Additional information required	Comments on additional information provided	Talison Response
Additional information required	October 2018	Tallson Response
Listed threatened Black Cockatoos (Carnaby's Black Cockatoo ( <i>Calyptorhynchus latirostris</i> ), Forest Red-tailed Black Cockatoo ( <i>C. banksii naso</i> ) and Baudin's Black Cockatoo ( <i>C. baudinii</i> ) (together Black Cockatoos)).  1. Describe and assess the likely effectiveness of measures proposed to avoid and/or mitigate the direct and indirect impacts of the proposed action on Black Cockatoos. This information must include, but is not limited to, measures proposed to avoid or mitigate:  (a) the clearance of known and suitable nesting hollows including potential engineering or design controls that can be implemented to avoid the clearance of hollows and mitigation measures to be applied for the hollows that are proposed to be cleared	1 (a) The Department considers the proponent has not demonstrated what mitigation measures will be applied for the known and suitable hollows that are proposed to be cleared (e.g. how will the proponent ensure that the breeding density in the area is maintained?). As it has not been demonstrated what species are utilising the hollows, mitigation measures would need to be suitable for all three species of Black Cockatoos (Possible mitigation measures could include provision of artificial nest hollows, research into Forest-red or Baudin's breeding/hollows etc.). The mitigation measures applied assist in determining the acceptability of the proposal (before offsets can be applied).	1(a) Studies to date have shown low utilisation of hollows. Talison is currently financially supporting the Blackwood Basin Group (BBG) to monitor 30 artificial nest boxes adjacent to the Mine Development Envelope (MDE) at the Schwenke's Wetland Project. These boxes are located in an area with a higher recorded presence of Black Cockatoos and which has more suitable water supply (Dr. Per Christensen 2018). To date no use of these boxes by Black Cockatoos has been recorded, therefore Talison does not see value in installing more boxes. Talison also understands that DotEE does not encourage placement of nest boxes/tubes or planting of flora species which encourage black cockatoo species in areas that could be subject to increased risk of vehicle strike.
<ul> <li>(b) introduction and/or spread of weeds and Phytophthora cinnamoni (dieback)</li> <li>(c) any impact on the supply of permanent water or decrease to the quality of the permanent water for fauna</li> <li>(d) noise, vibration and vehicle strike that could impact the Black Cockatoos utilising the known breeding hollow/s in proximity to the mine site.</li> <li>2. After consideration of the above, the proponent must provide an updated number of the Black Cockatoo breeding trees within the development envelope (area to be impacted by the proposed action) including:</li> </ul>		Due to lack of success with current nest box trials adjacent to the MDE, and the risk of bird strike if boxes were to be established within the MDE, Talison is averse to the placement of nest boxes within the MDE, or further boxes in Greenbushes without research to better understand the use of natural and artificial hollows.  Talison therefore believe a more effective mitigation measure is to support research in conjunction with a Western Australian University and a local land care/ environmental group into "The use of natural and artificial nesting hollows in the South West region". This has been identified as a knowledge gap as part of the Forest Black Cockatoo Symposium &
(a) an estimate of the number of potential breeding trees (diameter at breast height >500mm)		Workshop Perth 2014 and there appears to be limited research carried out since that date.  Talison will commit funding up to \$250,000 to this project as part of the indirect offset proposal as mitigation for the loss of known and suitable hollows in the MDE.

- (b) the number of hollows with evidence of use by black cockatoos (in the form of evidence of chew marks on the hollow)
- (c) the number of hollows that are suitable for black cockatoo use however, do not meet the characteristics of 2(b) above.
- A discussion on how the loss of the hollows identified in
   above will impact on the local population/s of Black cockatoos.
- 1 (c) Page 94 of the referral additional information document states that the Surface Water Management Plan will continue to be implemented. The Department notes that the Surface Water Management Plan has not been attached with the other Management Plans (Attachment E). The Department is unclear of the contents of this plan and whether it is proposed to be updated to reflect the increased mine area/new infrastructure etc.

2 (b) Page 88 of the referral additional information document states that it is expected that 7 known hollows will be removed, given this is not a certain statement, could the number increase or is this the maximum?

1(c) The Surface Water Management Plan is an adaptive document which is required to be implemented in accordance with the requirements of the EP Act Part V licence L4247/1991/13 for the Mine. It will be updated as part of the DWER Part V approval process for the expanded operation. Once the updated Surface Water Management Plan is approved by DWER it can be forward to the DotEE for review.

The Plan will be updated to mitigate impacts to surface water from expansion, and provide sufficient monitoring to ensure actions can be implemented prior to impacts occurring. Updates will include:

- Proposed infrastructure and associated operating rules, monitoring and maintenance requirements.
- Additional surface water sampling to monitor flows (volume & quality) from the mine activities into surrounding catchments (TSF4 toe, Woljenup Creek)
- Water collection infrastructure intersecting drainage from site to maximise water collection and recycling.
- Continued annual ecology surveys to monitor water quality impacts on downstream receptors.

2(b) Up to seven known hollows will need to be removed to develop major infrastructure (TSF4, Floyd's WRL). No viable alternative is available to protect these trees.

As per the Conservation Significant Fauna Management Plan (Appendix E), Talison will implement tree protection zones around the two known roost trees and 10m buffer zones around known and suitable nest trees which are outside the proposed development areas for TSF4 and Floyd's WRL in order that these trees are not impacted by development of secondary infrastructure such as roads, pipelines, buildings, and Mines Services Area. Figure 4 of the Management Plan shows the trees with hollows

which will be avoided by the Proposal. It is also stated in section 5.3.5 of the Additional Information Document that the roost sites are outside the development footprint and will be avoided.

3 (c) The Department considers that this number is likely to be underestimated. In section 5.3.5 undertaken by experienced.

(c) The Department considers that this number is likely to be underestimated. In section 5.3.5 of the referral additional information document (table 20) it is noted that 22 of the hollows appear unsuitable.

Given the lack of published research related to the suitability (size, angle, depth etc.) and difficulty determining some of these characteristics - particularly without a physical inspection of the hollow - the Department considers it is not possible to determine that these hollows are unsuitable based on the information provided. Therefore, more justification should be provided or the cockatoos should get the benefit of the doubt in terms of the number of hollows assumed to be suitable.

undertaken by experienced researchers/consultants (Tony Kirkby and Grea Harewood) and camera images (from drone or pole camera) have been used by the consultants to assess the suitability of hollows for Black Cockatoo breeding. Many of the hollows identified during the ground survey were subsequently found to be too small or too shallow for use based on the experience of the consultants. Some hollows were also found not to exist on closer inspection of the trees with an aerial drone. Talison has based their assessment on the knowledge and experience of the consultants who conducted the surveys and had the reports peer reviewed by Mike Bamford. Due to the low utilisation of hollows in the MDE and the fact that the hollows have been reviewed by 3 independent experts, Talison believes there is suitable justification provided. .

	2 (b and c) Page 90 of the referral additional information document states that the MSA area has not been surveyed for whether it contains suitable or known breeding hollows. The Department expects that this must be completed to be incorporated into the response to question 2 (b and c).	2 (b and c) Survey of the MSA was undertaken by Tony Kirkby in November 2018 and the results of the survey have been included in the updated documentation (5.3.5 and 5.5.1 and the report is included in Appendix C). A significant portion of this area has been previously cleared and is rehabilitation / regrowth with many of these trees being exotic eucalypts which have no foraging value. Three hollows were identified within the survey area all of which were determined to be unsuitable based on their depth. A pole camera and drone were used to make this observation. Table 20 has been updated accordingly in the document with the additional hollows.
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	3. Section 5.5.1 doesn't make a conclusion on the expected impact to the local population/s of Black Cockatoos. Please include a discussion here about the impact of habitat removal on the individuals.	3) Section 5.5.1 has been updated to include further discussion on the expected impact to the Black Cockatoo population. The clearing of 350 ha of suitable black cockatoo foraging and breeding habitat for the Proposal is considered unlikely to result in a decline in the density of any of the three black cockatoo species within the broader Greenbushes region as there is suitable habitat available in the surrounding area, with greater density of breeding hollows, which can support birds currently utilising habitat within the MDE
Pink Spider Orchid (Caladenia harringtoniae)  4. Further information on whether the proposed action (clearing, increased mining operations, tailings storage etc.) has the potential to result in significant changes to the water tables or runoff quality over time that may impact on the long-term viability of the population known to occur within 500 m of the proposed action.	See comment on 1 (c) above related to the Surface Water Management Plan.	As per previous comment, the Surface Water Management Plan will be updated to address mitigation of impacts to surface water from the expansion, and include sufficient monitoring to ensure actions can be implemented prior to impacts occurring. The mine is already 300 m deep and dewatering to date has not impacted the population. An assessment of the dewatering drawdown has been undertaken which predicts drawdown impacts will be within the footprint of the mining operation. There is limited groundwater available therefore the mine relies primarily on surface water to supply the mine. The mine drainage is therefore designed to capture runoff to direct it into the mine water circuit.  As per Figure 10 the mine does not interact with the watercourse on within the Caladenia harringtoniae population occurs as the water course commences outside the MDE.

Western Biretell Berein (B. 1.1.1.	I TO DO TO THE STATE OF THE STA	le a cui
<ul> <li>Western Ringtail Possum (Pseudocheirus occidentalis)</li> <li>5. The Western Ringtail Possum (Pseudocheirus occidentalis) Recovery Plan (2017) states that any habitat where WRP occurs naturally is critical. To assist with our consideration of the projects impacts on WRP, please provide further information on whether the WRP occurs (or is likely to occur) within the project footprint and Mine Development Envelope, including the total number of hectares of habitat in each of those areas.</li> <li>6. Include the likely density and number of individuals of Western Ringtail Possum likely to be impacted by the</li> </ul>	The Department notes the inclusion of additional information related to WRP usage and habitat.	Further field assessment for WRP has been undertaken and included in the updated document (5.3.6 and 5.5.1) and Appendix D.
proposed action.		
7. Describe and assess the likely effectiveness of measures proposed to avoid and/or mitigate the direct and indirect impacts of the proposed action on the Western Ringtail Possum. This information must include, but is not limited to, measures proposed to avoid or mitigate impacts of:		
(a) feral animals (cat and fox)		
<ul><li>(b) introduction and/or spread of weeds and Phytophthora cinnamoni (dieback).</li></ul>		
Chuditch (Dasyurus geoffroii)	The Department notes the measures proposed in	
8. Describe and assess the likely effectiveness of measures proposed to avoid and/or mitigate the direct and indirect impacts of the proposed action on Chuditch. This information must include, but is not limited to, measures proposed to avoid or mitigate impacts of:	the Conservation Significant Fauna related to feral animals.	
(a) feral animals (cat and fox).		
General information	9 (a) The hectare amount is highlighted in the Site	The clearing area is accurate, and the management
Confirmation of the proposed final Mine Development including:	Management Plan – why is this highlighted? The Department needs this information for the purposes of an assessment and also for the offsetting	plan has been updated to remove the highlight.
(a) discussion of whether the proponent intends to have the option to clear the 385 ha in any location within the Mine Development Envelope or whether	information. Please confirm this number and if accurate remove highlighting.	

clearing associated with the proposed action is restricted to the Proposed Development Areas  (b) confirmation of the final proposed clearing amount in hectares  (c) a map of the final proposed clearing area and final proposed layout  (d) confirmation of whether the action will be undertaken in a staged approach, and if so, an identification of the relevant stages and timing of each stage.	The Department notes that from the discussion in the documentation it appears as if the proponent would like the flexibility to move the layout anywhere within the MDE. It would assist if this was explicitly stated in the documentation.  9 (d) It would be useful if Table 3 of the referral additional information document was accompanied by a map. Given the close timing of the commencement/completion of each expansion activity, the Department is unlikely to consider it appropriate to apply a staged offset approach.	Section 5.6.1 states "The disturbance footprint for the Floyd's WRL expansion, TSF4 and CGP3/CGP4 areas are final therefore fauna habitat loss is confirmed within these development areas. The MSA, explosives infrastructure and linear infrastructure corridors are flexible and will be adjusted where possible to avoid significant fauna habitat such as trees with known and suitable hollows for black cockatoo breeding." As per earlier comment Talison will implement tree protection zones around the two known roost trees and 10m buffer zones around known and suitable nest trees which are outside the proposed development areas for TSF4 and Floyd's WRL in order that these trees are not impacted by development of secondary infrastructure such as roads, pipelines, buildings, and Mines Services Area.  9(d) Talison has not proposed a staged offset. It is intended that following confirmation of the fauna values of the proposed offset properties, providing they are suitable, the properties will be purchased as part of the direct offset for the Proposal.
Recovery plans/Threat abatement plans  10. Demonstrate that the action is not inconsistent with any relevant recovery plan or threat abatement plan, including (but not limited to):	The Department has no comments on this discussion at this time.	
(a) Western Australian Department of Parks and Wildlife (2013), Carnaby's Cockatoo (Calyptorhynchus latirostris) Recovery Plan.		
(b) Western Australian Department of Environment and Conservation (2008), Forest Black Cockatoo (Baudin's Cockatoo Calyptorhynchus baudinii and Forest Red-tailed Black Cockatoo Calyptorhynchus banksii naso) Recovery Plan.		

- (c) Australian Government Department of the Environment (2014), *Threat abatement plan for disease in natural ecosystems caused by* Phytophthora cinnamomi. Canberra, ACT.
- (d) Department of Parks and Wildlife (2017). Western Ringtail Possum (Pseudocheirus occidentalis) Recovery Plan. Wildlife Management Program No. 58. Department of Parks and Wildlife, Perth, WA.
- (e) Department of the Environment (2015). *Threat abatement plan for predation by feral cats*. Canberra, ACT: Commonwealth of Australia.
- (f) Department of the Environment, Water, Heritage and the Arts (DEWHA) (2008). *Threat abatement plan for predation by the European red fox.*
- (g) Department of the Environment and Energy (2017). Threat abatement plan for predation, habitat degradation, competition and disease transmission by feral pigs (Sus scrofa) (2017). Canberra, ACT: Commonwealth of Australia.
- (h) Department of Environment and Conservation (2012). Chuditch (Dasyurus geoffroii) Recovery Plan. Wildlife Management Program No. 54. Department of Environment and Conservation, Perth, Western Australia.
- (i) Department of the Environment and Energy (2016). Threat abatement plan for competition and land degradation by rabbits. Canberra, ACT: Commonwealth of Australia.
- 11. Demonstrate that the action has had regard to any relevant conservation advice:
  - (j) Department of the Environment, Water, Heritage and the Arts (2009). Approved Conservation Advice for Calyptorhynchus banksii naso (Forest Red-tailed Black Cockatoo). Canberra: Department of the Environment, Water, Heritage and the Arts.

- (k) Threatened Species Scientific Committee (2018). Conservation Advice Calyptorhynchus baudinii Baudin's cockatoo. Canberra: Department of the Environment and Energy.
- (I) Threatened Species Scientific Committee (2018). Conservation Advice Pseudocheirus occidentalis Western ringtail possum. Canberra: Department of the Environment and Energy.
- (m) Department of the Environment, Water, Heritage and the Arts (2008). Approved Conservation Advice for Caladenia harringtoniae (Harrington's Spider-orchid). Canberra: Department of the Environment, Water, Heritage and the Arts.

## Offsets

It is unlikely the Department will ever be in a position to routinely recommend the clearing of known nesting hollow(s) for Black Cockatoos. Given the declines in the populations of Black Cockatoos, the impacts of the clearance of known nesting hollows is under careful and continuing evaluation by the Department. Under the EPBC Act and the Department's EPBC Act Environmental Offsets Policy (October 2012), the proposal must first be considered to be acceptable (taking into account any proposed avoidance and mitigation measures) before offsets for residual significant impacts can be considered. That is, offsetting arrangements are only ever considered when all avoidance and mitigation options have been exhausted. Offsets cannot make an unacceptable impact acceptable.

If an offset site is unable to simultaneously compensate for the impacts to all of the listed species with significant residual impacts then additional offsets will be required, increasing the total hectare amount of the offset to be provided.

12. To the extent that impacts to EPBC Act listed species cannot be avoided or mitigated, provide details of an offset(s) intended to compensate for residual significant

## **Black Cockatoos**

Section 4.5.1 of the referral additional information document states that "Talison is currently working with the DBCA to enter into a Memorandum of Understanding in relation to excision of the Mine from the state forest which will involve handover of unreserved land in exchange." As discussed previously, the Department notes that any offset proposed must be additional to what is required for an existing agreement for compensation related to the clearing of state forest. Further discussions needs to be provided within Table 34 on the additionality of the offset proposal [Note this comment applied to all relevant species].

The Department does not support the habitat quality scores applied to the impact area in section 2.2.1 of the Environmental Offset proposal, nor the weighting or value used for context and stocking rate in these calculations. The Department assesses proposed actions on a case-by-case basis and offset calculations are based on the

The MDE sits within state forest and the gazetted Greenbushes mineral field. Logging is allowed under the RFA. Historical logging of the Greenbushes area commenced in 1888, logging of the areas has continued since this time under various forms until the RFA was finalised in May 1999. It must nevertheless be stated that under the terms of Talison's mining tenement conditions the clearing of state forest is subject to the payment to the Executive Director. CALM of compensation for forest destroyed by or in connection with mining (see Tenement conditions for current mining tenements) has been allowed since the inception of these tenements. This has been described in Chapter 9. The proposed direct offset properties are intended as offsets for the loss of fauna habitat associated with the Proposal and are not for any other purpose.

The habitat quality score for Black cockatoos has been revised to 9 based on this feedback. This is detailed in the Offset Proposal in Appendix L.

impacts on EPBC Act listed species and ecological communities (if any), including:

- the type of offset/s proposed
- the extent to which the proposed offset correlates to, and adequately compensates for, the residual significant impacts on EPBC Act listed species and communities
- suitability of the location of any proposed offset site for EPBC Act listed species and communities
- conservation gain to be achieved by the offset i.e. positive management strategies that improve the site or averting the future loss, degradation or damage of the protected matter
- time it will take to achieve the proposed conservation gain
- level of certainty that the proposed offset will be successful
- current land tenure of any proposed land-based offset and the method of securing and managing that offset.
- 13. Demonstrate how any proposed offset is consistent with the Department's *EPBC Act Environmental Offsets Policy* (October 2012), and provide completed offsets assessment guide and justification for the figures used to complete the offsets assessment guide.

specific attributes of the impact area. The quality score for area of habitat or area of community is a measure of how well a particular site supports a particular threatened species or ecological community and contributes to its ongoing viability; sites in close proximity to one another can support different attributes for a protected matter despite their close location.

The Department considers the comparison using old EPBC Act cases is not valid. For EPBC 2013/6904 the Department utilised different calculations from those suggested by the proponent, including a higher value for habitat quality of the impact area. The Department did not contest the proponent's suggested value, however, as, regardless, the offset sufficiently compensated for the residual significant impacts. Additionally EPBC 2013/6904 did not contain Black Cockatoo hollows (known or suitable).

For Black Cockatoos the presence of important habitat features on the site itself is the most important influencing factor for habitat quality. Consistent with the Department's 'How to use the offsets assessment guide' the final habitat quality score that the Department considers is appropriate is based predominantly on the condition of the project area which is a '9'. The project area contains access to water, breeding hollows (known and potential), foraging and evidence of use and is in proximity to known roosting.

The Department is not able to comment on the suitability of the offset calculations for the offset properties due to the absence of targeted surveys for EPBC Act listed species. The Department is generally supportive of the proposed offset property locations/sites, dependent on the outcomes of

Talison have engaged consultants to carry out targeted surveys of the offset sites and will provide details when available. The offset calculators will be updated based on this information and included in a detailed Offset Strategy. This is discussed in Chapter 9 and Appendix L (Offset Proposal)

fauna surveys to further describe the habitat features/quality of each site.

The Department does not consider the management of the offset areas as state forests is adequate for the protection of their environmental values. The areas must be managed for conservation and not have active forestry threats.

The Department notes that a portion of the offset proposal for Forest-red Tailed and Baudin's Black Cockatoo includes a monetary contribution to the Forest Black Cockatoo Recovery Team. The Department notes it is unclear:

- what will be considered 'suitable projects' for this funding
- what conservation gain will be achieved through the provision of this funding
- how many projects will be funded
- whether the quantum of funds is enough to deliver the research outcomes
- how the quantum of funds has been calculated
- what per cent of offset is proposed to be covered by the proposed funding for which species (i.e. unless the research is targeted to all three species of Black Cockatoo, WRP and Chuditch, other compensatory measures will be required).

Talison has discussed the need for all land provided to DBCA as part of the offset to be managed for conservation and therefore not subject to active forestry threats. The document and Offset Proposal have been updated to say the Properties will be managed consistent with the CALM Act which includes management for conservation purposes.

Talison has proposed an indirect offset comprising two projects each allocated \$250,000, totally an indirect offset package of \$500,000 which is estimated to be 10% of the offset requirements based on a land valuation of \$5,000/ha (refer to the Offset Proposal, Appendix L for further details of how this has been determined).

The indirect offsets include:

- A partnership program with the BBG and Greenbushes Community with the objective of enhancing fauna values for the threatened fauna impacted by the Proposal.
- A research project to mitigate the loss of hollows which investigations the use of natural and artificial hollows in the Greenbushes region.

Further details of the program will be included in a Talison Expansion Project Offsets Management Strategy, to be submitted to, and approved by the DotEE and EPA within twelve months of receiving approval for the Proposal to proceed.

We note in this respect that no more than 10% of	
an offset is generally allowed to be of indirect	
benefit to the species. It is not yet clear whether	
this policy is being met by this offset proposal –	
this will be dependent on the amount of research	
funding to be provided, and whether the projects	
to be funded will be expected to deliver an on-	
ground benefit to the cockatoo species.	
•	

## Chuditch

The Department does not consider the justification of context and stocking rate is sufficient for the Chuditch. The Department considers that a value of '7' for habitat quality would be more representative of the project area; given the large home ranges for the Chuditch, the recommendations from the consultant that further surveys would need to be conducted to confirm the record related to a single individual and determine the population inhabiting the local area.

Talison deems a habitat quality of 6 appropriate for the Chuditch given the anthropogenic impacts within the MDE which have reduced the quality and also fragmented the area. There is also more suitable habitat in surrounding areas.

As discussed above, the Department is not able to comment on the suitability of the offset calculations for the offset properties due to the absence of targeted surveys for EPBC Act listed species. The Department is generally supportive of the proposed offset property locations/sites, dependent on the outcomes of fauna surveys to further describe the habitat features/quality of each site.

Talison have engaged consultants to carry out targeted surveys of the offset sites and will provide details when available. The offset calculators will be updated based on this information and included in a detailed Offset Strategy. This is discussed in Chapter 9 and Appendix L (Offset Proposal)

## WRP

Given the proponent has undertaken a habitat assessment and only includes 25 ha as critical

Field assessment of the MDE WRP habitat has been undertaken and included in Appendix D. Based on this information it is considered that the habitat within the MDE is largely unsuitable for the WRP and the small area (18ha) which may be suitable is considered poor to marginal therefore a low habitat quality has been used for offset calculation. No evidence of WRP use of the MDE was found during the habitat, and no suitable hollows were located.

	habitat, the Department is not clear why the habitat quality for WRP is low. The habitat quality should be representative of the 25 ha area not the whole MDE quality.  The Department considers detailed surveys should be conducted on the proposed offset sites for WRP to determine whether the sites contain the species or its habitat.	
Social and Economic  14. Please provide further detail on the social and economic costs and/or benefits of undertaking the proposed action, including:  o basis for any estimations of costs and/or benefits o potential employment opportunities expected to be generated at each phase of the proposed action details of any public and stakeholder consultation activities, including the outcomes.	The Department has no comments related to the information provided on number 14.	