbidgee and Molonglo River Corridors near the Proposed Action Area, but the Proposed Action would not impact any areas where the species has been recorded. In addition, the Proposed Action is for the construction of linear infrastructure within a large, contiguous area of cleared rural land. The total extent of potential pink-tailed worm-lizard habitat that would be impacted by the Proposed Action (1.09 ha) is made up of multiple separate areas distributed along the new alignments, rather than one consolidated area. The Proposed Action is therefore unlikely to fragment an existing important population of pink-tailed worm-lizard into two or more populations.
Adversely affect habitat critical to the survival of a species	**No.** The Pink-tailed Worm-lizard Conservation Advice does not define habitat critical to the survival of species. It notes that pink-tailed worm-lizard habitat includes primary and secondary grassland, grassy woodland, and woodland communities, and that the species usually inhabits sloping sites that contain rocky outcrops or scattered, partially buried rocks. These rocks are considered important foraging and shelter sites. Given that the extent of the habitat in the Disturbance Footprint is small (1.09 ha) and is distributed along the length of the new alignments across 20 separate small patches, it is considered that its removal would not adversely affect habitat critical to the survival of pink-tailed worm-lizard.
Disrupt the breeding cycle of an important population	**No.** The Pink-tailed Worm-lizard Conservation Advice does not define any important populations of pink-tailed worm-lizard and states that the species is distributed widely, but patchily. The Disturbance Footprint supports a total of 1.09 ha of potential habitat for pink-tailed worm-lizard across 20 separate patches. Only 0.15 ha is considered high quality. Given the small amount of available habitat within the Disturbance Footprint, it is unlikely that it supports a population that would be considered important. There is limited information available on the breeding cycle of pink-tailed worm-lizard. Given that the Disturbance Footprint is unlikely to support an important population of the species, it is unlikely that the Proposed Action would disrupt the breeding cycle of an important population of pink-tailed worm-lizard.
Modify, destroy, remove, or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	**No.** The Pink-tailed Worm-lizard Conservation Advice notes that pink-tailed worm-lizard habitat includes primary and secondary grassland, grassy woodland, and woodland communities, and that the species usually inhabits sloping sites that contain rocky outcrops or scattered, partially buried rocks. These rocks are considered important foraging and shelter sites.

An action is likely to have a significant impact on a vulnerable species if there is a real chance or possibility that it will:	
	Given that the extent of the habitat in the Disturbance Footprint is small (1.09 ha, of which only 0.15 ha is high quality) and is distributed along the length of the new alignments across 20 separate small patches, and the extent of suitable habitat in the broader landscape, the Proposed Action is unlikely to modify, destroy, remove, or isolate or decrease the availability or quality of habitat to the extent that pink-tailed worm-lizard is likely to decline.
Result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat	**No.** Indirect impacts on potential pink-tailed worm-lizard habitat adjacent to the Disturbance Footprint will be minimised trough exclusion fencing and pest plant and animal management. Hygiene protocols will also be implemented for construction vehicles, and vehicles will use existing roads where possible. Mitigation measures will be implemented in accordance with the CEMP. The nature of the Proposed Action (involving the construction of linear infrastructure and minimal ongoing impacts once operational), means that it is unlikely to increase the existence of invasive animals such as feral cats or foxes within the landscape, and would also not increase domestic animals in the area. As such, the Proposed Action is unlikely to lead to invasive species becoming established in pink-tailed worm-lizard habitat.
Response introduce disease that may cause the species to decline	**No.** Indirect impacts on potential pink-tailed worm-lizard habitat adjacent to the Disturbance Footprint will be minimised trough exclusion fencing and pest plant and animal management. Hygiene protocols will also be implemented for construction vehicles, and vehicles will use existing roads where possible. Mitigation measures will be implemented in accordance with the CEMP. As such, the Proposed Action is unlikely to introduce disease that may cause pink-tailed worm-lizard to decline.
Interfere substantially with the recovery of the species	**No.** The Pink-tailed Worm-lizard Conservation Advice lists priority recovery actions for pink-tailed worm-lizard as avoiding and reducing the removal or modification of habitat, particularly through recreational activities, management actions for invasive species, reduction of impacts from domestic species, research into fire regimes and appropriate land management regimes for landholders. The Proposed Action would result in the loss of 1.09 ha of potential pink-tailed worm-lizard habitat, only 0.15 ha of which is high quality. Habitat in the broader region has been avoided, including areas with known records of the species. The Proposed Action is therefore unlikely to interfere with the recovery of pink-tailed worm-lizard.
Conclusion	**Not significant** Suitable pink-tailed worm-lizard habitat present within the broader landscape has been avoided where possible through strategic design of the Proposed Action, particularly through micrositing of tower footings. Despite these avoidance efforts, the Proposed Action would still require the removal of 1.09 ha of potential pink-tailed worm-lizard habitat, of which only 0.15 ha is high quality. This impact is considered to be unavoidable. Given that the extent of the potential pink-tailed worm-lizard habitat in the Disturbance Footprint is small (1.09 ha) and is distributed along the length of the new alignments across 20 separate small patches, it is considered unlikely to support an important population of pink-tailed worm-lizard. As such, the Proposed Action is unlikely to have a significant impact on pink-tailed worm-lizard.

Table 4 Significant Impact Assessment: Golden Sun Moth (*Synemon plana*) – vulnerable

An action is likely to have a significant impact on a vulnerable species if there is a real chance or possibility that it will:	
Lead to a long-term decrease in the size of an important population of a species	**No.** The Golden Sun Moth Conservation Advice does not define any important populations of golden sun moth, however, it notes that large subpopulations or smaller, well-connected subpopulations occurring in high quality habitat would classify for their importance in the long term maintenance of the species. It identifies that there are 78 known sites within the ACT, 104 in Victoria and 59 in NSW. The Disturbance Footprint supports 4.09 ha of potential golden sun moth habitat, only 0.33 ha of which is high quality. Targeted surveys were undertaken for golden sun moth within the areas of potential habitat, in accordance with modelling provided by the Conservator, and in new alignment corridors previously considered for the Proposed Action. No sightings were recorded. There are also no public records of golden sun moth within the Proposed Action Area. Potential habitat within the Disturbance Footprint is therefore unlikely to support an important population of golden sun moth. Given the small impact on potential golden sun moth habitat, and that the impacted habitat is unlikely to support an important population, it is unlikely that the Proposed Action would lead to a long term decrease in the size of an important population of golden sun moth.
Reduce the area of occupancy of an important population	**No.** The Golden Sun Moth Conservation Advice does not define any important populations of golden sun moth, however, it notes that large subpopulations or smaller, well-connected subpopulations occurring in high quality habitat would classify for their importance in the long term maintenance of the species. The Disturbance Footprint supports 4.09 ha of potential golden sun moth habitat, only 0.33 ha of which is high quality. Targeted surveys were undertaken for golden sun moth within the areas of potential habitat, in accordance with modelling provided by the Conservator, and in new alignment corridors previously considered for the Proposed Action. No sightings were recorded. There are also no public records of golden sun moth within the Proposed Action Area. Potential habitat within the Disturbance Footprint is therefore unlikely to support an important population of golden sun moth. A known population of golden sun moth is located approximately 3 km to the east of existing Lines 1 and 7, which is not defined as an important population in the Golden Sun Moth Conservation Advice. Given that only 0.33 ha of potential golden sun moth habitat in the Disturbance Footprint is of a high quality, it is unlikely that the removal of 4.09 ha of potential habitat that is unlikely to support an important population, would reduce the area of occupancy of an important population of golden sun moth, including the known population to the east of the Disturbance Footprint.
Fragment an existing important population into two or more populations	**No.** The Golden Sun Moth Conservation Advice does not define any important populations of golden sun moth, however, it notes that large subpopulations or smaller, well-connected subpopulations occurring in high quality habitat would classify for their importance in the long term maintenance of the species. The Disturbance Footprint supports 4.09 ha of potential golden sun moth habitat, only 0.33 ha of which is high quality. Targeted surveys were undertaken for golden sun moth within the areas of potential habitat, in accordance with modelling provided by the Conservator, and in new alignment corridors previously considered for the Proposed Action. No

An action is likely to have a significant impact on a vulnerable species if there is a real chance or possibility that it will:	
	sightings were recorded. There are also no public records of golden sun moth within the Proposed Action Area. Potential habitat within the Disturbance Footprint is therefore unlikely to support an important population of golden sun moth. A known population of golden sun moth is located approximately 3 km to the east of existing Lines 1 and 7, which is not defined as an important population in the Golden Sun Moth Conservation Advice. Given that only 0.33 ha of potential golden sun moth habitat in the Disturbance Footprint is of a high quality, it is unlikely that the removal of 4.09 ha of potential habitat that is unlikely to support and important population, would fragment an important population, including the known population to the east of the Disturbance Footprint, into two or more populations.
Adversely affect habitat critical to the survival of a species	**No.** The Golden Sun Moth Conservation Advice states that habitat critical to the survival of golden sun moth has yet to be defined, but likely includes all native grassland and open grassy woodland habitat occupied by the species across its range. It also states that sites occurring towards the limit of the species range, or sites that are a long distance from other known subpopulations are also likely to be defined as habitat critical to the survival of the species. The Disturbance Footprint supports 4.09 ha of potential golden sun moth habitat, only 0.33 ha of which is high quality. The species range for golden sun moth spans from southern Victoria to north of Bathurst in NSW, and as such the Disturbance Footprint does not occur towards the limit of the species' range. The potential golden sun moth habitat within the Disturbance Footprint is not considered habitat critical to the survival of the species, thus the Proposed Action is not expected to adversely affect habitat critical to the survival of golden sun moth.
Disrupt the breeding cycle of an important population	**No.** The Golden Sun Moth Conservation Advice does not define any important populations of golden sun moth, however, it notes that large subpopulations or smaller, well-connected subpopulations occurring in high quality habitat would classify for their importance in the long term maintenance of the species. The breeding cycle for golden sun moth lasts for a few short days, in which male moths will emerge and patrol for the semi-flightless female. The underground life stages are not well understood. The Disturbance Footprint supports 4.09 ha of potential golden sun moth habitat, only 0.33 ha of which is high quality. Targeted surveys were undertaken for golden sun moth within the areas of potential habitat, in accordance with modelling provided by the Conservator, and in new alignment corridors previously considered for the Proposed Action. No sightings were recorded. There are also no public records of golden sun moth within the Proposed Action Area. Potential habitat within the Disturbance Footprint is therefore unlikely to support an important population of golden sun moth. A known population of golden sun moth is located approximately 3 km to the east of existing Lines 1 and 7, which is not defined as an important population in the Golden Sun Moth Conservation Advice. Given that only 0.33 ha of potential golden sun moth habitat in the Disturbance Footprint is of a high quality, it is unlikely that the removal of 4.09 ha of potential habitat that is unlikely to support an important population, would disrupt the breeding cycle of an important population of golden sun moth, including the known population to the east of the Disturbance Footprint.

An action is likely to have a significant impact on a vulnerable species if there is a real chance or possibility that it will:	
Modify, destroy, remove, or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	**No.** The Golden Sun Moth Conservation Advice does not define any important populations of golden sun moth, however, it notes that large subpopulations or smaller, well-connected subpopulations occurring in high quality habitat would classify for their importance in the long term maintenance of the species. It identifies that there are 78 known sites within the ACT, 104 in Victoria and 59 in NSW, and the species range extends from southern Victoria to north of Bathurst in NSW. The Disturbance Footprint supports 4.09 ha of potential golden sun moth habitat, only 0.33 ha of which is high quality. Targeted surveys were undertaken for golden sun moth within the areas of potential habitat, in accordance with modelling provided by the Conservator, and in new alignment corridors previously considered for the Proposed Action. No sightings were recorded. There are also no public records of golden sun moth within the Proposed Action Area. Given that only 0.33 ha of potential golden sun moth habitat in the Disturbance Footprint is of a high quality, it is unlikely that the removal of 4.09 ha of potential habitat that is unlikely to support an important population, would modify, destroy, remove, or isolate or decrease the availability or quality of habitat to the extent that golden sun moth is likely to decline.
Result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat	**No.** Indirect impacts on potential golden sun moth habitat adjacent to the Disturbance Footprint will be minimised trough exclusion fencing and pest plant and animal management. Hygiene protocols will also be implemented for construction vehicles, and vehicles will use existing roads where possible. Mitigation measures will be implemented in accordance with the CEMP. The nature of the Proposed Action (involving the construction of linear infrastructure and minimal ongoing impacts once operational), means that it is unlikely to increase the existence of invasive animals such as feral cats or foxes within the landscape, and would also not increase domestic animals in the area. As such, the Proposed Action is unlikely to lead to invasive species becoming established in golden sun moth habitat.
Introduce disease that may cause the species to decline, or	**No.** Indirect impacts on potential golden sun moth habitat adjacent to the Disturbance Footprint will be minimised trough exclusion fencing and pest plant and animal management. Hygiene protocols will also be implemented for construction vehicles, and vehicles will use existing roads where possible. Mitigation measures will be implemented in accordance with the CEMP. As such, the Proposed Action is unlikely to introduce disease that may cause golden sun moth to decline.
Interfere substantially with the recovery of the species	**No.** The primary conservation outcome identified in the Golden Sun Moth Conservation Advice is to retain and protect native grassland remnants within the known distribution of the species, and to ensure remnant subpopulations remain connected or linked to each other. The Proposed Action would result in the loss of 4.09 ha of potential golden sun moth habitat, only 0.33 ha of which is high quality. Habitat in the broader region has been avoided where possible. The Proposed Action is therefore unlikely to interfere with the recovery of golden sun moth.

An action is likely to have a significant impact on a vulnerable species if there is a real chance or possibility that it will:	
Conclusion	**Not significant** The Proposed Action would result in the loss of 4.09 ha of potential golden sun moth habitat, only 0.33 ha of which is high quality. Targeted surveys were undertaken for golden sun moth within the areas of potential habitat, in accordance with modelling provided by the Conservator and in new alignment corridors previously considered for the Proposed Action. No sightings were recorded. There are also no public records of golden sun moth within the Proposed Action Area. Potential habitat within the Disturbance Footprint is therefore unlikely to support an important population of golden sun moth. As such, it is unlikely that the Proposed Action would result in a significant impact on golden sun moth.

Table 5 Significant Impact Assessment: Superb Parrot (*Polytelis swainsonii*) – vulnerable

An action is likely to have a significant impact on a vulnerable species if there is a real chance or possibility that it will:	
Lead to a long-term decrease in the size of an important population of a species	**No.** The Superb Parrot Recovery Plan does not define any important populations of superb parrot. The species' distribution extends from northern Victoria through to northern NSW, west of the Great Dividing Range, including the northern part of the ACT. In the ACT region, yellow box-red gum grassy woodlands form the major habitat of the species, with large Blakely's red gum (*Eucalyptus blakelyi*) and scribbly gum (*E. rossii*) being the main source of nesting hollows and the woodland understorey being the main foraging habitat (TSSC, 2016a). The Proposed Action would not impact any potential superb parrot nesting trees, and the species was not recorded during targeted surveys for the Proposed Action. Superb parrot is known to breed in the lower Molonglo Valley approximately 5 km east of the Disturbance Footprint. Although no individuals were recorded in the Disturbance Footprint, it is likely that the species utilises the Proposed Action Area for foraging, including supporting breeding pairs from known nesting trees (the species is known to travel up to 10 km from breeding sites to foraging areas). *Eucalyptus* and *Acacia* species recorded in the Disturbance Footprint provide superb parrot foraging habitat. As the species is also known to feed on native and exotic grass seed, it is likely that the superb parrot may also use the open grassland areas within these areas. As such, all native vegetation within the Disturbance Footprint is considered potential foraging habitat for the superb parrot (4.91 ha made up of multiple separate areas distributed along the new alignments). The Superb Parrot Recovery Plan states that the species requires vegetated corridors to move between breeding and foraging habitat and that degradation and destruction of movement corridors is a key factor implicated in the species' decline. The Proposed Action would require the removal of three trees that were confirmed to be within the height range (10-15 m) identified by the Conservator's office as critical for superb parrot movement, and modification of a further six trees to comply with canopy height restrictions. The Proposed Action Area is situated adjacent to larger areas of grassland and woodland areas, including those protected within the Woodstock and Molonglo River Nature reserves. Suitable foraging and movement habitat is therefore extensive in the local landscape.

An action is likely to have a significant impact on a vulnerable species if there is a real chance or possibility that it will:	
	Due to the dispersed distribution of habitat along the new alignments and the availability of suitable habitat in the broader landscape, it is considered unlikely that the impact on potential superb parrot foraging and movement habitat would lead to a long term decrease in the size of an important population of the species.
Reduce the area of occupancy of an important population	**No.** The Superb Parrot Recovery Plan does not define any important populations of superb parrot. The area of occupancy for the species is currently estimated to be 790,000 ha and is considered stable (Garnett & Baker, 2021). Superb parrot is known to occur in the lower Molonglo River corridor adjacent to the Disturbance Footprint. Although no individuals were recorded during Proposed Action surveys, it is likely that the species utilises the Proposed Action Area for foraging, including supporting breeding pairs from known breeding habitat in the Molonglo Valley. The Superb Parrot Recovery Plan states that clearing of foraging habitat has been followed by the species abandoning nearby traditional breeding areas, even where suitable nesting trees remain, and that population size is primarily limited by clearing of woodland foraging habitat. This is especially the case for foraging habitat located within 10 km of nesting trees. While the removal of 4.91 ha of potential foraging habitat by the Proposed Action (which is within 10 km of known superb parrot nesting trees) could impact the area of occupancy of a local population of the species, the Proposed Action is unlikely to reduce the area of occupancy of an important population as no important population is defined.
Fragment an existing important population into two or more populations	**No.** The Superb Parrot Recovery Plan does not define any important populations of superb parrot. The species has a breeding range that extends west of the Great Dividing Range, mostly within the South Western Slopes of NSW and the NSW and Victorian Riverina bioregions (DAWE, 2021c). The Proposed Action is for the construction of linear infrastructure within a large, contiguous area of woodland and cleared rural land. The total extent of native vegetation that would be impacted by the Proposed Action (4.91 ha) is made up of multiple separate areas distributed along the new alignments, rather than one consolidated area. The Proposed Action is therefore unlikely to fragment an existing important population of superb parrot into two or more populations.
Adversely affect habitat critical to the survival of a species	**Yes.** Habitat critical to the survival of the species is defined in the Superb Parrot Recovery Plan and includes both breeding and foraging habitat. In the ACT region, yellow box-red gum grassy woodlands form the major habitat of the species, with large Blakely's red gum and scribbly gum being the main source of nesting hollows and the woodland understorey being the main foraging habitat (TSSC, 2016a). Potential superb parrot foraging and breeding habitat present within the broader landscape has been avoided where possible through strategic design of the Proposed Action, including through micrositing of tower footings and by increasing the height of the conductors to minimise the need for vegetation clearance. Superb parrot is known to breed in the lower Molonglo Valley approximately 5 km east of the Disturbance Footprint. Although no individuals were recorded in the Disturbance Footprint, it is likely that the species utilises the Proposed Action Area for foraging, including supporting breeding pairs from known nesting trees (the species is known to travel up to 10 km from breeding sites to foraging areas). *Eucalyptus* and *Acacia* species recorded in the Disturbance Footprint provide superb parrot foraging habitat. As the species is also known

An action is likely to have a significant impact on a vulnerable species if there is a real chance or possibility that it will:	
	to feed on native and exotic grass seed, it is likely that the superb parrot may also use the open grassland areas within these areas. As such, all native vegetation within the Disturbance Footprint is considered potential foraging habitat for the superb parrot (4.91 ha made up of multiple separate areas distributed along the new alignments). The Superb Parrot Recovery Plan states that clearing of foraging habitat has been followed by the species abandoning nearby traditional breeding areas, even where suitable nesting trees remain, and that population size is primarily limited by clearing of woodland foraging habitat. This is especially the case for foraging habitat located within 10 km of nesting trees. The Superb Parrot Recovery Plan also states that the species requires vegetated corridors to move between breeding and foraging habitat and that degradation and destruction of movement corridors is a key factor implicated in the species' decline. The Proposed Action would require the removal of three trees that were confirmed to be within the height range (10-15 m) identified by the Conservator's office as critical for superb parrot movement, and modification of a further six trees to comply with canopy height restrictions. The removal and modification of potential foraging and movement habitat may therefore adversely affect habitat critical to the survival of superb parrot.
Disrupt the breeding cycle of an important population	**No.** The Superb Parrot Recovery Plan does not define any important populations of the species. Superb parrot is known to breed in the lower Molonglo Valley approximately 5 km east of the Disturbance Footprint. No potential superb parrot nesting trees were identified within the Proposed Action Area, and the species was not recorded in targeted surveys during the breeding season. However, the Proposed Action would impact 4.91 ha of potential foraging habitat that may be used by the species during the breeding period. The Superb Parrot Recovery Plan states that clearing of foraging habitat has been followed by the species abandoning nearby traditional breeding areas, even where suitable nesting trees remain, and that population size is primarily limited by clearing of woodland foraging habitat. This is especially the case for foraging habitat located within 10 km of nesting trees. The Superb Parrot Recovery Plan also states that the species requires vegetated corridors to move between breeding and foraging habitat and that degradation and destruction of movement corridors is a key factor implicated in the species' decline. The Proposed Action would require the removal of three trees that were confirmed to be within the height range (10-15 m) identified by the Conservator's office as critical for superb parrot movement, and modification of a further six trees to comply with canopy height restrictions. While these factors may impact the breeding success of the local superb parrot population, the Proposed Action Area is situated adjacent to larger areas of grassland and woodland areas, including those protected within the Woodstock and Molonglo River Nature Reserves. Suitable foraging and movement habitat is therefore extensive in the local landscape, and it is considered unlikely that the Proposed Action would disrupt the breeding cycle of an important population of superb parrot.
Modify, destroy, remove, or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	**No.** The Proposed Action would impact 4.91 ha of potential foraging habitat. The Superb Parrot Recovery Plan states that clearing of foraging habitat has been followed by the species abandoning nearby traditional breeding areas, even where suitable nesting trees remain, and that population size is primarily

An action is likely to have a significant impact on a vulnerable species if there is a real chance or possibility that it will:	
	limited by clearing of woodland foraging habitat. This is especially the case for foraging habitat located within 10 km of nesting trees. The Superb Parrot Recovery Plan also states that the species requires vegetated corridors to move between breeding and foraging habitat and that degradation and destruction of movement corridors is a key factor implicated in the species' decline. The Proposed Action would require the removal of three trees that were confirmed to be within the height range (10-15 m) identified by the Conservator's office as critical for superb parrot movement, and modification of a further six trees to comply with canopy height restrictions. However, these impacts would not remove the ability for the species to travel between the northern and southern sides of the new alignments, particularly as the Proposed Action would retain all woodland within the Molonglo and Murrumbidgee River corridors which provides high woodland connectivity value. The Proposed Action Area is situated adjacent to larger areas of grassland and woodland areas, including those protected within the Woodstock and Molonglo River Nature Reserves. The extent of habitat to be removed is therefore considered small in the context of the surrounding habitat, and it is noted that the closest known breeding area is approximately 5 km east of the Disturbance Footprint. It is therefore considered unlikely that the impact on superb parrot habitat would lead to a decline in the species.
Result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat	**No.** Indirect impacts on potential foraging habitat in proximity to the Proposed Action will be managed through exclusion fencing and pest plant and animal management, as described in Section 6.2 of the BAR (Attachment F to the referral for further information). Hygiene protocols will be in place for vehicles during the construction phase, and vehicles will utilise existing roads where possible. Mitigation measures will be implemented in accordance with a CEMP. The nature of the Proposed Action (involving the construction of linear infrastructure and minimal ongoing impacts once operational), means that it is unlikely to increase the existence of invasive animals such as feral cats or foxes within the landscape, and would also not increase domestic animals in the area. As such, the Proposed Action is unlikely to lead to invasive species becoming established in superb parrot habitat.
Introduce disease that may cause the species to decline, or	**No.** Superb parrot is susceptible to Psittacine beak and feather disease (PBFD). The loss of nest hollows is likely to intensify competition and use of nest trees, and thus may increase the likelihood of transmission of the disease. The Proposed Action would not impact any potential nesting trees, and the species was not observed in the Proposed Action Area during targeted surveys. The potential for the Proposed Action to increase the risk of PBFD is therefore considered low. Indirect impacts on foraging habitat near the Proposed Action will be minimised through exclusion fencing and pest plant and animal management. Hygiene protocols will also be implemented for construction vehicles, and vehicles will utilise existing roads where possible. Mitigation measures will be implemented in accordance with the CEMP. As such, the Proposed Action is unlikely to introduce disease that may cause superb parrot to decline.
Interfere substantially with the recovery of the species	**No.** The Superb Parrot Recovery Plan states that the removal of habitat critical to the survival of the species would likely interfere with the recovery of the superb parrot. The Proposed Action would require the removal of 4.91 ha of potential foraging habitat. This habitat is considered to be critical to the survival of the species as defined in the Superb Parrot Recovery Plan.

An action is likely to have a significant impact on a vulnerable species if there is a real chance or possibility that it will:	
	The Superb Parrot Recovery Plan states that clearing of foraging habitat has been followed by the species abandoning nearby traditional breeding areas, even where suitable nesting trees remain, and that population size is primarily limited by clearing of woodland foraging habitat. This is especially the case for foraging habitat located within 10 km of nesting trees. The Superb Parrot Recovery Plan also states that the species requires vegetated corridors to move between breeding and foraging habitat and that degradation and destruction of movement corridors is a key factor implicated in the species' decline. The Proposed Action would require the removal of three trees that were confirmed to be within the height range (10-15 m) identified by the Conservator's office as critical for superb parrot movement, and modification of a further six trees to comply with canopy height restrictions. These factors indicate that the Proposed Action could interfere with the recovery of the species at a local level. However, given that the habitat that would be impacted by the Proposed Action is made up of multiple separate areas distributed along the new alignments, rather than one consolidated area, and that there is extensive habitat remaining in the broader region and no individuals were recorded in the Proposed Action Area, the Proposed Action is not expected to interfere substantially with the recovery of superb parrot. Recovery objectives identified in the Superb Parrot Recovery Plan include determining population trends, increasing knowledge of ecological requirements, developing threat abatement strategies and increasing community involvement and awareness of superb parrot. The Proposed Action would not interfere with the implementation of these objectives.
Conclusion	**Potentially significant** Suitable superb parrot foraging and breeding habitat present within the broader landscape has been avoided where possible through strategic design of the Proposed Action, including through micrositing of tower footings and by increasing the height of the conductors to minimise the need for vegetation clearance. Despite these avoidance efforts, the Proposed Action would still require the removal of three movement trees located within the Superb Parrot Tree Assessment Area and 4.91 ha of foraging habitat, and the modification of an additional six movement trees to comply with canopy height restrictions underneath powerlines. These impacts are considered to be unavoidable. Superb parrot is known to breed in the lower Molonglo Valley approximately 5 km east of the Disturbance Footprint. Although no individuals were recorded in the Disturbance Footprint, it is likely that the species utilises the Proposed Action Area for foraging, including supporting breeding pairs from known nesting trees (the species is known to travel up to 10 km from breeding sites to foraging areas). The removal of 4.91 ha of foraging habitat and the loss and modification of potential movement trees may adversely affect habitat critical to the survival of a species according to the Superb Parrot Recovery Plan. The Proposed Action therefore has the potential to result in a significant impact on the superb parrot.

Table 6 Significant Impact Assessment: Gang-gang Cockatoo (*Callocephalon fimbriatum*) - endangered

An action is likely to have a significant impact on an endangered species if there is a real chance or possibility that it will:	
Lead to a long-term decrease in the size of a population of a species	**No.** Gang-gang cockatoo is known to occur within the lower Molonglo River Corridor adjacent to the Disturbance Footprint and five individuals were recorded within the new alignments corridor during the Proposed Action's field surveys. The Gang-gang Cockatoo Conservation Advice does not provide any definitions for populations of the species, but indicates that there could be up to four subpopulations, with three discrete subpopulations potentially located within south-western Victoria which may be separate from individuals occurring in the east (including the ACT). As such, individuals known to occur in the ACT region, including those seen in the Proposed Action Area, are most likely part of an eastern subpopulation of the species. The species has a wide-ranging diet, with mainly arboreal foraging in the canopy of woodland assemblages. Old growth forest and woodland assemblages are favourable for nesting, loafing and roosting. The species nests in the hollows of tree trunks and limbs. Nesting and roosting sites are often near water, where larger hollow-bearing trees can be more common. Breeding pairs within the ACT are recognised to utilise a broad range of habitat including woodland, mountain forests, and peri-urban spaces in suitable nesting and foraging tree species. Six potential foraging trees in the Disturbance Footprint, one of which also provides potential breeding habitat, were identified within the Disturbance Footprint and would need to be removed to comply with canopy height restrictions for overhead powerlines. In addition, 10 potential foraging trees, one of which also provides potential breeding habitat, are close to the Disturbance Footprint and would require modification. The species distribution spans from northern NSW to southern Victoria. Breeding pairs within the ACT are recognised to utilise a broad range of habitat including woodland, mountain forests, and peri-urban spaces in suitable nesting and foraging tree species. Given the extent of suitable habitat in the surrounding landscape, it is unlikely that the removal of six potential foraging trees and one potential nesting tree, and modification of 10 additional foraging trees and one potential nesting tree, would lead to a long-term decrease in the size of a population of gang-gang cockatoo.
Reduce the area of occupancy of a population	**No.** Gang-gang cockatoo is known to occur within the lower Molonglo River Corridor adjacent to the Disturbance Footprint and five individuals were recorded within the new alignments corridor during the Proposed Action's field surveys, and are likely to be part of the eastern subpopulation of the species tentatively identified in the Gang-gang Cockatoo Conservation Advice. Further, the species is known to occupy a range of habitats in and around the ACT including woodland, mountain forests, and peri-urban spaces in suitable nesting and foraging tree species. The removal of six potential foraging trees, including one potential nesting tree, that are not known to be utilised by the species, is unlikely to reduce the area of occupancy of an eastern population of gang-gang cockatoo. Given the broad distribution of the species and extensive suitable habitat in the surrounding landscape, the area of occupancy of the individuals occurring in eastern Australia is unlikely to be reduced as a result of the Proposed Action.
Fragment an existing population into two or more populations	**No.** The gang-gang cockatoo distribution spans from northern NSW to southern Victoria. The species is known to occur within the lower Molonglo

An action is likely to have a significant impact on an endangered species if there is a real chance or possibility that it will:	
	River Corridor adjacent to the Disturbance Footprint and five individuals were recorded within the new alignments corridor during the Proposed Action's field surveys. The Gang-gang Cockatoo Conservation Advice does not provide any definitions for populations of the species, but indicates that there could be up to four subpopulations, with three discrete subpopulations potentially located within south-western Victoria which may be separate from individuals occurring in the east (including the ACT). As such, individuals known to occur in the ACT region, including those seen near the Proposed Action Area, are most likely part of an eastern subpopulation of the species. The Proposed Action is for the construction of linear infrastructure within a large, contiguous area of woodland and cleared rural land. The Gang-gang Cockatoo Conservation Advice notes that the total population of the species is not severely fragmented and is not subject to extreme fluctuations in extent of occurrence or area of occupancy. It also identifies habitat fragmentation as more likely to occur after land clearing or fire events. Land clearing associated with the Proposed Action is restricted to small areas adjacent to new towers, with vegetation taller than 6 m also requiring removal along the new alignments. The total extent of native vegetation that would be impacted by the Proposed Action (4.91 ha) is made up of multiple separate areas distributed along the new alignments, rather than one consolidated area. Given that fragmentation from linear infrastructure is not a key threat to the species and land clearing by the Proposed Action has been minimised, the Proposed Action is unlikely to fragment an existing population of gang-gang cockatoo into two or more populations.
Adversely affect habitat critical to the survival of a species	**Yes.** The Gang-gang Cockatoo Conservation Advice states that habitat critical to the survival of gang-gang cockatoo includes all foraging habitat during both the breeding and non-breeding season (excluding exotic feeding grounds such as ornamental trees, shrubs, and hedges). It notes that habitat critical to the survival of gang-gang cockatoo includes hollow-bearing trees with known or potential gang-gang cockatoo hollow chambers. Suitable foraging and breeding habitat present within the broader landscape has been avoided where possible through strategic design of the Proposed Action, including through micrositing of tower footings and by increasing the height of the conductors to minimise the need for vegetation clearance. Despite these avoidance efforts, the Proposed Action would still require the removal of six potential foraging trees, including one potential nesting tree, and the modification of an additional 10 potential foraging trees, including one potential nesting tree. These impacts are considered to be unavoidable. Based on the Gang-gang Cockatoo Conservation Advice, these trees are considered to be habitat critical to the survival of gang-gang cockatoo. The Proposed Action would therefore adversely affect habitat critical to the survival of the species.
Disrupt the breeding cycle of a population	**No.** One potential gang-gang cockatoo nesting tree is located within the Disturbance Footprint and would require removal, and one additional potential nesting tree would require modification. No individuals were recorded utilising these potential nesting trees, although five individuals were recorded in the new alignments corridor. The Gang-gang Cockatoo Conservation Advice states that only about half of known nest trees are utilised each year, and that individuals may use the same nesting site for multiple years. The potential nesting trees identified within the Proposed Action Area are not known to be utilised by gang-gang cockatoo. In a

An action is likely to have a significant impact on an endangered species if there is a real chance or possibility that it will:	
	regional context, extensive suitable habitat remains within the landscape for gang-gang cockatoo, including habitat already being utilised within the lower Molonglo River corridor. Indirect impacts on potential nesting trees will be managed through exclusion fencing, pest plant and animal management, and light and noise controls (see Section 6.2 of the BAR (Attachment F to the referral) for more detail). As gang-gang cockatoo is not known to utilise the potential nesting trees in the Disturbance Footprint, and with the implementation of the above controls, the Proposed Action is unlikely to disrupt the breeding cycle of a population of gang-gang cockatoo.
Modify, destroy, remove, or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	**No.** The removal of six potential foraging trees (including one potential nesting tree) and modification of 10 potential foraging trees (including one potential nesting tree) is considered unlikely to isolate or decrease the availability or quality of habitat to the extent that gang-gang cockatoo is likely to decline. In a regional context, extensive suitable habitat remains within the landscape for gang-gang cockatoo, including habitat already being utilised within the lower Molonglo River corridor. As such, the Proposed Action is unlikely to modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline.
Result in invasive species that are harmful to a critically endangered or endangered species becoming established in the endangered or critically endangered species' habitat	**No.** Indirect impacts on potential gang-gang cockatoo habitat trees near the Proposed Action will be minimised through exclusion fencing, pest plant and animal management, and light and noise controls (see Section 6.2 of the BAR (Attachment F to the referral) for more detail). Hygiene protocols will also be implemented for construction vehicles, and vehicles will utilise existing roads where possible. Mitigation measures will be implemented in accordance with the CEMP. The nature of the Proposed Action (involving the construction of linear infrastructure and minimal ongoing impacts once operational), means that it is unlikely to increase the existence of invasive animals such as feral cats or foxes within the landscape, and would also not increase domestic animals in the area. As such, the Proposed Action is unlikely to lead to invasive species becoming established in gang-gang cockatoo habitat.
Introduce disease that may cause the species to decline, or	**No.** Indirect impacts on potential habitat trees near the Proposed Action will be minimised through exclusion fencing and pest plant and animal management. Hygiene protocols will also be implemented for construction vehicles, and vehicles will utilise existing roads where possible. Mitigation measures will be implemented in accordance with the CEMP. As such, the Proposed Action is unlikely to introduce disease that may cause gang-gang cockatoo to decline.
Interfere substantially with the recovery of the species	**No.** The Gang-gang Cockatoo Conservation Advice states that actions that will remove habitat critical to the survival of the species would interfere with the recovery of gang-gang cockatoo. The Proposed Action would require the removal of six potential foraging trees (including one potential nesting tree) and modification of an additional 10 potential foraging trees (including one potential nesting tree). This habitat is considered critical to the survival of the species and its loss may therefore interfere with the recovery of the species. However, due to the availability of extensive suitable habitat within the broader landscape for gang-gang cockatoo, including habitat already being utilised within the lower Molonglo River corridor, the Proposed Action is not expected to interfere substantially with the recovery of the species. There is no recovery plan for gang-gang cockatoo, however, recovery actions identified in the Gang-gang Cockatoo Conservation Advice include further

An action is likely to have a significant impact on an endangered species if there is a real chance or possibility that it will:	
	research, community engagement and preventing further decline through conservation and management priorities. The Proposed Action would not interfere with the implementation of these objectives.
Conclusion	**Potentially significant** Suitable gang-gang cockatoo foraging and breeding habitat present within the broader landscape has been avoided where possible through strategic design of the Proposed Action, including through micrositing of tower footings and by increasing the height of the conductors to minimise the need for vegetation clearance. Despite these avoidance efforts, the Proposed Action would still require the removal of six potential foraging trees, including one potential nesting tree, and the modification of an additional 10 potential foraging trees, including one potential nesting tree, to comply with canopy height restrictions for overhead powerlines. These impacts are considered to be unavoidable. The species is not known to utilise the potential nesting trees but is likely to forage throughout the Proposed Action Area. The species was observed during the Proposed Action's field surveys in foraging habitat along the Murrumbidgee River, outside of the Disturbance Footprint. The removal and modification of potential breeding and foraging habitat may adversely affect habitat critical to the survival of the species according to the Gang-gang Cockatoo Conservation Advice. The Proposed Action therefore has the potential to result in a significant impact on the gang-gang cockatoo.

Table 7 Significant Impact Assessment: Hooded Robin (*Melanodryas cucullata cucullata*) – endangered

An action is likely to have a significant impact on an endangered species if there is a real chance or possibility that it will:	
Lead to a long-term decrease in the size of a population of a species	**No.** The Proposed Action would remove 4.91 ha of grassy woodland habitat that may provide foraging and breeding opportunities for the hooded robin (south-eastern subspecies). Given the large distribution of the subspecies and the minimal extent of habitat removal, the Proposed Action is unlikely to lead to a long-term decrease in the size of a population of the species.
Reduce the area of occupancy of a population	**No.** The area of occupancy for the hooded robin is currently estimated to be 30,000 km^2 but it is considered to be contracting (Ford, et al., 2021). The Proposed Action is unlikely to reduce the area of occupancy of the hooded robin, given the extent of potential habitat to be removed (4.91 ha) relative to the species' broad range, and the presence of potential habitat in the surrounding landscape.
Fragment an existing population into two or more populations	**No.** The area of potential hooded robin habitat to be impacted is part of a larger area of contiguous woodland and cleared rural land and is unlikely to fragment an existing population of the species.

An action is likely to have a significant impact on an endangered species if there is a real chance or possibility that it will:	
Adversely affect habitat critical to the survival of a species	**No.** The Hooded Robin Conservation Advice (DCCEEW, 2023b) states that habitat critical to the survival of the species include areas of: • Dry eucalypt and acacia woodlands and shrublands remnants with an open understorey, some grassy areas and a complex ground layer, often in or near clearings or open areas • Structurally diverse habitats featuring mature eucalypts, saplings, some small shrubs, and a ground layer of moderately tall native grasses • Standing dead or live trees and tree stumps are also essential for nesting, roosting, and foraging • Moderately deep to deep soils, rocks and fallen timber which provide essential foraging habitat. The Proposed Action would remove 4.91 ha of potential foraging and breeding habitat for the hooded robin. Given that the impacted area is part of a broader and much larger mosaic of woodland and grassland areas, the Proposed Action is unlikely to adversely impact critical habitat to the survival of the species.
Disrupt the breeding cycle of a population	**No.** The Hooded Robin Conservation Advice estimates that there are around 100 subpopulations of the species, but there is a low reliability of this number being accurate. It does not detail where these subpopulations may be located. does not define any populations for the species. Hooded robin individuals generally form monogamous pairs and occupy territories during the breeding season and non-breeding season (Fitri & Ford, 2003). No individuals were observed during diurnal bird surveys in the Disturbance Footprint, nor have they been recorded in the surrounding area, thus it is unlikely that the subspecies is using the area for breeding. The Proposed Action would remove 4.91 ha of grassy woodland habitat that may provide breeding opportunities for the species. Given the minimal extent of vegetation to be removed and the presence of habitat in the broader landscape, it is unlikely the Proposed Action would disrupt the breeding cycle of a population.
Modify, destroy, remove, or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	**No.** The Proposed Action would remove 4.91 ha of grassy woodland habitat that may provide and breeding opportunities for the hooded robin. Given the mobility of this species and the presence of alternative habitats within the broader area, the Proposed Action is unlikely to modify, destroy, remove, or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline.
Result in invasive species that are harmful to a critically endangered or endangered species becoming established in the endangered or critically endangered species' habitat	**No.** Invasive weeds, particularly perennial grasses, can compromise habitat values (DCCEEW, 2023b). With the implementation of appropriate controls, the Proposed Action will not result in an increase or change in invasive species becoming established across the Disturbance Footprint. Best practice weed mitigation measures will be implemented during construction to restrict or manage the spread of any new invasive plant species.
Introduce disease that may cause the species to decline, or	**No.** The Proposed Action would not lead to the introduction of disease that may cause the species to decline.

An action is likely to have a significant impact on an endangered species if there is a real chance or possibility that it will:	
Interfere substantially with the recovery of the species	**No.** A recovery plan for the hooded robin has not been prepared. Declines in the numbers of hooded robin are attributed to ongoing threats such as increased predation from introduced mammals; invasive weeds; competition with the noisy miner (*Manorina melanocephala*); over-grazing of habitat by stock, rabbits and kangaroos; habitat loss for large-scale agriculture; climate change; inappropriate fire regimes; and inappropriate firewood collection. The Proposed Action would not exacerbate any of these existing threats, and habitat removal would be limited to 4.91 ha of native vegetation distributed in small patches along the length of the new alignments. This is a small area in the context of the broader landscape, and the Proposed Action is therefore considered unlikely to interfere substantially with the recovery of the species.
Conclusion	**Not significant** Although the Disturbance Footprint supports habitat for the hooded robin, in the ACT the species has shown a consistent steady decline over recent decades (Bounds, Davey, Taws, Evans, & Rayner, 2021) and is now in very low abundance in the Canberra region having been lost from peri-urban woodland sites. Surveys conducted as part of the Woodland Bird Monitoring Project by the Canberra Ornithologists Group (COG) have not recorded the species during surveys since 2014 (Bounds, Davey, Taws, Evans, & Rayner, 2021). The species has not been recorded within the vicinity of the Disturbance Footprint. The Proposed Action is therefore unlikely to have a significant impact on the hooded robin (south-eastern subspecies).

Table 8 Significant Impact Assessment: Southern Whiteface (*Aphelocephala leucopsis*) - vulnerable

An action is likely to have a significant impact on a vulnerable species if there is a real chance or possibility that it will:	
Lead to a long-term decrease in the size of an important population of a species	**No.** The Conservation Advice for *Aphelocephala leucopsis* (southern whiteface) (Southern Whiteface Conservation Advice) (DCCEEW, 2023a) does not define any important populations of the species. The Proposed Action would remove 4.91 ha of grassy woodland habitat that may provide foraging and breeding opportunities for the species. Given the large distribution of the species and the minimal extent of habitat removal, the Proposed Action is unlikely to lead to a long-term decrease in the size of an important population of the species.
Reduce the area of occupancy of an important population	**No.** The Southern Whiteface Conservation Advice does not define any important populations of the species. The area of occupancy for the southern whiteface is currently estimated to be 60,000 km^2 but it is considered to be contracting (Ehmke, et al., 2021). The Proposed Action is unlikely to reduce the area of occupancy of the southern whiteface, given the extent of potential habitat to be removed within the Proposed Action Area (4.91 ha) relative to the species' broad range, and the broad extent of habitat in the surrounding landscape.
Fragment an existing important population into two or more populations	**No.** The Southern Whiteface Conservation Advice does not define any important populations of the species. The species is thought to be sedentary in the ACT where it generally occurs in small groups (Bounds, Davey, Taws, Evans, & Rayner, 2021). Given the extent of the vegetation to be removed by the Proposed Action (4.91 ha), it is unlikely that the Proposed Action would fragment an existing population.

An action is likely to have a significant impact on a vulnerable species if there is a real chance or possibility that it will:	
Adversely affect habitat critical to the survival of a species	**No.** The Southern Whiteface Conservation Advice states that habitat critical to the survival of the southern whiteface includes areas of: • Relatively undisturbed open woodlands and shrublands with an understorey of grasses or shrubs, or both • Habitat with low tree densities and an herbaceous understorey litter cover which provides essential foraging habitat • Living and dead trees with hollows and crevices which are essential for roosting and nesting. It also states that habitat critical to the survival of the species should not be destroyed or modified, and that indirect impacts to the species should be minimised. The Proposed Action would remove 4.91 ha of grassy woodland habitat that may could provide foraging and breeding habitat for the southern whiteface. The area to be impacted is part of a broader mosaic of woodland and grassland within the broader landscape, thus the Proposed Action is unlikely to adversely impact critical habitat for the species.
Disrupt the breeding cycle of an important population	**No.** The Southern Whiteface Conservation Advice does not define any important populations for the species. The Proposed Action would remove 4.91 ha of grassy woodland habitat that may provide breeding opportunities for the species. Given the minimal extent of vegetation to be removed and the presence of habitat in the broader landscape, it is unlikely the Proposed Action would disrupt the breeding cycle of an important population of southern whiteface.
Modify, destroy, remove, or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	**No.** The Proposed Action would remove 4.91 ha of grassy woodland habitat that may provide foraging and breeding opportunities for the southern whiteface. Given the mobility of this species and the extent of habitat within the broader area, the Proposed Action is unlikely to modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline.
Result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat	**No.** The Proposed Action would not result in an invasive species becoming established in southern whiteface habitat. With the implementation of appropriate controls, the Proposed Action will not result in an increase or change in invasive species becoming established across the Disturbance Footprint. Best practice weed mitigation measures will be implemented during construction to restrict or manage the spread of any new invasive plant species.
Introduce disease that may cause the species to decline, or	**No.** The Proposed Action would not lead to the introduction of disease that may cause the species to decline.
Interfere substantially with the recovery of the species	**No.** A recovery plan for the southern whiteface has not been prepared. The Southern Whiteface Conservation Advice states that habitat loss and fragmentation is likely the cause of the species' decline, especially where there has been complete removal of habitat for intensive agriculture. The Proposed Action would remove 4.91 ha of grassy woodland habitat that may provide foraging and breeding opportunities for the southern whiteface. This is a small area in the context of the woodlands and grasslands that exist in the surrounding region, thus the Proposed Action is unlikely to interfere substantially with the recovery of the species.

An action is likely to have a significant impact on a vulnerable species if there is a real chance or possibility that it will:	
Conclusion	**Not significant** The Proposed Action would remove 4.91 ha of grassy woodland habitat that may provide foraging and breeding opportunities for the southern whiteface. The species was recorded during surveys for the Proposed Action near the western end of the new alignments but outside of the disturbance footprint. Given the minimal amount of vegetation to be removed and the remaining habitat in the broader area, the Proposed Action is unlikely to have a significant impact on the southern whiteface.

Table 9 Significant Impact Assessment: Diamond Firetail (*Stagonopleura guttata*) – vulnerable

An action is likely to have a significant impact on a vulnerable species if there is a real chance or possibility that it will:	
Lead to a long-term decrease in the size of an important population of a species	**No.** The Conservation Advice for *Stagonopleura guttata* Diamond Firetail (Diamond Firetail Conservation Advice) (DCCEEW, 2023c) does not define any important populations for the species. The species was not recorded during diurnal bird surveys for the Proposed Action, but it has previously been recorded in the vicinity of the Disturbance Footprint. The Proposed Action would remove 4.91 ha of grassy woodland habitat that provides potential foraging and breeding opportunities for the species. Given the large distribution of the species and the minimal extent of habitat removal, the Proposed Action is unlikely to lead to a long-term decrease in the size of an important population of the species.
Reduce the area of occupancy of an important population	**No.** The Diamond Firetail Conservation Advice does not define any important populations of the species. The area of occupancy is currently estimated to be 25,000 km^2 but it is considered to be contracting (Hodder, et al., 2021). The Proposed Action is unlikely to reduce the area of occupancy of the diamond firetail, given the extent of potential habitat to be removed within the Disturbance Footprint (4.91 ha) relative to the species' broad range, and the presence of potential habitat in the surrounding landscape.
Fragment an existing important population into two or more populations	**No.** The Diamond Firetail Conservation Advice does not define any important populations for the species. In the ACT the species typically occurs in small groups and is thought to move around to take advantage of different seed sources (Bounds, Davey, Taws, Evans, & Rayner, 2021). Given the extent of the potential habitat to be removed (4.91 ha) and the mobility of the species it is unlikely that the Proposed Action would fragment an existing population of diamond firetail.
Adversely affect habitat critical to the survival of a species	**No.** The Diamond Firetail Conservation Advice states that habitat critical to the survival of the species includes areas of eucalypt, acacia or casuarina woodlands, open forests, and other lightly timbered habitats, with low tree density, few large logs, and little litter cover but high grass cover for foraging, roosting and breeding. It also states that habitat critical to the survival of the species should not be destroyed or modified, and that indirect impacts to the species should be minimised. The Proposed Action would remove 4.91 ha of potential foraging and breeding habitat for the diamond firetail. The area to be impacted is part of a broader mosaic of woodland and grassland areas in the broader region, thus the Proposed Action is unlikely to adversely impact critical habitat for the species.
Disrupt the breeding cycle of an important population	**No.** The Diamond Firetail Conservation Advice does not define any important populations for the species. The Proposed Action is likely to remove 4.91 ha of potential grassy woodland habitat that may provide breeding opportunities.

An action is likely to have a significant impact on a vulnerable species if there is a real chance or possibility that it will:	
	Given the minimal extent of vegetation to be removed and the presence of habitat in the broader landscape, it is unlikely the Proposed Action would disrupt the breeding cycle of an important population.
Modify, destroy, remove, or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	**No.** The Proposed Action would remove 4.91 ha of grassy woodland habitat that may provide and breeding opportunities for the diamond firetail. Given the mobility of this species and the presence of habitat within the broader region, the Proposed Action is unlikely to modify, destroy, remove, or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline.
Result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat	**No.** The Diamond Firetail Conservation Advice lists weeds, particularly exotic annual grasses, as a severe threat to the species. The replacement of native perennial grasses with exotic annual grasses can also lead to food shortages if there are no alternative seed sources (Hodder, et al., 2021). With the implementation of appropriate controls, the Proposed Action will not result in an increase or change in invasive species becoming established across the Disturbance Footprint. Best practice weed mitigation measures will be implemented during construction and operation to restrict or manage the spread of any new invasive plant species.
Introduce disease that may cause the species to decline, or	**No.** The Proposed Action would not lead to the introduction of disease that may cause the species to decline.
Interfere substantially with the recovery of the species	**No.** A recovery plan for the diamond firetail has not been prepared. The loss of habitat through clearing and alteration is the primary factor in the decline of the diamond firetail. The Proposed Action would remove 4.91 ha of grassy woodland habitat that may provide foraging and breeding opportunities for the diamond firetail. This is minimal in the context of habitat present in the broader region, thus the Proposed Action is unlikely to interfere substantially with the recovery of the species.
Conclusion	**Not significant** The Proposed Action would remove 4.91 ha of grassy woodland habitat that may provide foraging and breeding opportunities for the diamond firetail. No individuals were recorded utilising the habitat during diurnal bird surveys conducted across the Proposed Action Area, however they have previously been recorded in the immediate vicinity at the eastern end of the new alignments. Given the minimal amount of vegetation to be removed and the remaining habitat in the broader area, it is considered that the Proposed Action is unlikely to have a significant impact on the diamond firetail.

Table 10 Significant Impact Assessment: Painted Honeyeater (*Grantiella picta*) - vulnerable

An action is likely to have a significant impact on a vulnerable species if there is a real chance or possibility that it will:	
Lead to a long-term decrease in the size of an important population of a species	**No.** The National Recovery Plan for the Painted Honeyeater (*Grantiella picta*) (Painted Honeyeater Recovery Plan) (DAWE, 2021b) does not define any important populations for the species. The entire population of the painted honeyeater is considered to be one subpopulation (Watson, et al., 2021). The Proposed Action would remove 4.91 ha of grassy woodland habitat that may provide foraging and breeding opportunities for the painted honeyeater. Given the large distribution of the species and the minimal extent of habitat removal, and the presence of habitat in the broader landscape, the Proposed Action is unlikely to lead to a long-term decrease in the size of an important population of the species.
Reduce the area of occupancy of an important population	**No.** The Painted Honeyeater Recovery Plan does not define any important populations for the species. The Area of Occupancy for the painted honeyeater is considered to be 1,500 km^2 (Watson, et al., 2021). The Proposed Action is unlikely to reduce the area of occupancy of the painted honeyeater, given the extent of potential habitat to be removed within the Proposed Action Area (4.91 ha) relative to the species' broad range, and the presence of habitat in the surrounding landscape.
Fragment an existing important population into two or more populations	**No.** The Painted Honeyeater Recovery Plan does not define any important populations for the species. The entire population of the painted honeyeater is considered to be one subpopulation (Watson, et al., 2021). In the ACT, the species is a rare visitor with individuals being recorded every few years (COG, 2018). Given the extent of the vegetation to be removed (4.91 ha) and the presence of potential habitat in the broader landscape, it is unlikely that the Proposed Action would fragment an existing population.
Adversely affect habitat critical to the survival of a species	**No.** Habitat critical to the survival of the Painted Honeyeater includes: • Known or likely breeding habitat in Boree/Weeping Myall, Brigalow woodlands, box gum woodlands, and box-ironbark forests on the inland slopes of the Great Dividing Range in New South Wales, Victoria and southern Queensland. • All preferred foraging species within known and likely foraging habitat particularly mistletoes of the genus *Amyema* growing on forest and woodland eucalypts and acacias. The Proposed Action would remove 4.91 ha of grassy woodland habitat which may provide potential foraging and breeding habitat for the painted honeyeater. Given that the species is only an occasional visitor to the ACT and that the area to be impacted is part of a broader mosaic of woodland and grassland within the surrounding region, the Proposed Action is unlikely to adversely affect critical habitat for the species.
Disrupt the breeding cycle of an important population	**No.** The Painted Honeyeater Recovery Plan does not define any important populations of the species. The painted honeyeater is only a sporadic visitor to the ACT and there are few breeding records (EPSDD, 2019). The removal of 4.91 ha of potential grassy woodland habitat is unlikely to disrupt the breeding cycle of an important population of the species.
Modify, destroy, remove, or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	**No.** The Proposed Action would remove 4.91 ha of grassy woodland habitat that may provide foraging and breeding opportunities for the painted honeyeater. Given the mobility of the species and the presence of habitat within the broader area, the Proposed Action is unlikely to modify, destroy, remove, or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline.

An action is likely to have a significant impact on a vulnerable species if there is a real chance or possibility that it will:	
Result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat	**No.** The Proposed Action is unlikely to result in invasive species that are harmful to painted honeyeater becoming established in painted honeyeater habitat. With the implementation of appropriate controls, the Proposed Action will not result in an increase or change in invasive species becoming established across the Disturbance Footprint. Best practice weed mitigation measures will be implemented during construction and operation to restrict or manage the spread of any new invasive plant species.
Introduce disease that may cause the species to decline, or	**No.** The Proposed Action is unlikely to result the introduction of disease that may cause the species to decline.
Interfere substantially with the recovery of the species	**No.** A Recovery Plan has been prepared for the painted honeyeater (DAWE, 2021b). Actions that remove habitat critical to the survival of the species could interfere with the recovery of the painted honeyeater and reduce the area of occupancy of the species. However, only 4.91 ha of potential habitat would be removed by the Proposed Action, which is unlikely to substantially interfere with the recovery of the species.
Conclusion	**Not significant** The Proposed Action would remove 4.91 ha of grassy woodland habitat that may provide foraging and breeding opportunities for the painted honeyeater. No individuals were recorded utilising the habitat during diurnal bird surveys conducted across the Disturbance Footprint, and the painted honeyeater is a rare visitor to the ACT. Given the minimal amount of vegetation to be removed and the remaining habitat in the broader region, the Proposed Action is unlikely to have a significant impact on the painted honeyeater.

Table 11 Significant Impact Assessment: White-throated Needletail (*Hirundapus caudacutus*) – vulnerable

An action is likely to have a significant impact on a vulnerable species if there is a real chance or possibility that it will:	
Lead to a long-term decrease in the size of an important population of a species	**No.** The population size of white-throated needletail that migrates to Australia is currently considered to be 41,000 mature individuals comprising a single population (Tarburton & Garnett, 2021). The species is primarily aerial when in Australia. The Proposed Action would modify the airspace with the addition of overhead powerlines, however the Proposed Action involves the relocation of existing transmission lines and is not introducing a novel feature to the landscape. There may be a period of adjustment as affected species adapt to the new alignment location, but the Proposed Action is unlikely to increase the collision risk for white-throated needletail to the extent where would be a long-term decrease in the size of an important population.
Reduce the area of occupancy of an important population	**No.** The Proposed Action would not reduce the area of occupancy of an important population of the white-throated needletail. The white-throated needletail is considered to be one population and its area of occupancy is estimated to be 10,000,000 km^2 (Tarburton & Garnett, 2021).
Fragment an existing important population into two or more populations	**No.** The Proposed Action would not fragment an existing population of white-throated needletail into two or more populations given the species' mobility and its large area of occupancy.

An action is likely to have a significant impact on a vulnerable species if there is a real chance or possibility that it will:	
Adversely affect habitat critical to the survival of a species	**No.** The white-throated needletail is primarily aerial when in Australia, and the Conservation Advice for *Hirundapus caudacutus* (White-throated Needletail) (White-throated Needletail Conservation Advice) (TSSC, 2019) does not define any habitat critical to the survival of the species. Due to the dispersed and aerial nature of the species, it is unlikely that there is any specific habitat critical for the survival of the species outside of their breeding range in Australia.
Disrupt the breeding cycle of an important population	**No.** The Proposed Action would not disrupt the breeding cycle of the white-throated needletail. The subspecies is a trans-equatorial migrant which breeds in the northern hemisphere and migrates to Australia during the Australian summer (DCCEEW, 2019).
Modify, destroy, remove, or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	**No.** The Proposed Action is unlikely to modify, destroy, remove, or isolate or decrease the availability or quality of habitat to the extent that the white-throated needletail is likely to decline, given that the species is primarily aerial while in Australia.
Result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat	**No.** The Proposed Action would not result in invasive species that are harmful to white-throated needletail becoming established in white-throated needletail habitat.
Introduce disease that may cause the species to decline, or	**No.** The Proposed Action is unlikely to result in the introduction of disease that may cause the white-throated needletail to decline.
Interfere substantially with the recovery of the species	**No.** The Proposed Action is unlikely to interfere substantially with the recovery of the species. There is a risk of mortality due to the potential for collision with overhead powerlines, however the number of individuals that are likely to be impacted is unlikely, in isolation, to substantially interfere with the recovery of white-throated needletail. Furthermore, the Proposed Action involves the relocation of existing transmission lines and is not introducing a novel feature to the landscape. There may be a period of adjustment as affected species adapt to the new alignment location, but the Proposed Action is unlikely to increase the collision risk for white-throated needletail.
Conclusion	**Not significant** Due to the dispersive and aerial nature of the white-throated needletail and its large area of occupancy, the Proposed Action is unlikely to have a significant impact on the species. In addition, as the Proposed Action involves the relocation of existing transmission lines and is not introducing a novel feature into the landscape, it is unlikely to increase the collision risk for white-throated needletail.

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