

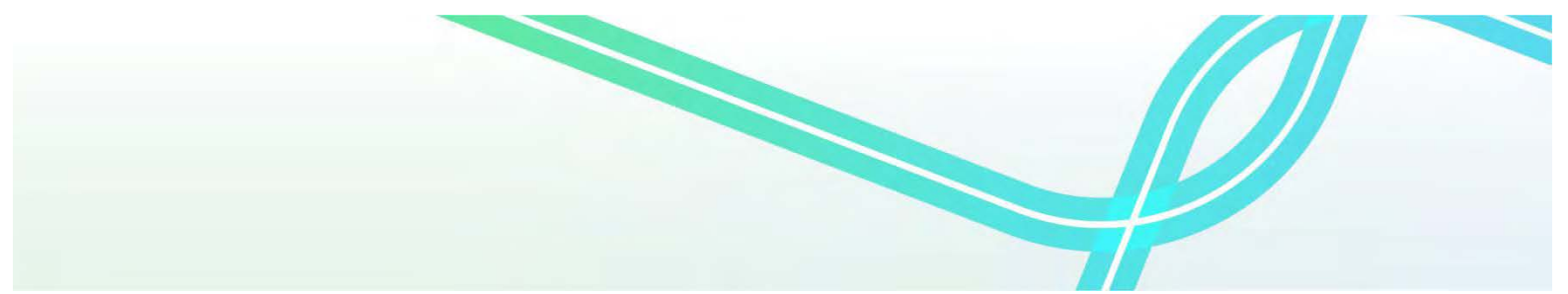


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APPENDIX A

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# OEPA Summary





Government of **Western Australia**  
Office of the **Environmental Protection Authority**

Mr Rob Arnott  
Project Director  
Main Roads Western Australia  
PO Box 6202  
**EAST PERTH WA 6892**

*Your Ref:* 13/1616  
*Our Ref:* AC01-2014-0005  
*Enquiries:* Peta Hayward, 6145 0856  
*Email:* [peta.hayward@epa.wa.gov.au](mailto:peta.hayward@epa.wa.gov.au)

Dear Mr Arnott

**PERTH-DARWIN NATIONAL HIGHWAY – PUBLIC ENVIRONMENTAL REVIEW –  
ASSESSMENT NO. 1994**

Please find enclosed matters raised by the Office of the Environmental Protection Authority (OEPA) regarding your Public Environmental Review (PER) document (Attachment 1) for the above proposal. The OEPA has also summarised the main issues that were raised in the submissions (Attachment 2). A copy of the public submissions was provided to Main Roads Western Australia via email on 13 October 2015.

You are required to address these issues and provide a response to the OEPA. The Environmental Protection Authority (EPA), in seeking your response, does not necessarily endorse the issues raised but asks you to respond to them as you see fit and to modify your proposal, or its environmental management, accordingly.

Please note, the submissions from Government agencies including the Department of Parks and Wildlife (Parks and Wildlife), Department of Water (DoW), Department of Aboriginal Affairs (DAA), Department of Planning (DoP), Department of Environment Regulation (DER) and the Department of Lands (DoL) have been included separately in Attachment 3. Please ensure you address all the issues raised by Parks and Wildlife, DoW and DER and have consideration for the issues raised by DAA, DoP and DoL.

The OEPA considers that the key issues for the proposal include:

**Flora and Vegetation**

It is understood that the proponent is in the process of finalising a number of biological studies and investigations which would increase the level of confidence in the predicted environmental impacts to significant flora and threatened communities. This information will need to be presented in the response to submissions in order to finalise

the significant residual impacts of the proposal and demonstrate that the EPA's objective can be met.

It is noted that a number of public submissions have suggested that there are still further opportunities to avoid and minimise impacts to native vegetation and flora. This also applies to Bush Forever Site 480, Victoria Road. It is recommended that these suggestions are given due consideration in the proponent's response to submissions. If there are any changes to the proposal characteristics and/or commitments with respect to the design of the proposal, then these should be clearly set out in the response to submissions.

### **Terrestrial fauna**

Further information is required in relation to using the Swan Coastal Plain region as the basis for assessing impacts on native fauna at the regional scale. Further information in relation to this is provided in Appendix 1.

Similar to comments regarding the Flora and Vegetation, some submitters consider that there are still further opportunities to avoid and minimise impacts to Black Cockatoo breeding habitat (potential nesting trees).

### **Environmental Offsets**

To demonstrate the proposed offsets in the PER document meet the environmental offsets policy and the EPA's objective, further information will need to be provided in relation to the following issues:

1. It is understood that the proponent is in the process of finalising a number of biological surveys on Offset Proposal 1 which will assist in determining whether this site contains the environmental values and attributes to be lost. Both the OEPA and the Parks and Wildlife notes that should the further surveys indicate that the offset site is not suitable then an alternative offset may need to be proposed for threatened species and communities.
2. Offset proposals must consider the need for ongoing management. This is particularly the case for offsets that include a land acquisition component where the Parks and Wildlife is expected to be the future management agency.
3. Further work to account for and reconcile the residual impacts with the values and attributes that need to be offset. This also includes providing further justification for some of the proposed offset ratios.
4. Consideration to including a rehabilitation of cleared/disturbed areas component to address the net loss of the Black Cockatoo habitat, as suggested in a number of submissions.

Details of the further information requested in relation to the proposed environmental offsets is set out in the Attachment 1.

### **Amenity (Noise and Vibration)**

The OEPA requests that the technical matters raised in the Department of Environment Regulation's advice of 14 October 2015 (in Attachment 3) be resolved in

the proponent's response to submissions to ensure that the potential impacts on noise amenity are not under predicted and that the mitigation measures are appropriate.

### **Inland Waters Environmental Quality**

Prior to finalising the response to submissions, the OEPA requests that the proponent discuss with the Department of Water the matters raised in their advice of 5 October 2015 (in Attachment 3), in order to confirm the management measures required for the construction of the proposal, to minimise impacts to the Priority 1 Underground Water Pollution Control Area and therefore be consistent with the relevant policies for this issue.

A copy of the summary of the public submissions and your responses will be included as an appendix in the EPA's Report and Recommendations. Under the *Environmental Protection Act 1986*, the EPA's report is subject to a 14 day appeal period. During this period the public may appeal the EPA's Report and Recommendations. An incomplete answer to any of the issues raised could cause the public to appeal and this would delay the setting of Ministerial Conditions. Accordingly, please ensure that you give a full and reasoned answer to each issue.

Should you require further information please contact Peta Hayward on phone number (08) 6145 0856 in the first instance. Please advise by 13 November 2015 when you will submit the Response to Submissions document, or to discuss any matters. Please quote the above "Our ref" on any further correspondence.

Yours sincerely



Anthony Sutton  
Director  
Assessment and Compliance Division

23 October 2015

Encl: Attachment 1: OEPA comments on the proposal  
Attachment 2: Summary of Public Submissions  
Attachment 3: Government agency comments



## **Attachment 1**

### **Perth-Darwin National Highway**

#### **PUBLIC ENVIRONMENTAL REVIEW ASSESSMENT NO. 1994**

#### **SUMMARY OF THE OFFICE OF THE ENVIRONMENTAL PROTECTION AUTHORITY COMMENTS**

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This document forms a summary of the Office of the Environmental Protection Authority comments regarding the Public Environmental Review document for the Perth-Darwin National Highway proposed by Main Roads WA.

The public review period for the proposal commenced on 7 September 2015 for a period of 4 weeks, ending on 6 October 2015.

OEPA Comment	Proponent Response
Flora and Vegetation	
<p>The Office of the Environmental Protection Authority (OEPA) notes that further targeted 2015 spring surveys are to be undertaken. These surveys are proposed to address the following:</p> <ul style="list-style-type: none"> <li>• confirmation of the presence of <i>Caladenia huegelii</i> critical habitat on the Offset Proposal 1 - Iopollo Road site;</li> <li>• confirmation of the extent of the inferred occurrence of Threatened Ecological Community (TEC) SCP20a on the Offset Proposal 1 - Iopollo Road site;</li> <li>• confirmation of the presence of TEC SCP02 within the proposal development envelope;</li> <li>• confirmation of the population size of <i>Millotia tenuifolia</i> var. <i>laevis</i>;</li> <li>• confirmation of the population size of <i>Meeboldina decipiens</i> subsp. <i>decipiens</i> ms.</li> </ul> <p>Please provide a discussion on the outcomes of these surveys (include technical data as an appendix), including final residual impacts, any revised management, monitoring and mitigation measures and any amendments to the offset proposals.</p>	
<p>It is not clear from the Public Environmental Review (PER) document whether the clearing of 205 hectares (ha) of native vegetation is in addition to or, includes the following environmental values:</p> <ul style="list-style-type: none"> <li>• 49.6 ha of Groundwater Dependent Ecosystems (GDE);</li> <li>• 128.5/171.5 ha of Bush Forever (see comments below regarding inconsistencies in area to be cleared);</li> <li>• 4.4 ha of two State TECs;</li> </ul>	

OEPA Comment	Proponent Response
<ul style="list-style-type: none"> <li>• 145.5 ha of five State Priority Ecological Communities (PEC);</li> <li>• 39.2 ha of <i>Caladenia huegelii</i> critical habitat; and</li> <li>• 2 ha of <i>Grevillea curviloba</i> subsp. <i>incurva</i> critical habitat.</li> </ul> <p>Further to the above it is also not clear how the 205 ha was derived. The PER document describes intact vegetation as vegetation in degraded to pristine condition. However, when adding up the vegetation in degraded to pristine condition to be cleared in the proposal footprint from Table 8.9, this does not equate to 205 ha.</p> <p>The OEPA also notes in the PER document that revegetated and rehabilitated sites have not been included in the 205 ha of native vegetation to be directly impacted.</p> <p>In accordance with section 51A of the <i>Environmental Protection Act 1986</i> (EP Act) and section 4 of the EP Act Clearing Regulations, which defines native vegetation to include vegetation that was sown, planted or propagated as a requirement under the EP Act or another written law or, was funded (wholly or partly) by a person who was not the owner of the land for the purpose of biodiversity conservation or land conservation.</p> <p>Please provide further analysis of whether the areas of revegetation and rehabilitation to be directly impacted fit within the criteria of the legislation mentioned above and adjust the total area of clearing of native vegetation, accordingly.</p> <p>Further detail should also be provided on how the extent of 205 ha to be cleared was derived and clarify whether the areas of environmental values listed above to be impacted are included in the 205 ha or whether they are in addition to.</p>	
<p>The OEPA notes that Bush Forever Site 480 Victoria Road Bushland would be significantly impacted from the proposal, with only 15.9% of this site remaining. The PER document states that the proposal is</p>	

OEPA Comment	Proponent Response
<p>constrained in this area with few opportunities for avoidance of clearing of vegetation within this Bush Forever site.</p> <p>Please provide a discussion on how the proponent has tried to avoid and mitigate this significant impact, by describing the different interchange designs that were initially considered.</p>	
<p>The proposal would remove 20% of the total extent of SCP23b Northern <i>Banksia attenuata</i> – <i>Banksia menziesii</i> woodlands. The PER document states that this community is known from only one occurrence and the extent of this occurrence is not available, and thus the overall impact cannot be assessed. Based on the information presented in the PER document, the proposal impact is likely to be significant.</p> <p>Please provide additional detail to demonstrate that the impacts from the proposal are not likely to be significant.</p> <p>The OEPA has checked the publically available data (Keighery <i>et al.</i> (2012) database on NatureMap 2015) which lists 79 locations of SCP23b.</p>	
<p>The OEPA notes a single occurrence of <i>Caladenia huegelii</i> recorded in the study area would not be directly impacted, but would remain within the development envelope. The PER document does not state how this occurrence will be managed and protected.</p> <p>The OEPA also notes that 39.2 ha of critical habitat for the threatened <i>Caladenia huegelii</i> would be impacted. However, the PER document does not state what proportion of the known critical habitat this represents, therefore the significance of this impact cannot be assessed.</p> <p>Please provide additional detail on the significance of the impact of the proposal on the critical habitat for the threatened <i>Caladenia huegelii</i>. Please also provide details on the management, monitoring and mitigation measures to be implemented to demonstrate that the</p>	

OEPA Comment	Proponent Response
indirect impacts of the proposal will not impact the threatened <i>Caladenia huegelii</i> .	
<p>The Environmental Protection Authority (EPA) recently released updated figures for the remaining extent of vegetation complexes on the Swan Coastal Plain (EPA, 2015). Table 8.2 of the PER document overstates the remaining extent of the five vegetation complexes occurring across the proposal development envelope. The proposal occurs within the constrained area for the Perth and Peel regions which has a reduced target for retention of 10%.</p> <p>Please provide a revised table in the Response to Submissions using the updated regional figures of the remaining extent within the Perth Peel Region portion of the Swan Coastal Plain.</p> <p>It should also be noted that the final paragraph on page 8-13 incorrectly states that the SWA IBRA bioregion is considered a constrained area, portions of the Swan Coastal Plain are considered constrained not the Swan Coastal Plain IBRA bioregion in its entirety.</p>	
<p>It is not clear whether the 10 metre (m) buffer proposed around the <i>Grevillea curviloba</i> subsp. <i>incurva</i> is adequate to protect the individuals from indirect impacts. The PER document states a 50 m buffer is proposed around the threatened <i>Caladenia huegelii</i> and a 10 m buffer has been proposed around the threatened <i>Grevillea curviloba</i> subsp. <i>incurva</i>. The PER document does not provide adequate justification that the 10 m buffer is sufficient to mitigate indirect impacts to the <i>Grevillea curviloba</i> subsp. <i>incurva</i>.</p> <p>Please provide further detail that the proposed 10 m buffer is sufficient to mitigate indirect impacts to the threatened <i>Grevillea curviloba</i> subsp. <i>incurva</i> given that a 50 m buffer is proposed for the <i>Caladenia huegelii</i>.</p>	
Local vegetation units are defined and analysed relative to regional datasets, where available, to determine the conservation status of the vegetation and the significance of impacts. This proposal occurs within	

OEPA Comment	Proponent Response
<p>a region where there is a good understanding of the conservation status of vegetation, and where regional datasets for statistical comparison are available. It is important for proponents to define local vegetation units for this purpose, but they are not the scale that the EPA will consider impacts in this region.</p> <p>Table 8.10 in the PER document shows that four local vegetation units appear to be significantly impacted because the proposal would clear more than 90% of their mapped extent (AsMIEvCI 98.1%, Ba 94.5% and CcMp 90%). This is misleading because local vegetation units have been compared to the available regional dataset and no assessment is required at this local scale in this case.</p> <p>Please provide additional information to respond to the matter raised above, particularly in relation to those local vegetation units which appear to be significantly impacted by the proposal.</p>	
Fauna	
<p>While mention has been made of local or regionally significant species, the PER document discusses a few species that have statutory listing and still does not adequately justify the impact of the proposal on local or regionally significant species. In addition, it is unclear if the report has consolidated the results from all surveys in the study area or if the proponent has based their assessment only on the results from the <i>Level 2 Targeted Fauna Assessment Perth-Darwin National Highway</i> (Coffey, 2015). Consequently, the assessment focuses on impacts to terrestrial species, and wetland fauna and wetland fauna habitat appear to have been overlooked.</p> <p>Please provide additional detail to demonstrate that the EPA's objective for Terrestrial Fauna can be met for those species that are locally or regionally significant including wetland fauna.</p>	
<p>It appears that the proponent has incorrectly applied the use of regional scale to assess impacts. For example, impacts to the Carpet Python, Southern Brown Bandicoot and Brush Wallaby appear to have</p>	

OEPA Comment	Proponent Response
<p>been assessed at a broader southwest scale. Although these species are widespread in the southwest of Western Australia, they are in decline and rare on the Swan Coastal Plain. The Southwest is too broad to be used to assess impacts of this proposal. Impacts at the regional level should be assessed over the Swan Coastal Plain region.</p> <p>Please provide further analysis in the Response to Submissions that addresses the impacts to fauna from the proposal using the Swan Coastal Plain region as the regional scale.</p>	
Offsets	
<p>The offset section focuses mainly on direct impacts and does not include consideration of indirect impacts, particularly the issue of fragmentation. The OEPA considers that the PER document does not provide adequate information to inform the assessment of whether the environmental values being fragmented will be indirectly impacted and cease to persist post construction of the proposal.</p> <p>Some examples include (not an exhausted list):</p> <ul style="list-style-type: none"> <li>the proposal dissects two occurrences of TEC SCP20a, it is not clear whether the remaining fragmented portions will persist long term;</li> <li>the proposal would directly impact 0.4 of the TEC SCP02 (dependent on the outcome of the targeted 2015 spring surveys), it is not clear whether the remaining portion of the TEC would persist long term; and</li> <li>Bush Forever site 97 - the proposal will result in a small portion (4.3 ha) of very good to good bushland to being fragmented from the main bushland and is surround by areas of degraded to completely degraded. It is not clear whether this remaining portion will persist in the same condition long term.</li> </ul> <p>Please provide further analysis on the issue of indirect impacts, particularly the likely persistence of TECs, threatened flora and fauna,</p>	

OEPA Comment	Proponent Response
<p>conservation areas and wetlands that will remain after construction of the proposal. If these are unlikely to persist in the long term, the assessment of the significance of the impact should be considered as the whole occurrence, not just the area directly impacted by the proposal.</p>	
<p>There appears to be a number of inconsistencies between the offsets in Chapter 17 and other sections of the document. The main inconsistencies include:</p> <ul style="list-style-type: none"> <li>the direct impact on Bush Forever sites in Chapter 8 and the Executive Summary is stated as being 128.5 ha, however, Chapter 17 states the removal of 171.5 ha of Bush Forever sites;</li> <li>the Executive Summary states the proposed offset for impacts to TEC SCP02 is 0.2 ha, however, Chapter 17 states 1 ha of TEC SCP02 as part of Proposed Offset 3 (see comments below regarding the adequacy of this offset). It is noted this Proposed Offset is subject to change dependent on the outcome of the 2015 spring targeted survey; and</li> <li>the direct impact on the number of Conservation Category Wetlands (CCWs) varies between five and six throughout the PER document.</li> </ul> <p>Please provide confirmation on the following:</p> <ul style="list-style-type: none"> <li>the area of Bush Forever that will be directly and indirectly impacted;</li> <li>the final area of TEC SCP02 that will be offset; and</li> <li>the number of CCWs that would be directly impacted from the proposal.</li> </ul>	
<p>The OEPA notes that the TEC SCP02 could also be classed as SCP11 (not listed) and that a targeted 2015 spring survey will be undertaken to confirm if the site is consistent with SCP02. Offsets Proposal 3</p>	

OEPA Comment	Proponent Response
<p>commits to acquiring 1 ha of the TEC SCP02, which represents &gt;2:1 offset. It is not clear how this ratio was determined.</p> <p>The proponent should use the Commonwealth Offsets calculator to determine an appropriate offset for the TEC SCP02 if it is confirmed as SCP02 and considered to be a significant residual impact.</p> <p>Information provided by Department of Parks and Wildlife is that there are no areas of the TEC SCP02 available for acquisition and that other occurrences of the TEC are already within conservation tenure. The proponent should not knowingly propose an offset that is unlikely to be obtained.</p> <p>Please provide the details and outcome of the survey mentioned above in the Response to Submissions. Should the targeted spring 2015 survey confirm the TEC SCP02 will be impacted by the proposal, the proponent will need to provide a suitable offset in consultation with the OEPA, including the rationale to calculate the offset.</p>	
<p>Table 17.3 of the PER document states that 4 ha of TEC SCP20a would be impacted by the proposal and that an offset of 8 ha is required. This equates to a ratio of 2:1 and it is unclear how this offset ratio has been determined. As mentioned above the indirect impacts of fragmentation of the TEC will also need to be considered.</p> <p>The Offset Proposal 1 site contains 78 ha of inferred TEC SCP20a. The OEPA notes that targeted spring 2015 surveys are to be undertaken to confirm the presence of the inferred TEC SCP20a.</p> <p>Please provide the details and outcome of the survey mentioned above in the Response to Submissions. Should the proposed Iopollo Rd offset site not be found suitable to offset the residual impact on TEC SCP20a an alternative offset will need to be provided.</p> <p>Please provide details of the rationale behind using a 2:1 offset ratio. The Commonwealth Offsets calculator should be used to determine an appropriate offset for TEC SCP20a.</p>	

OEPA Comment	Proponent Response
<p>The technical reports state that the 'entire area was adequately surveyed' but no Black Cockatoos or feeding evidence were observed during the targeted fauna assessment.</p> <p>Please provide any evidence in the Response to Submissions to provide additional confidence that the proposed offset site Iopollo Road is suitable to counterbalance any significant residual impacts to both species of Black Cockatoo's.</p> <p>It should also be noted that the final paragraph in section 2.4 of Appendix V states that the OEPA confirms suitability of the Iopollo Road as an offset for both species of Black Cockatoo. Please note the EPA will determine the suitability of any offsets for the proposal.</p>	
<p>The conservation areas being impacted by the proposal include Class A Nature Reserve (8 ha), Bush Forever (see comment above regarding inconsistencies with the area of impact), and State Forest (106 ha). Table 17.3 states that the offset area required for conservation areas is 253 ha. This equates to a 1:1 ratio, it is unclear how this offset ratio has been determined and the OEPA advises it is likely to be inadequate.</p> <p>Table 17.3 and Figure 17.2 refers to 673.5 ha for Offset Proposal 1 being used to offset residual impacts to the conservation areas. An offset for conservation areas should be representative of the environmental values being impacted and the associated attributes which may be lost. There is no consideration of how the Offset Proposal 1 site represents the values being impacted in the conservation areas.</p> <p>Class A Nature Reserves are the highest level of conservation reservation and a much higher offset ratio is likely to be required, if approval is granted. See Gorgon Gas Development (Ministerial Statement 800) and Cape Lambert to Emu Siding Rail Duplication in Millstream Chichester National Park (Ministerial Statement 918).</p>	

OEPA Comment	Proponent Response
<p>Bush Forever has a target to protect at least 10% of every vegetation complex, offsets need to be representative of the Bush Forever complexes being impacted in order to maintain representation. The EPA's recent strategic advice for the Perth and Peel (EPA, 2015) considers Bush Forever areas as being highly constrained due to the extent of clearing on the Swan Coastal Plain. It is noted that the Offset Proposal 1 site does not have the same vegetation complexes as the conservation areas being impacted.</p> <p>It is noted that Bush Forever areas overlap with Class A Nature Reserve and State Forest (31.5 ha, the PER document does not state what portion of this is Class A Nature Reserve and what portion is State Forest). Bush Forever areas that overlap with Class A Nature Reserves should be considered as part of the offset for the Class A Nature Reserve. Bush Forever areas which overlap State Forest should be considered as part of the Bush Forever offset.</p> <p>A 1:1 ratio <u>may</u> be appropriate for impacts to State Forest if the vegetation is of the same quality and represents the values being impacted.</p> <p>Please provide additional discussion on the comparison of vegetation quality, environmental values and attributes of the proposed offset site for Offset Proposal 1 and the conservation areas proposed to be impacted by the proposal. The discussion should include the rationale behind the proposed offset ratio's and the suitability of Offset Proposal 1 site to offset residual impacts to conservation areas taking into account the above comments.</p> <p>A revision of the proposed offsets in the PER document may be necessary and provided in the Response to Submissions to address the residual impacts to conservation areas as outlined above.</p>	
<p>The PER document states that a targeted spring 2015 survey of the Offset Proposal 1 - Iopollo Road site will be conducted to determine the presence of critical habitat for the <i>Caladenia huegelii</i>.</p>	

OEPA Comment	Proponent Response
<p>The PER states that 39.2 ha of critical habitat for the threatened flora <i>Caladenia huegelii</i> would be impacted. An offset ratio of 1:1 is proposed as part of Offset Proposal 1, this species was not included in the quantification of offsets table (Table 17.4) and as such no rationale has been provided for this ratio.</p> <p>Please provide the details and outcome of the survey mentioned above in the Response to Submissions. Should the proposed Iopollo Rd offset site not be found suitable to offset the impact on critical habitat for <i>Caladenia huegelii</i> an alternative offset will need to be provided.</p> <p>Please provide details of the rationale behind using a 1:1 offset ratio. The Commonwealth Offsets calculator should be used to determine an appropriate offset for <i>Caladenia huegelii</i> critical habitat.</p>	
<p>In accordance with the <i>WA Environmental Offsets Guidelines</i> (Government of Western Australia, 2014) land acquisition offsets must consider the need for ongoing management. As the land is proposed to be ceded and managed by the Department of Parks and Wildlife, the EPA generally expects the proposed offset should include contribution for the management (up to 20 years) plus the upfront conversion costs. Given that Main Roads Western Australia (MRWA) has purchased the property on Iopollo Road Chittering and have made mention of some required ongoing management measures in Appendix V (rubbish removal, prevention of third parties, existing weeds and dieback to be actively managed) it is expected MRWA can provide some detail of the ongoing management and associated costs.</p> <p>Please provide detailed information on the proposed on-going management activities for the Iopollo Road proposed offset site, including funding arrangements. Consideration of the funding arrangements for on-going management for each of the offset proposals where land acquisition is proposed should also be outlined.</p>	
<p>The acquisition of Offset Proposal 1 site is protecting existing foraging habitat. The protection of this land under covenant does not increase</p>	

OEPA Comment	Proponent Response
<p>the availability of foraging habitat for black cockatoo species, and therefore does not mitigate the loss of 201.8 ha for Carnaby's Cockatoo and 120.1 ha for Red-tailed Black Cockatoo habitat.</p> <p>Furthermore, the EPA's recently released strategic advice for the Perth and Peel region (EPA, 2015) has a preference for the rehabilitation of areas to improve natural environments.</p> <p>The proponent should take into consideration rehabilitation and revegetation when proposing offsets.</p>	
<p>The PER document states that 14.8 ha from six CCWs will be directly impacted and 1.2 ha from one CCW will be indirectly impacted. An offset ratio of 2:1 is proposed as part of Offset Proposal 2, however, no rationale has been provided for this ratio. The Roe Highway Extension (Ministerial Statement 1008) proposal had a ratio of 3:1 applied for CCWs.</p> <p>Please provide details of the rationale behind the ratio of 2:1 for offsetting CCWs.</p>	

## References

1. Environmental Protection Authority 2015, *Perth and Peel @ 3.5 Million Environmental impacts, risks and remedies*, Interim Strategic Advice, Perth, WA.
2. Government of Western Australia 2014, *WA Environmental Offsets Guidelines*, Perth, WA.



## **Attachment 2**

### **Perth-Darwin National Highway**

#### **PUBLIC ENVIRONMENTAL REVIEW ASSESSMENT NO. 1994**

#### **SUMMARY OF PUBLIC SUBMISSIONS**

This document forms a summary of public submissions and advice received regarding the Public Environmental Review document for the Perth-Darwin National Highway proposed by Main Roads WA.

The public review period for the proposal commenced on 7 September 2015 for a period of 4 weeks, ending on 6 October 2015. A total of 11 public submissions were received.

The principle issues raised in the submissions and advice received included environmental and social issues as well as issues focussed on questions of fact and technical aspects of the proposal. Although not all of the issues raised in the submissions are environmental, the proponent is asked to address all issues, comments and questions, as they are relevant to the proposal.

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## 1. The proposal – General comments

Submitter	Submission and/or issue	Response to comment
Maralla Land Syndicate	<p>The submitter considers that an additional entrance and exit point to the Perth Darwin National Highway (PDNH) from Maralla Road is appropriate, stating that an entrance point on Maralla Road would be easy to connect straight to the Great Northern Highway and act as an enabler of future development north of Maralla Road.</p> <p>Please advise whether consideration has been given to the provision of an additional entrance and exit point in this location.</p> <p>See submission ANON-FD3J-U7KD-2 for further details.</p>	
Wildflower Society of WA and 1 Anonymous Submitter	<p>The submitters raise matters in relation to the potential for the implementation of additional mitigation measures to further reduce the amount of clearing proposed. It is considered that there is opportunity for further changes to the alignment that could further minimise impacts of the proposal.</p> <p>Please provide a discussion as to whether the following measures could assist in further reducing clearing, have been considered:</p> <ul style="list-style-type: none"> <li>• installing wire rope barriers to reduce the pavement batter/recovery zone width;</li> <li>• following the contour more closely rather than using cut and fill extensively;</li> <li>• not clearing all the vegetation, especially on the back slopes of drains;</li> <li>• reducing size and depth of table drains;</li> <li>• reducing the need for any fire access tracks, or wind the tracks around significant vegetation;</li> <li>• routing the Principal Shared Path through cleared or degraded areas and adjacent to residential areas; and</li> </ul>	

Submitter	Submission and/or issue	Response to comment
	<ul style="list-style-type: none"> <li>changes to the development envelope and alignment.</li> </ul> <p>See submissions ANON-FD3J-U7KG-5 and ANON-FD3J-U7KT-J for further details.</p>	
Anonymous	<p>The submitter considers that it is not necessary to excise 8 hectares (ha) from Whiteman Park Northwest Corner as opportunity exists for the PDNH to follow the existing Beechboro North road alignment and cross Gnangara Road at a right angle. This would eliminate the Y shape road alignment.</p> <p>Please provide an explanation as to the need for the Y interchange and consequent excision of Whiteman Park.</p> <p>Refer to submission ANON-FD3J-U7KS-H for further details.</p>	
Anonymous	<p>The submitter raises concern in relation to the demarcation of the highway alignment.</p> <p>Please advise whether the surveying of areas to be cleared would be independently audited and whether the local landowners would be consulted on the highway boundary prior to construction.</p> <p>See submission ANON-FD3J-U7KT-J for further details.</p>	
Bullsbrook Residents and Ratepayers Association	<p>The submitter raises matters in relation to the endorsement of the Department of Defence on the proposed alignment.</p> <p>Please advise whether the Department of Defence has endorsed the proposed alignment, and if endorsement is not provided, the implications this may have on the alignment.</p> <p>Refer to submission ANON-FD3J-U7K8-P for further details.</p>	
Wildflower Society of WA and 2 Anonymous	<p>The submitters raise matters in relation to the proposed upgrade of Maralla and Halden Roads and the potential impacts on very good quality Banksia woodland vegetation. It is also suggested that the proposal will improve the general traffic congestion, in particular, in the Swan Valley. The decision to upgrade these</p>	

Submitter	Submission and/or issue	Response to comment
Submitters	<p>roads does not seem necessary in the context of anticipated traffic levels.</p> <p>Please provide justification, in the context of anticipated traffic levels, in regards to the following:</p> <ul style="list-style-type: none"> <li>the decision to upgrade Maralla Road and Halden Road, and the extent of the upgrade; and</li> <li>evidence that the PDNH will significantly decrease traffic through the Swan Valley.</li> </ul> <p>See submissions ANON-FD3J-U7KG-5, ANON-FD3J-U7KT-J and ANON-FD3J-U7KB-Z for further details.</p>	

## 2. Flora and vegetation

Submitter	Submission and/or issue	Response to comment
<p>Bullsbrook Residents and Ratepayers Association Inc.</p> <p>Wildflower Society of WA and 1 Anonymous Submitter</p>	<p>With regards to the Maralla Road/Halden Road Bushland the submitters have identified that Appendix C of the Public Environmental Review (PER) document states that:</p> <p><i>“Additional surveys in the spring or optimal flowering periods (should be) undertaken for the purpose of identifying TECs and PECs, and Threatened and Priority flora, focusing on annual species in Site 4 (Maralla Road and Halden Road).”</i></p> <p>Please provide responses to the following questions raised in regards to these proposed additional flora surveys:</p> <ul style="list-style-type: none"> <li>when are the additional surveys likely to be undertaken and who will be commissioned to complete them;</li> <li>will the scope of the additional surveys include searching for the presence of <i>Millotia tenuifolia</i> var. <i>laevis</i> and <i>Meeboldina decipiens</i> subsp. <i>decipiens</i> and also characterise the diversity of non-vascular</li> </ul>	

Submitter	Submission and/or issue	Response to comment
	<p>plants and fungi in the area;</p> <ul style="list-style-type: none"> <li>• how will the results of the additional survey work be incorporated into the proposed management plan; and</li> <li>• will management measures such as translocation be implemented to protect impacted individuals.</li> </ul> <p>Refer to submissions ANON-FD3J-U7K8-P, ANON-FD3J-U7KG-5 and ANON-FD3J-U7KT-J for further details.</p>	
Bullsbrook Residents and Ratepayers Association Inc.	<p>The submitter raises matters in relation to the limited survey period for the flora surveys. Limiting surveys to springtime could preclude the identification of any new species that flowers at other times of the year.</p> <p>Please provide an explanation as to why flora surveys were only undertaken during short periods in springtime.</p> <p>Refer to submission ANON-FD3J-U7K8-P for further details.</p>	
Anonymous	<p>The submitter raises matters in relation to the classification of vegetation at Lot 9 Maralla Road. The land has not been previously used for agricultural or residential purposes and remains in an unmodified state.</p> <p>Please provide justification as to why the habitat located at Lot 9 Maralla Road has been classified as 'modified vegetation'.</p> <p>Refer to submission ANON-FD3J-U7KB-Z for further details.</p>	
3 Anonymous Submitters	<p>The submitters raise matters in relation to the potential impacts of the proposal on the thynnid wasp (<i>Zaspilothynnus sp.</i>) which is responsible for the pollination of <i>Caladenia huegelii</i>. Given the close proximity of the <i>Caladenia huegelii</i> populations to the development area it is not clear what impacts the road construction and ongoing use of the PDNH will have on the thynnid wasp.</p> <p>Please provide a discussion on whether the potential impacts to the thynnid wasp have been considered in relation to the ecology of <i>Caladenia huegelii</i>.</p>	

Submitter	Submission and/or issue	Response to comment
	Refer to submissions ANON-FD3J-U7KW-N, ANON-FD3J-U7KB-Z and ANON-FD3J-U7KT-J for further details.	
3 Anonymous Submitters	<p>The submitters raise concerns that the indirect impacts to <i>Caladenia huegelii</i> have not been addressed appropriately as properties adjacent to the proposal were not surveyed to identify the presence of <i>Caladenia huegelii</i>.</p> <p>Were there any properties that were not surveyed in close proximity to the proposal that may contain <i>Caladenia huegelii</i>?</p> <p>Refer to submissions ANON-FD3J-U7KT-J, ANON-FD3J-U7KB-Z and ANON-FD3J-U7KW-N for further details.</p>	
2 Anonymous Submitters	<p>The submitters raise matters in relation to the potential for the spread of <i>Phytophthora cinnamomi</i> (Dieback). During construction it is probable that <i>Phytophthora cinnamomi</i> dieback will be transported to unaffected areas by machinery and workers.</p> <p>Please provide details on what measures will be put in place to minimise the risk of spreading this disease, including making sure that no infested or infected soils are used near bushland, and any post-construction treatment regimes.</p> <p>Refer to submissions ANON-FD3J-U7KB-Z and ANON-FD3J-U7KT-J for further details.</p>	
Wildflower Society of WA and 2 Anonymous Submitters	<p>The submitters raise matters in relation to the management of weeds along road verges and the potential for incursion of weeds into adjacent bushland. Weed management should seek to eradicate weeds from, or prevent incursion of weeds into, the adjacent bushland.</p> <p>Please provide further details on the proposed ongoing measures that will be implemented to prevent the spread of invasive weeds.</p> <p>Refer to submissions ANON-FD3J-U7KB-Z, ANON-FD3J-U7KG-5 and ANON-FD3J-U7KT-J for further details.</p>	

Submitter	Submission and/or issue	Response to comment
Wildflower Society of WA	<p>The submitter raises matters in relation to the impacts of the proposal on <i>Cyanthochaeta teretifolia</i> (P3). The PER document is inconsistent particularly in regard to the clearing/removal of this species.</p> <p>Please provide a discussion to clarify whether this taxa will be impacted, and any proposed management and mitigation measures that will be implemented.</p> <p>Refer to submissions ANON-FD3J-U7KG-5 for further details.</p>	
Wildflower Society of WA and 1 Anonymous Submitter	<p>The following Priority flora species are listed on Page 8.2 as 'recorded from the flora study area' yet they are not mentioned in Table 8.1:</p> <p><i>Millotia tenuifolia</i> var. <i>laevis</i> (P2), <i>Meeboldina decipiens</i> subsp. <i>decipiens</i> ms (P3), <i>Ornduffia submersa</i> (P4) and <i>Stylidium striatum</i> (P4).</p> <p><i>Eryngium pinnatifidum</i> subsp. <i>palustre</i> PN on the other hand was recorded to occur in the study area in Table 8.1 but was not listed on Page 8.2.</p> <p>Please advise whether these species have undergone name changes or whether this is the first occurrence of these species in the area.</p> <p>Refer to submissions ANON-FD3J-U7KG-5 and ANON-FD3J-U7KT-J for further details.</p>	
Anonymous	<p>The submitter raises matters in relation to the implementation of a list of recommendations provided by the environmental consultants who undertook the Level 2 Flora survey (Appendix C - Page 105).</p> <p>Please identify which of these recommendations Main Roads Western Australia (MRWA) will undertake.</p> <p>Refer to submission ANON-FD3J-U7KT-J for further details.</p>	

### 3. Terrestrial fauna

Submitter	Submission and/or issue	Response to comment
Bullsbrook Residents and Ratepayers Association and 4 Anonymous Submitters	<p>The submitters raise matters relating to the implementation of fauna underpasses. The proposed underpasses size and design appear very limiting to the types of fauna that will actively utilise them.</p> <p>Please provide responses to the following matter raised:</p> <ul style="list-style-type: none"> <li>• what methodology was used to determine the number of underpasses required;</li> <li>• has consideration been given to installing additional underpasses in cleared areas;</li> <li>• details on what ongoing monitoring and maintenance will be carried out during operation to determine if the underpasses, escape ramps, fences, retained logs, furniture and revegetation are successful;</li> <li>• justification that 1.2 metre (m) high, 3 m wide and 70 m long fauna underpasses will be utilised by Western Grey Kangaroos;</li> <li>• details of any proposed natural lighting to ensure diurnal species utilise the underpasses;</li> <li>• discussion of the rational for the installation of the 1.2 m cyclone fence along the majority of borders of the highway, with only areas around underpasses being at a height of 1.8 m, considering that 1.2 m is unlikely to be tall enough to limit access from kangaroos, foxes, cats or wallabies;</li> <li>• clarification over the design, of the roadside fences proposed through the Maralla Road Bushland, and adjacent to bushland north of Maralla Road;</li> <li>• details of any fencing monitoring and management program;</li> <li>• further discussion on what extent wildlife underpasses are successfully used by wildlife and whether they would be utilised by all species in the</li> </ul>	

Submitter	Submission and/or issue	Response to comment
	<p>area use them, particularly an underpass subject to noise and vibration from a highway being used by heavy traffic like the PDNH and</p> <ul style="list-style-type: none"> <li>• details of methods to prevent unwanted vehicle access, e.g. trail bikes.</li> </ul> <p>Refer to submissions ANON-FD3J-U7K8-P, ANON-FD3J-U7KB-Z and ANON-FD3J-U7KT-J, ANON-FD3J-U87KW-N and ANON-FD3J-U7K7-R for further details.</p>	
Wildflower Society of WA	<p>The submitters raise matters in relation to the potential impacts of noise and vibration on sensitive fauna. The PER document dismisses the potential impacts of noise and vibration on fauna with the statement “the extent of effect of these impacts is difficult to assess as the impact from these is relatively unknown”.</p> <p>Whilst it is acknowledged that the extent of impact may be unknown, further consideration should be given to the potential impacts particularly to wallabies, and some birds, which are known to be sensitive to disturbance.</p> <p>Refer to submission ANON-FD3J-U7KG-5 for further details.</p>	
Wildflower Society of WA and 4 Anonymous Submitters	<p>The submitters raise matters in relation to the loss of Black Cockatoo habitat that will occur as a result of implementation of the proposal. The amount of Black Cockatoo habitat that will be lost/cleared is of considerable concern.</p> <p>Potential breeding trees, whilst individually may be considered insignificant, cumulatively become significant. The impact on 737 potential cockatoo breeding sites is highly significant and considered by some submitters to be environmentally unacceptable.</p> <p>Please provide further information regarding the following:</p> <ul style="list-style-type: none"> <li>• any proposed mitigation measures such as erecting extra high fences, with bird-visible attachments, along the PDNH, especially where it intersects the Maralla Road Nature Reserve, in order to force birds to fly higher;</li> <li>• any proposed measures to eliminate any Dandelions (<i>Taraxacum</i></li> </ul>	

Submitter	Submission and/or issue	Response to comment
	<p><i>officinale</i>) that germinate along the road verge to prevent Cockatoos foraging on these weeds close to the road;</p> <ul style="list-style-type: none"> <li>• details of any surveys and consultation that have been done during the breeding season of the Black Cockatoos to determine if any suitable trees along the project route have been used by these birds;</li> <li>• details of any assistance, in addition to offsets, that MRWA will provide to the ongoing monitoring of Black Cockatoos in the area;</li> <li>• plans to gradually relocate and replace the existing watering site for the Black Cockatoos to a safe area and the original dam gradually phased out; and</li> <li>• any potential to adjust the road alignment to avoid a stand of trees slightly northwest from Gulf Cove which is home to a group of Black Cockatoos.</li> </ul> <p>Refer to submissions ANON-FD3J-U7KG-5, ANON-FD3J-U7KB-Z, ANON-FD3J-U7KT-J, ANON-FD3J-U7KV-M and ANON-FD3J-U7KZ-R for further details.</p>	
Wildflower Society of WA	<p>Please provide an explanation as to why fauna escape ramps are being used, instead of the alternative of one-way fauna gates that have been installed on some projects.</p> <p>Refer to submission ANON-FD3J-U7KG-5 for further details.</p>	
Bullsbrook Residents and Ratepayers Association and 2 Anonymous submitters	<p>The submitters raise matters relating to the management of fauna during the construction and operation of the proposal to minimise and manage injuries to fauna. Consideration should be given to measures to monitor and remove species that can be relocated to a safe area during construction.</p> <p>Please provide response to the following questions raised by the submitters:</p> <ul style="list-style-type: none"> <li>• who will be responsible for the trapping and translocation;</li> </ul>	

Submitter	Submission and/or issue	Response to comment
	<ul style="list-style-type: none"> <li>• how will appropriate translocation sites be determined;</li> <li>• details of any support that will be provided by MRWA for ongoing monitoring of relocated fauna to determine the success of relocation;</li> <li>• will any staging measures be implemented to prevent the halting of fauna movement at all times;</li> <li>• will roadside signs be erected to inform drivers of wildlife crossing, and provide contact details for wildlife carers; and</li> <li>• will MRWA provide support, including funding, to wildlife carers who have to care for injured and orphaned animals that result from implementation of the proposal.</li> <li>• will the breeding habits of species be considered during translocation, for example, <i>Tiliqua rugosa</i>, which pairs with the same mate each year; and</li> <li>• how will the spread of faunal diseases be minimised during trapping and translocation efforts.</li> </ul> <p>Refer to submission ANON-FD3J-U7KB-Z, ANON-FD3J-U7K8-P, and ANON-FD3J-U7KT-J for further details.</p>	
Anonymous	<p>The submitter raises matters in relation to the occurrence of Wedge-tailed Eagles in the vicinity of the proposal footprint. These birds are attracted to road kill.</p> <p>Please provide details of the measures that MRWA will employ in removing animal carcasses from the road in order to prevent vehicle impacts on this species.</p> <p>Refer to submission ANON-FD3J-U7KT-J for further details.</p>	
Anonymous	<p>The submitter raises matters in relation to the potential impacts on the Rainbow Bee-eater active nesting sites which occur on road verges and within bushland</p>	

Submitter	Submission and/or issue	Response to comment
	<p>adjacent to the proposed road alignment.</p> <p>Please provide details of any specific management and mitigation actions proposed by MRWA for the Rainbow Bee-eaters along Maralla Road and other sites in the Maralla Road Nature Reserve.</p> <p>Refer to submission ANON-FD3J-U7KT-J for further details.</p>	
4 Anonymous Submitters	<p>The submitters raise matters in relation to the adequacy of fauna surveys undertaken to date. There does not appear to have been any comprehensive surveys of birds, reptiles or invertebrates undertaken. Numerous species have been overlooked or failed to be included because of the very limited scope of surveys that were conducted. The timing and duration of the surveys seem to provide a mere snapshot of the fauna species present over a very limited period of time and during a single portion of the season.</p> <p>There does not appear to have been enough invertebrate or bird surveys undertaken to provide adequate information about the number of important invertebrate species that exist within the footprint.</p> <p>Please provide details on any additional invertebrate and bird surveys proposed to be undertaken or justification as to why no additional surveys will be undertaken.</p> <p>Please provide an explanation on why the fauna trapping surveys were not conducted across all four seasons.</p> <p>Refer to submissions ANON-FD3J-U7KB-Z, ANON-FD3J-U7KT-J, ANON-FD3J-U7KW-N and ANON-FD3J-U7KZ-R for further details.</p>	

#### 4. Hydrological processes and Inland waters environmental quality

Submitter	Submission and/or issue	Response to comment
Wildflower Society of WA and 2 Anonymous Submitters	<p>The submitters raise matters in relation to the importance of the role of native vegetation and soil type in respect to drainage.</p> <p>Please provide a response to the following questions raised:</p> <ul style="list-style-type: none"> <li>• will the impact of native vegetation on flow be examined; and</li> <li>• how will drainage be managed according to the soil profile.</li> </ul> <p>Refer to submissions ANON-FD3J-U7KG-5, ANON-FD3J-U7KT-J and ANON-FD3J-U7KZ-R for further details.</p>	
Anonymous	<p>The submitters raises matters in relation to the potential impacts of the proposal on the winter mound springs in the area. If the natural hydrology of the area is disturbed the recharge of the springs may be altered.</p> <p>Please advise whether consideration was given to the potential implications of the proposal on springs in the area, including disruption to natural hydrology and the proposed mitigation of this.</p> <p>Refer to submission ANON-FD3J-U7KM-B for further details.</p>	
Anonymous	<p>The submitters raise matters in relation to the potential for the proposal to further disrupt hydrological regimes and water quality on wetlands in the area. The PER document states that additional piezometers should be installed across the study area in close proximity to sensitive receptors.</p> <p>Please provide details on whether this additional work will be undertaken by MRWA, the likely timing of installation of the piezometers, and ongoing monitoring that will occur.</p> <p>Refer to submission ANON-F3J-U7KT-J for further details.</p>	
2 Anonymous Submitters	<p>The submitters raise matters in relation to the potential impacts of drawdown on local groundwater levels. The local groundwater levels, dependent</p>	

Submitter	Submission and/or issue	Response to comment
	<p>vegetation, wetlands and local residents who rely solely on groundwater, will be severely impacted by any further drawdown especially during summer.</p> <p>Please provide a discussion on what measures will be undertaken during construction, to monitor and address the following:</p> <ul style="list-style-type: none"> <li>• rates of water abstraction;</li> <li>• bore operating regimes and durations;</li> <li>• hydrogeology of bore locations;</li> <li>• expected groundwater drawdown and resulting indirect impacts to environmental values (e.g. wetlands);</li> <li>• existing groundwater license allocations and details on whether the water allocation for use during highway construction has occurred through the proper channels of local water allocation.</li> </ul> <p>Refer to submission ANON-FD3J-U7KM-B and ANON-FD3J-U7KT-J for further details.</p>	
2 Anonymous Submitters	<p>Submitters raise matters in relation to dewatering that will be undertaken as part of the proposal. During construction local bores and creeks may be affected by dewatering due to changes in groundwater levels.</p> <p>Please provide a response to the following questions:</p> <ul style="list-style-type: none"> <li>• what are the implications of dewatering on local residents who rely on the ground water for domestic water and stock use; and</li> <li>• has the potential impacts of dewatering near Maralla Road on nearby populations of <i>Caladenia Huegelii</i> and adjacent EPP wetlands been considered.</li> </ul> <p>Refer to submissions ANON-FD3J-U7KW-M and ANON-FD3J-U7KM-B for further details.</p>	
2 Anonymous	Submitters raise matters in relation to the maintenance of the function and	

Submitter	Submission and/or issue	Response to comment
Submitters	<p>quality of groundwater and Conservation Category Wetland's (CCWs) within and adjacent to the project footprint.</p> <p>Consideration of alternative engineering solutions, to avoid the partial destruction of CCWs 8773, 8909, 8792, 13096, 15033 and 8416 may be appropriate.</p> <p>Please provide an explanation of the engineering/best practice solutions that will be implemented to maintain maximum groundwater levels and flow, and minimise impacts to CCW's, during construction and operation, and prevent ongoing runoff, accidental spills and potential pollution of groundwater and CCW's.</p> <p>Refer to submissions ANON-FD3J-U7KB-Z and ANON-FD3J-U7KT-J for further details.</p>	
Anonymous	<p>The submitter raises matters in relation to the potential impacts to wetlands within the development envelope. The road reserve in the vicinity of Maralla Road appears to sever a section of EPP wetland (CCW) 8800. The PER document is vague regarding the potential impacts and justification for impacts to this wetland.</p> <p>Please provide details on how MRWA proposes to provide the recommended buffer zone to CCW 8800 and manage the key threatening processes of the proposal to CCW's.</p> <p>Refer to submission ANON-FD3J-U7KT-J for further details.</p>	
2 Anonymous Submitters	<p>The submitters raise matters in relation to the proposed separation distances between construction and wetland areas. It is unclear how it was determined that a 50 m separation distance between construction laydown areas and stockpiles (including storage of hazardous materials and refuelling activities) and sensitive wetlands and vegetation was acceptable.</p> <p>Please provide justification on how this separation distance was determined as appropriate to avoid and minimise potential impacts to these sensitive areas.</p>	

Submitter	Submission and/or issue	Response to comment
	Refer to submissions ANON-FD3J-U7KB-Z and ANON-FD3J-U7KT-J for further details.	
Anonymous	<p>The submitter raises matters in relation to the susceptibility of wetland areas to exposure of Acid Sulphate Soils (ASS) during construction. Figure 10.5B identifies the wetlands adjacent to Maralla Road as areas susceptible to high a risk of ASS during soil disturbance.</p> <p>Please provide details on what measures will be taken to mitigate the effect of ASS and protect the wetlands during construction.</p> <p>Refer to submission ANON-FD3J-U7KB-Z for further details.</p>	
Anonymous	<p>The submitter raises matters in relation to suggestions in the Drainage Strategy document that Saw Pit Gully could be used as a possible outlet flow for flood over-topping events. Saw Pit Gully feeds the Saw Pit Gully conservation reserve and eventually into Ellen Brook.</p> <p>Please provide details on whether this is a definite plan and what measures will be taken to prevent pollution and maintain water quality in Saw Pit Gully should this eventuate.</p> <p>Refer to submission ANON-FD3J-U7KB-Z for further details.</p>	

## 5. Amenity (Noise and Vibration)

Submitter	Submission and/or issue	Response to comment
2 Anonymous Submitters	<p>The submitter raised matters in relation to the accuracy of the noise predictions at Stock Road and the Ballajura area.</p> <p>The noise predictions within the Ballajura area seem to under estimate the potential noise impacts overall and do not appear to consider the most up to date traffic volumes. Installation of a noise wall built of a thicker mass to lower dB rating below 50dB may be appropriate to mitigate potential impacts.</p>	

Submitter	Submission and/or issue	Response to comment
	<p>The PER document states Stock Road has one of the highest noise levels attributed to weather conditions and local dogs. This is a rural road with little traffic.</p> <p>Please discuss the matters raised by the submitters with relation to whether:</p> <ul style="list-style-type: none"> <li>the noise modelling has utilised the most up to date traffic volumes when determining the dimensions of the noise wall; and</li> <li>there will be an increase in noise on Stock Road.</li> </ul> <p>Refer to submission ANON-FD3J-U7K7-N and ANON-FD3J-U7KM-B for further details.</p>	
<p>Bullsbrook Residents and Ratepayers Association and 2 Anonymous Submitters</p>	<p>The submitters raised matters in relation to the adequacy and implementation of the proposed noise mitigation measures.</p> <p>Please provide a response to the following questions raised by submitters:</p> <ul style="list-style-type: none"> <li>how will the proposed noise mitigation measures benefit residents and how will MRWA determine which package a residence should receive;</li> <li>when will the noise mitigation packages be fitted;</li> <li>if the proposed noise mitigation measures do not achieve the target 55dB LAeq how will this be rectified and will additional treatments be added;</li> <li>how will the issue of external noise be addressed given the lifestyle of property owners is generally outdoors and the fauna utilising these properties;</li> <li>will funding be available should additional mitigation measures be required; and</li> <li>will noise monitoring occur during both construction and operation of the highway.</li> </ul> <p>Refer to submissions ANON-FD3J-U7KT-J, ANON-FD3J-U7K8-P and ANON-</p>	

Submitter	Submission and/or issue	Response to comment
	FD3J-U7KB-Z.	
2 Anonymous Submitters	<p>Submitters raise matters in relation to the potential impacts of vibrations caused during construction on the adjacent homes.</p> <p>Please provide a response to the following questions:</p> <ul style="list-style-type: none"> <li>• what precautionary measures that will be undertaken to avoid vibration damage to buildings near site works; and</li> <li>• will any compensation be provided for damage that occurs to homes during construction.</li> </ul> <p>Refer to submission ANON-FD3J-U7KT-J and ANON-FD3J-U7KW-N for further details.</p>	

## 6. Heritage

Submitter	Submission and/or issue	Response to comment
Bullsbrook Residents and Ratepayers Association	<p>The submitter raises matters in relation to the Bulls Brook having been overlooked as significant historical feature of the Bullsbrook district.</p> <p>Please advise how the potential impacts of the proposal on the Bulls Brook have been considered.</p> <p>Refer to submission ANON-FD3J-U7K8-P for further details.</p>	

## 7. Offsets

Submitter	Submission and/or issue	Response to comment
Bullsbrook Residents and Ratepayers	<p>The submitters raises matters in relation to the suitability of Lot 5892 Maralla Road Bullsbrook as a potential offset site. The site contains a CCW, significant vegetation and also provides linkages to the Maralla Road bushland.</p>	

Submitter	Submission and/or issue	Response to comment
Association	<p>Please identify whether the acquisition of this site as an offset has been considered.</p> <p>Refer to submission ANON-FD3J-U7K8-P for further details.</p>	
Wildflower Society of WA and Bullsbrook Residents and Ratepayers Association	<p>The submitters raise matters in relation to the proposals overall net loss of bushland. Whilst offsets are proposed, the overall net loss of bushland, which includes important fauna habitat, including Black Cockatoo foraging and breeding habitat is of concern. There is a need to replace this habitat through long term acquisition and revegetation of degraded habitat, such as, areas within or adjacent to ecological linkages identified in Figure 8.5 or the CCW on Lot 800. The offset package does not include any proposed rehabilitation to address the net loss. It is also noted that locations for Offsets 2, 3 and 4 have not yet been identified.</p> <p>Please advise whether the purchase and rehabilitation of degraded areas has been considered to help address the overall net loss of bushland and provide details on the likely timing for the identification of the remaining offset sites.</p> <p>Refer to submissions ANON-FD3J-U7KG-5 and ANON-FD3J-U7K8-P for further details.</p>	

## 8. Rehabilitation and decommissioning

Submitter	Submission and/or issue	Response to comment
Wildflower Society of WA and 1 Anonymous Submitter	<p>The submitters raise matters in relation to the suitability of the rehabilitation/revegetation project. The rehabilitation/revegetation project does not appear to include an objective to maintain biodiversity, which is a major omission, particularly in the section south of Maralla Rd west of Ellenbrook. Consequently there are no completion criteria for revegetation of the road reserve following construction, and no species planting list.</p> <p>Please provide further details on the proposed rehabilitation/revegetation project to address the following:</p>	

Submitter	Submission and/or issue	Response to comment
	<ul style="list-style-type: none"> <li>objectives for maintaining biodiversity;</li> <li>justification for planting only dry grass and trees along any verges adjacent to native vegetation;</li> <li>species planting list, and consideration of not just local species but local provenance plants as well; and</li> <li>implementation of best practices measures in regards to rescuing, recovering or transplanting plants prior to clearing.</li> </ul> <p>Refer to submissions ANON-FD3J-U7KG-5 and ANON-FD3J-U7KT-J for further details.</p>	

## 9. Consultation

Submitter	Submission and/or issue	Response to comment
Wildflower Society of WA	<p>The submitter raises matters in relation to how the PER document addresses stakeholder concerns raised during previous consultative processes. Table 6.2 does not address each stakeholder issue other than in a very general way, which in no way satisfies stakeholders who raised these issues.</p> <p>Please provide a more detailed response to the issues raised during stakeholder consultation.</p> <p>Refer to submission ANON-FD3J-U7KG-5 for further details.</p>	

## 10. Other

Submitter	Submission and/or issue	Response to comment
Anonymous	<p>The submitter considers that the money from the sale of the land within Whiteman Park should be reinvested into the future management of the remainder of the park.</p>	

Submitter	Submission and/or issue	Response to comment
	<p>Please advise whether this has been considered.</p> <p>Refer to submission ANON-FD3J-U7K7-N for further details.</p>	
Bullsbrook Residents and Ratepayers Association	<p>The submitter raises matters in relation to the lack of consideration given to cumulative impacts. Further consideration and discussion of the potential of cumulative impacts, of this project and other current and proposed activities in the area should be undertaken.</p> <p>Please advise whether the impacts of nearby activities has been taken into consideration in regards to the context of cumulative impacts to flora and fauna.</p> <p>Please refer to submissions ANON-FD3J-U7K8-P for further details.</p>	
Wildflower Society of WA	<p>The submitter raises matters in regard to the adequacy of the discussion relating to the impacts of the proposal on the Environmental Principles of the <i>Environmental Protection Act 1986</i>. In particular, the PER document does not adequately discuss the proposal in relation to Principle 4 (Improved valuation, pricing and incentives) and Principle 5 (waste minimisation).</p> <p>Please provide further details on the measures that will be implemented throughout the entire proposal to address these principles.</p> <p>Refer to submission ANON-FD3J-U7KG-5 for further details.</p>	
Anonymous	<p>The submitter raises matters in relation to the tenure of the area west of Nature Reserve R46919. Whilst Figure 15.3B identifies this area as part of Bush Forever site 300, it is not shown as part of either the adjacent State Forrest or Nature Reserve.</p> <p>Please advise the current ownership and/or vesting of this area.</p> <p>Refer to submission ANON-FD3J-U7KT-J for details.</p>	

2 Anonymous Submitters	<p>The submitters raise matters in relation to the provision of fire and emergency access in the design of the proposal. Fire and other emergency access is not mentioned in the PER document particularly in remote locations such as the Maralla Road cul-de-sac. Without emergency access at this location, response time to fires will dramatically increase, and local resident safety will also be affected.</p> <p>Please provide a discussion on what specific measures will be put in place to assist in fire prevention, management and safety during construction and operation of the proposal, particularly in remote areas.</p> <p>Please also clarify if more clearing is necessary to address emergency access matters.</p> <p>Refer to submissions ANON-FD3J-U7KB-Z and for further details.</p>	
4 Anonymous Submitters	<p>The submitters raise matters in relation to the degradation of bushland through illegal activities. There has been visible effects of degradation as a result of rubbish that has been dumped, vandalism of trees, arson attempts as well as frequent destructive movements of vehicles.</p> <p>Please provide details on how these activities will be managed including responsibility, mitigation and ongoing monitoring.</p> <p>Refer to submissions ANON-FD3J-U7KB-Z ANON-FD3J-U7KT-J ANON-FD3J-U7KW-N and ANON-FD3J-U7KZ-R.</p>	



Government of **Western Australia**  
Office of the **Environmental Protection Authority**

## **Attachment 3**

### **Perth-Darwin National Highway**

**PUBLIC ENVIRONMENTAL REVIEW  
ASSESSMENT NO. 1994**

#### **COPY OF SUBMISSIONS FROM GOVERNMENT AGENCIES**

This document provides a copy of the submissions received from Government agencies regarding the Public Environmental Review document for the Perth-Darwin National Highway proposed by Main Roads WA.

The public review period for the proposal commenced on 7 September 2015 for a period of 4 weeks, ending on 6 October 2015. A total of six submissions were received from Government agencies.



Government of Western Australia  
Department of Environment Regulation

Your ref: AC01-2014-0005

Our ref: CEO1998/15

Enquiries: Teresa Gepp

Phone: 6467 5383

Email: [advice.coordinator@der.wa.gov.au](mailto:advice.coordinator@der.wa.gov.au)

Dr Paul Vogel  
Chairman  
Environmental Protection Authority  
Locked Bag 10  
EAST PERTH WA 6892

Attention: Peta Hayward

Dear Dr Vogel

**PERTH-DARWIN NATIONAL HIGHWAY – PUBLIC ENVIRONMENTAL REVIEW  
(ASSESSMENT NO. 1994)**

I refer to the letter dated 2 September 2015 from Mr Anthony Sutton, Acting General Manager, to the Department of Environment Regulation (DER) inviting comment by the Department on the above Public Environmental Review (PER).


Technical advice on the Traffic Noise Assessment has been prepared and is attached. The interpretation of this technical expert advice, and decisions about how the advice it contains should be considered in undertaking regulatory functions, are matters for the recipient organisation to determine. DER accepts no responsibility for the use or misuse of the attached advice, or the consequences of decisions made in reference to it.

I note that the PER includes a Preliminary Acid Sulfate Soils Investigation, which is generally consistent with DER's guideline '*Identification and investigation of acid sulfate soils and acidic landscapes*' (DER 2015). Recommendations in the PER regarding further investigations to inform specific management of acid sulfate soils are generally consistent with DER guidelines as applicable to large-scale linear projects.

The PER documentation does not appear to identify potential risks associated with known or suspected contaminated sites that may be located within, or in close proximity to, the project area. A search of DER's contaminated sites register has identified sites classified under the *Contaminated Sites Act 2003* as *possibly contaminated – investigation required* located within close proximity to, or within, the proposed alignment.

Should your staff require any further information, please contact DER's Planning and Advice Coordinator, Ms Teresa Gepp, on 6467 5383 or by email at [advice.coordinator@der.wa.gov.au](mailto:advice.coordinator@der.wa.gov.au).

Yours sincerely

  
Jason Banks  
DIRECTOR GENERAL

14 October 2015

Att.



Government of **Western Australia**  
Department of **Environment Regulation**

REPORT

## Technical Expert

*Advice/Report on Noise – Perth-Darwin National Highway –  
Public Environmental Review – Assessment No: 1994 - Office of  
Environmental Protection Authority*

Version: Final

September 2015

Infobase number



## Document control

### Document version history

Date	Expert name / position	Version	Role
23/9/2015	Jingnan Guo Senior Noise Regulation Officer	Draft	Author
23/9/2015	Peter Popoff-Asotoff Senior Manger Noise Regulation	Final	Reviewer

### Corporate file information

File number and/or name	File owner or custodian	File location
DER2015/000733	Jingnan Guo	Atrium 7.20

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October 2015

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**Accessibility** This document is available in alternative formats and languages upon request.

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## Expert's details

### Personal details: Author

Name	Jingnan Guo
Employer	Department of Environment Regulation
Position title	Senior Noise Regulation Officer
Field of expertise	Noise and vibration

### Qualifications and experience

The qualifications and experience and technical capability relevant to the provision of this advice are as follows:

#### Qualification

Qualification	Year obtained	Additional comments
Ph.D. - UWA	1998	Noise Control
MSc. - Curtin University	2005	Public Health
BSc. - Nanjing University	1982	Acoustics

#### Relevant professional experience

Employer	Position	Tenure
Department of Environment Regulation	Senior Officer	2014 - present
Department of Environment and Conservation	Senior Officer	2006 - 2014
WorkSafe WA	Noise Officer	2003 - 2006
University of WA	Research Fellow	2000 - 2003
University of British Columbia	Post Doctoral Fellow	1998 - 2000

Other – Publications/memberships/associations etc.

#### Publications:

##### **Selected Journal Publications**

- Jingnan Guo and Pam Gunn, "Noise and noise exposure in Western Australian entertainment venues", *Journal of Occupational Health Safety* **23** (1), 69-78 (2007).
- Murray Hodgson and Jingnan Guo, "Active local control of propeller-aircraft run-up noise," *Noise & Vibration Worldwide* **37** (3), 9-13 (2006).
- Jingnan Guo and Pam Gunn, "Occupational Noise Control in Australia – Its Policy and Management" *Canadian Acoustics* **32** (4), 39-48 (2004).
- Jingnan Guo, Jie Pan, and Murray Hodgson, "Active control of a moving noise source - effect of off-axis source position", *J. Sound Vib.* **251**(3), 457-475 (2002).
- Jingnan Guo, Murray Hodgson, and Jie Pan, "Active control of an off-axis noise source", *Canadian Acoustics* **29** (1), 13-18 (2001).
- Pierre Germain, Jingnan Guo and Murray Hodgson, "Experimental study of

- propeller-aircraft run-up noise," *Canadian Acoustics* 29 (2), 21-27 (2001).
- Jingnan Guo & Jie Pan, "Actively created quiet zones for broad band noise using multiple control sources," *J. Acoust. Soc. Am.* 105 (4), 2294-2303 (1999).
  - Jingnan Guo & Jie Pan, "Increasing the insertion loss of noise barriers using active control system," *J. Acoust. Soc. Am.* 104 (6), 3408-3416 (1998).
  - Jingnan Guo & Jie Pan, "Effects of Reflective Ground on the Actively Created Quiet Zones," *J. Acoust. Soc. Am.* 103 (2), 944-952 (1998).
  - Jingnan Guo & Jie Pan, "Further Investigation on Actively Created Quiet Zones by Multiple Control Sources in Free Space," *J. Acoust. Soc. Am.* 102 (5), 3050-3053 (1997).
  - Jingnan Guo & Jie Pan, "Application of Active Noise Control to Noise Barriers," *Acoustics Australia* 25 (1), 11-16 (1997).
  - Jingnan Guo, Jie Pan & Chaoying Bao, "Actively Created Quiet Zones by Multiple Control Sources in Free Space," *J. Acoust. Soc. Am.* 101 (3), 1492-1501 (1997).
  - Jingnan Guo & Xioulun Guo, "Analysis of environmental noise pollution in urban areas," *China Environmental Science* 14(5), 366-369 (1994).
  - Jingnan Guo & Jianping Zhu, "Some problems with environmental noise monitoring in China," *China Environmental Monitoring* 7(2), 39-41 (1991).
  - Jingnan Guo & Xioulun Guo, "Analysis of losses due to urban traffic noise pollution," *China Environmental Science* 9(6), 415-418 (1989).

Over 30 papers presented and published in **International Conferences**. Copies of the paper are available at request.

#### **Memberships and associations:**

1. Adjunct Associate Professor – University of WA.
2. Member of Australian Acoustical Society.
3. Member of Safety Institute of Australia.

## Purpose of this report, limitations and disclaimer

This is technical expert advice prepared by experts employed within the Department of Environment Regulation for the purposes set out in the "Advice summary details" and should not be used for any other purpose.

The State of Western Australia and Department of Environment Regulation and their servants and agents expressly disclaim liability, in negligence or otherwise, for any act or omission occurring in reliance on the information contained in this document, or for any incident or consequential loss or damage of such act or omission.

In preparing this report the technical experts have considered the request made, the information and materials provided in support of the request, literature relevant to the field, and other evidence the expert is aware of and can access through their expert capacity.

The report is based on the information provided to the experts, which is summarised in the "Advice summary details". Relevant materials that were not provided could materially change the advice. The requesting organisation needs to use appropriate judgement about the information that is relevant to the request, and the possible implications of any information that was not provided.

Where requests made require input from more than one area of technical expertise, the advice will be provided separately. Each advice will consider technical issues relevant to the specific field of expertise. No effort is made to integrate the issues raised by different technical fields. It is the responsibility of the regulatory organisation requesting the advice to determine how to weight the various matters they need to consider, and the relevance of the advice on any particular matter to making their decisions.

The interpretation of this technical expert report, and decisions about how the advice it contains should be considered in undertaking regulatory functions are matters for the recipient organisation to determine. The Department of Environment Regulation accepts no responsibility for the use or misuse of the attached advice, or the consequences of decisions made in reference to it.

The advice provided is limited to technical expert advice, and author(s) **have not** considered any aspect of regulatory matters that could come within the scope of legislation administered by the Department of Environment Regulation, either currently or at some time in the future. As such, the report does not purport to represent the Department of Environment Regulation's views on how such matters may be considered by the Department of Environment Regulation in its regulatory capacity. If advice is required on the Department of Environment Regulation's position on how it would consider matters relevant to its regulatory functions, a separate request for advice must be made.

## Advice summary details

TO:	Office of the Environmental Protection Authority
PREPARED BY:	Dr Jingnan Guo
REVIEWED BY:	Peter Popoff-Asotoff
SUBJECT	Perth-Darwin National Highway – Assessment No: 1994

The details of these experts is summarised under Expert's details.

This advice was prepared for the Office of the Environmental Protection Authority (OEPA) in response to the request dated 2 September 2015. I have provided advice according to the scope below.

Scope of advice
Technical advice to the OEPA on the Public Environment Review (PER) document for the proposed Perth-Darwin National Highway (EPA Assessment No: 1994).

The OEPA made the following materials and documents available, which form the basis of this technical expert advice.

Material / document name	Type of resource / description	Date prepared
Transportation Noise Assessment – Perth-Darwin National Highway Project (#13122263-01PDNH)	Assessment report by Lloyd George Acoustics (LGA)	29 June 2015
Public Environmental Review – Perth-Darwin National Highway	PER document prepared by Coffey	September 2015

In preparing this advice I have considered the information provided with the request.

### My expert advice is as below:

I previously reviewed the draft PER document for this proposal and its associated Transportation Noise Assessment and my expert advice was provided to the OEPA on 15 May 2015. I have now reviewed the final PER document and the revised Transportation Noise Assessment report dated 29 June 2015 (Report). I have identified that the traffic noise impact from this proposed project may have been underestimated due to the method adopted for the traffic noise modelling calibration in the revised Transportation Noise Assessment report.

I note that LGA revised its Transportation Noise Assessment report in June 2015, which introduced the method LGA used to calibrate the noise model. According to LGA, the model calibration was conducted by comparing the measured noise levels and the modelled noise levels at 12 locations along the existing Tonkin Highway. The comparison results are given in Table 4-2 of the Report and reproduced below. As described by LGA, there is a large variation in the differences between the measured and modelled noise levels, which are in the range of 5.2 to 11.1 dB. The modelled noise levels are consistently higher than the measured noise levels for all 12 locations along the existing Tonkin Highway.

According to LGA, the large variation may be the result of the congestion experienced along the existing Tonkin Highway. By using the 5<sup>th</sup> percentile (quoted as the 95<sup>th</sup> percentile in the report) of the differences as the calibration value for the model, a calibration factor of 5.4 dB was used to adjust the modelled results for all road sections of the proposed project.

*Table 4-2 Comparison Between Measured and Predicted Noise Levels at Monitoring Locations*

Rec ID	Address	Measured L <sub>Aeq</sub> (Day)	Predicted L <sub>Aeq</sub> (Day)	Difference
A	2 Redlands St, Bayswater	54.2	60.9	-6.7
B	16 Harvest Rd, Morley	58.8	68.3	-9.5
C	28A Bruce Rd, Morley	58.5	67.2	-8.7
D	2A Abbey Street, Morley	59	67.5	-8.5
E	9 Clandon Way, Morley	57.9	64.2	-6.3
F	48 Alfreda Ave, Morley	57.1	64.9	-7.8
G	100 Alfreda Ave, Morley	56.9	64.5	-7.6
H	8 Wells Court, Noranda	49.9	60.6	-10.7
I	15 Davis Court, Morley	50.1	61.2	-11.1
J	6 Acacia Court, Beechboro	54.9	60.1	-5.2
K	11 Willow Place, Beechboro	52.2	60.8	-8.6
L	8 Jarrah Court, Beechboro	50.6	56.2	-5.6

In my opinion, the model calibration method used by LGA for this project is not appropriate, and may result in an underestimation of the traffic noise impact. My opinion is based on the reasons below:

1. The large differences between the modelled results and the measured levels could be due to the congestion along the existing Tonkin Highway, as suggested by LGA. Because of the congestion, the parameters chosen for the modelling, such as the traffic volume and traffic speed, can be quite different from the true values. This will likely lead to significant variations of the modelled results. In such a situation, the appropriate way to minimise the variations is to modify the input parameters for the noise modelling to reflect the actual situation under which the measurements were made, rather than simply adjust the modelled results by introducing such a calibration factor.
2. The Austroads Research Report: *Modelling, Measuring and Mitigation Road Traffic Noise* (AR-R277/05) allows the calibration of the noise model to reflect local conditions. My understanding is that this calibration is only to accommodate small variations, due to the difficulties in accurately assessing some model parameters, such as the ground absorption(s) and vegetation. It is not designed for such large variations as shown in Table 4-2.
3. In AR-R277/05, the model calibration only applies "*in an upgrade or extension where the ground properties and relationship of the residences to the road are essentially the same for the extended section as for the existing section.*" The proposed project involves 38 kilometres (km) of new dual carriage highway, connecting the intersection of Tonkin Highway and Reid Highway in the south with Great Northern Highway and Brand Highway in the north. It passes through built areas, as well as quite large rural areas. The ground properties and the residences' distances to the proposed road can be quite different along this 38 km section to the measurement locations near the Tonkin Highway. Therefore, even in the situation that the noise model can be calibrated in the way that LGA used for this project, the calibration results may only apply to the Tonkin Highway section and not the whole 38 km road section of the project.

Due to the above reasons concerning the model calibration, I do not agree that the calibration value of 5.4 dB can be used to adjust the modelled results. This adjustment is likely to lead to the underestimation of the traffic noise impact.

Except for the parameter inputs and model calibration, the methodology of the traffic noise modelling seems acceptable as supplied.

In addition to the information in the "Purpose of this report, limitations and disclaimer" section, important limitations relevant to this specific advice are detailed under "Specific limitations of this advice" below.

### Specific limitations of this advice

Technical expert advice in any field is subject to various limitations. Important limitations to the attached advice include:

- I have not verified the noise modelling and its results by rerunning the computer model.

## Expert's details

### Personal details: Reviewer

Name	Peter Popoff-Asotoff
Employer	Department of Environment Regulation
Position title	Senior Manager Noise Regulation
Field of expertise	Environmental noise.

### Qualifications and experience

The qualifications and experience and technical capability relevant to the provision of this advice are as follows:

#### Qualification

Qualification	Year obtained	Additional comments
Grad. Dip. – Curtin University		Computing
BSc. – Murdoch University		Physics

#### Relevant professional experience

Employer	Position	Tenure
Department of Environment Regulation	Senior Manager	2015 – present
Department of Environment Regulation	Manager	2013 – 2015
Department of Environment and Conservation	Manager	2012 – 2013
Department of Environment and Conservation	Acting Manager	2008 – 2011
Department of Environment and Conservation	Environmental Noise Officer	2006 – 2008
Department of Environment	Environmental Noise Officer	2003 – 2006
Department of Environmental Protection	Environmental Noise Officer	1997 – 2003

Other – Publications/memberships/associations etc.

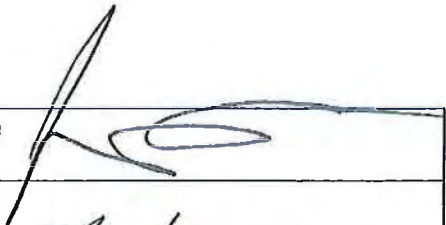
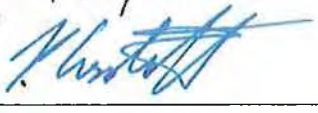
**Publications:**

- Peter Popoff-Asotoff, Jonathan Holgate and John Macpherson, "Which is Safer – Tonal or Broadband Reversing Alarms?" *Proc. of Acoustics 2012 Fremantle* 126, 1-7, (2012)
- Jingnan Guo, John Macpherson and Peter Popoff-Asotoff, "Further Investigations of Low-Frequency Noise Problems Generated by Freight Trains" *Proc. of Acoustics 2012 Fremantle* 64, 1-8, (2012)
- Sun Hongmei, Rhys Fenton, Peter Popoff-Asotoff, Jingnan Guo, and John Macpherson, "Evaluation of noise emissions from an evaporative air conditioning unit and their environmental impact" *Proc. of Acoustics 2012 Fremantle* 132, 1-6, (2012)

**Memberships and associations:**

Member of Australian Acoustical Society.

**Signatures**

Author Name Jingnan Guo	Signature 
Position Senior Noise Regulation Officer	Date 19/10/2015
Reviewer Name Peter Popoff-Asotoff	Signature 
Position Senior Manager Noise Regulation	Date 19/10/2015



Government of **Western Australia**  
Department of **Planning**

Your ref: C01-2014-0005  
Our ref: 402-2-1-205  
Enquiries: Nanette Garland (6551 9322)

Dr Paul Vogel  
Chairman  
Environmental Protection Authority  
Locked Bag 10  
EAST PERTH WA 6892

Dear Dr Vogel

**PERTH-DARWIN NATIONAL HIGHWAY  
PUBLIC ENVIRONMENTAL REVIEW – ASSESSMENT NO: 1994**

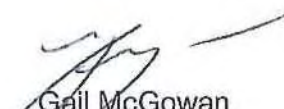
Thank you for the opportunity to comment on the Public Environmental Review (PER) for the construction of the southern section of the Perth-Darwin National Highway (PDNH).

The proposal is supported as the alignment is consistent with the *Draft Perth and Peel @ 3.5 million* and the *Draft North-East Sub-regional Planning Framework*, and the mitigation measures proposed as a result of the road construction are consistent with Western Australian Planning Commission (WAPC) State Planning Policy.

During the Metropolitan Region Scheme and subsequent planning phases, the Department of Planning, on behalf of the WAPC, will address the following with Main Roads WA and the Department of Transport:

- Reconciliation of the public transport network in the north metropolitan area to ensure adequate coverage exists in the future to accommodate the population growth anticipated in *Perth and Peel @ 3.5 million*;
- Consideration of zoning changes to allow development of land no longer required for transport purposes or fragmented from adjoining land uses; and
- Consideration of noise mitigation measures along the sections of the PDNH that are identified within the *Draft North-East Sub-regional Planning Framework* as Urban Expansion and Urban Investigation areas.

Yours sincerely



Gail McGowan  
Director General

..2../10/2015



Your ref: AC01-2014-0005

Our ref: RF13882

Enquiries: James Mackintosh, 6250 8043

Hans Jacob  
Manager  
Infrastructure Assessments Branch  
Office of the Environmental Protection Authority  
Locked Bag 10  
EAST Perth, WA 6892

Office of the Environmental Protection Authority	09 OCT 2015		For Information		For Discussion		For Action		Response please:				
	A:		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		GM Signature		<input type="checkbox"/>		
	For:		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		Dir for GM (copy to GM)		<input type="checkbox"/>		
	Officer:		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		Dir Signature (copy to GM)		<input type="checkbox"/>		
				Dir. AC		Dir. Bus Ops		Dir. SPPD		Dir. Strat Sup		Dir. Direct (copy to GM)	
				<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>	

Dear Mr Jacob

**PERTH-DARWIN NATIONAL HIGHWAY – PUBLIC ENVIRONMENTAL REVIEW  
– ASSESSMENT NO: 1994**

Thank you for the above referral dated 2 September 2015. The Department of Water (DoW) appreciates the opportunity to comment on the Perth-Darwin National Highway Public Environmental Review (PER).

The DoW's assessment included a review of the following reports:

- *Public Environmental Review – Perth-Darwin National Highway (Swan Valley Section), September 2015;*
- *Appendix F – Draft Environmental Management Plan – Perth-Darwin National Highway, July 2015;*
- *Appendix H – Drainage Strategy – Perth-Darwin National Highway, May 2015;*

The DoW is generally satisfied with the information provided in the PER. However, the DoW has identified a number of matters that require additional information or clarification:

**Construction Management**

The DoW has concerns with regards to the future construction requirements for construction laydown areas, stockpiles, storage of hazardous materials and refuelling activities. The PER and draft Environmental Management Plan (EMP) have stated that

*"Construction laydown areas and stockpiles (including storage of hazardous materials and refuelling activities) will be located outside the Wellhead Protection Zones (WHPZs) and 50 m from all CCWs, Mound Springs SCP TECs and Claypans of the SCP TEC to mitigate potential water quality impacts".*

The proposal has not acknowledged that under *State Planning Policy 2.2 - Gnamara Groundwater Protection (WAPC, Aug 2005)* and *State Planning Policy 2.7 - Public Drinking Water Source (WAPC, June 2003)* and the associated *Water Quality Protection Note No. 25 – Land use compatibility in Public Drinking Water Source Areas (DoW, July 2004)*, many of these activities are incompatible in a Priority 1 (P1) Underground Water Pollution Control Area (UWPCA). The DoW also notes that this issue had not been discussed at either the Environmental Reference Group or the Drainage Reference Group Project Team meetings.

The exclusion of many of these activities from P1 areas will need to be considered by Mainroads WA, preferably as part of the PER, as it will likely have impact on construction activities, the location of laydown areas, stockpiles and hazardous materials storage, and therefore potential contamination issues, land requirements for these sites and environmental impacts.

However, while these construction laydown areas are prohibited in P1 areas under current policy, the DoW is prepared to negotiate with Mainroads WA on potential management measures required to potentially allow this temporary land use.

#### **Environmental Management Plan**

This EMP does not clearly state the importance of the Gnamptu UWPWA in terms of supplying Perth's drinking water, and relevant requirements under *State Planning Policy 2.2 - Gnamptu Groundwater Protection* (WAPC, Aug 2005) and the Gnamptu Land Use and Water Management Strategy (WAPC, Jan 2001), as well as the *Water Quality Protection Note No. 25 - Land use compatibility in Public Drinking Water Source Areas* (DoW, July 2004). In addition, the EMP should refer to more specific best management practices to ensure the protection of this important drinking water source, such as the DoW's *Water Quality Protection Note (WQPN) No. 44 - Roads near sensitive water resources* (DoW, Oct 2006), *WQPN No. 36 - Protecting Public Drinking Water Source Areas* (DoW, Feb 2009), and *WQPN No. 6 Vegetation buffers to sensitive water resources* (DoW, Feb 2006). The EMP should be revised to appropriately acknowledge these policies.

#### **Management of dust during construction**

There is no mention in the EMP of what quality of water should be used for dust suppression. In a P1 UWPWA this water needs to be of the highest quality and the source of this water will need to be considered by Mainroads WA.

#### **Inspections**

The Water Corporation is operating the bore field on the Gnamptu UWPWA and has delegated powers from the DoW to undertake surveillance in public drinking water source areas. The EMP should commit to working closely with the Water Corporation when constructing the proposed section in the UWPWA P1 and P3 areas. Regular joint inspections (Water Corporation/Main Roads) should be encouraged, and any accidental spill should also be reported to Water Corporation.

#### **Drainage Management Plan**

The Drainage Management Plan should commit to future consultation with the DoW provide further input into the final location of bio-retention basins and other water quality mitigation measures to protect the drinking water production bores. The DoW's preference is to keep them outside the WHPZs. However, a minimum of 100 m separation distance should be maintained between production bore and bio-retention basin, wherever possible and the stormwater should drain away from these production bores.

If you wish to discuss the matter further, please contact James Mackintosh at [james.mackintosh@water.wa.gov.au](mailto:james.mackintosh@water.wa.gov.au) or on 6250 8043.



Government of **Western Australia**  
Department of **Water**



*looking after all our water needs*

Yours sincerely

**Don Cummins**  
**Regional Manager**  
**Swan Avon Region**

**5 October 2015**



Government of Western Australia  
Department of Parks and Wildlife

Your ref: AC01-2014-0005  
Our ref: CEO2009/15  
Enquiries: Sue Osborne  
Phone: 9219 8641  
Fax: 9334 0140  
Email: [sue.osborne@dpaw.wa.gov.au](mailto:sue.osborne@dpaw.wa.gov.au)

Mr Anthony Sutton  
Director Assessments and Compliance Division  
Office of the Environmental Protection Authority  
Locked Bag 10  
EAST PERTH WA 6892

Attention: Peta Hayward

Dear Anthony

**PERTH-DARWIN NATIONAL HIGHWAY - PUBLIC ENVIRONMENTAL REVIEW -  
ASSESSMENT NO. 1994**

I refer to your letter received on 8 September 2015 advising that the Public Environmental Review document for the Perth-Darwin National Highway Project is available for comment.

The Department of Parks and Wildlife provides the attached advice and comments on matters relevant to the department's *Conservation and Land Management Act 1984* and *Wildlife Conservation Act 1950* related responsibilities.

Should you wish to discuss this advice, please contact Sue Osborne, Environmental Management Branch by telephone on 9219 8641 or email at [sue.osborne@dpaw.wa.gov.au](mailto:sue.osborne@dpaw.wa.gov.au).

Yours sincerely

Jim Sharp  
DIRECTOR GENERAL

6 October 2015

Att

# Department of Parks and Wildlife

## Document Review Comments Sheet



Reviewer:	Sue Osborne
Document Title:	Public Environmental Review Perth-Darwin National Highway (Swan Valley Section)
Document Revision:	Revision 4
Date of Review:	6 October 2015

Item No.	Section No./Title	Reviewer Comment / Advice
1	Chapter 8 Flora and Vegetation  Appendix C Level 2 Flora and Vegetation Assessment	<p><b>Recommendation 1:</b> <i>That the proponent fulfil its commitments to undertake additional targeted surveys for Threatened and Priority flora, in particular for Meeboldina decipiens subsp. decipiens ms (Priority 3), and Millotia tenuifolia var. laevis (Priority 2), and provide survey results in the context of flora distributions within secure conservation reserves to the EPA to facilitate an informed assessment of impacts.</i></p> <p><b>Discussion</b> Parks and Wildlife previously advised the OEPA (May 2015) in its draft Public Environmental Review (PER) advice that determining impacts on the conservation reserve system based on the reduction in areal extent does not adequately address the effect of the proposal on the level of protection of conservation values (flora, fauna, communities) within class A nature reserves (46919 and 46920) and Gngangara-Moore River State Forest No. 65. In Parks and Wildlife's comments on the draft PER, the department recommended that <i>"the PER address the extent to which the important conservation values protected within the affected reserves, and the conservation reserve system overall, will be affected by the proposal. E.g. X% of Priority flora taxon A will be removed from Reserve 46919 and the % of reservation of this taxon in reserves overall will be reduced from Y% to Z%".</i> The level to which a species is protected by its occurrence within secure conservation reserves is a significant factor in determining the conservation status assigned to listed flora. However, this recommendation does not appear to have been addressed and the approach previously recommended by Parks and Wildlife to describe impacts on specially listed species and communities does not appear to have</p>

Item No.	Section No./Title	Reviewer Comment / Advice
		<p>been adopted in the PER.</p> <p>Parks and Wildlife notes the following proponent commitments outlined in the PER:</p> <ul style="list-style-type: none"> <li>• <i>"Additional targeted surveys for Threatened and Priority flora will be undertaken prior to vegetation clearing to clearly define population boundaries, and to identify any additional populations within and adjacent to the proposal.</i></li> <li>• <i>Additional targeted surveys of the known populations of Millotia tenuifolia var. laevis and Meeboldina decipiens subsp. decipiens ms [will be undertaken] to clearly define populations and known individuals. The survey results will be provided to the EPA as part of the response to submissions process to inform the EPA's assessment of the proposal".</i></li> </ul> <p>The department supports these commitments and recommends that the results of all targeted surveys for Threatened and Priority flora be presented in the context of understanding the distributions of specially protected flora species within and outside secure conservation reserves, as outlined above and in the department's previous advice.</p> <p>Parks and Wildlife recognises that the proponent has taken a precautionary approach in determining potential impacts on <i>M. decipiens</i> subsp. <i>decipiens</i> (Priority 3) and <i>M. tenuifolia</i> var. <i>laevis</i> (Priority 2), by assuming that where the population sizes of recorded occurrences have not been recorded, that they consist of single plants only. However, based on this approach, impacts on these species are potentially significant at both local and regional scales.</p> <p><i>M. decipiens</i> subsp. <i>decipiens</i> is not well represented by records within conservation reserves overall and there are no records within CALM Act lands (reserves or State forest) on the Swan Coastal Plain. The eleven plants recorded within the proposed development footprint are located approximately 25km north-west of the nearest other confirmed record of this species, and the removal of all individuals would therefore reduce its known range. Conservation category wetland habitats in Lightning Swamp Bushland, an A class reserve located approximately 150m south of the nearest recorded <i>M. decipiens</i> subsp. <i>decipiens</i> plant, may provide suitable habitat (<i>Astartea</i> tall shrubland to open tall shrubland / dampland). Given the potential significance of the proposed (assumed) removal of all known individuals of this species from its northern extent, and the current lack of records of this species within conservation estate on the Swan Coastal Plain, it is recommended that the proponent's targeted survey for this species include potential habitat within Lightning Swamp Bushland.</p> <p><i>M. tenuifolia</i> var. <i>laevis</i> is known from five locations, but there have been no previous confirmed records of this species on the Swan Coastal Plain. While recognising the potential for this cryptic species to be under</p>

Item No.	Section No./Title	Reviewer Comment / Advice
		<p>recorded, the proposal would result in the removal of approximately half of the known individuals of this taxon on the Swan Coastal Plain. It is noted that individuals recorded outside the footprint were found in Whiteman Park, which is managed by the Department of Planning for conservation, recreation and education. It is therefore recommended that the proponent focus further targeted surveys for this species on potential habitat in Whiteman Park to clarify its local extent.</p> <p>Following completion of targeted surveys, the department requests that the proponent forward Threatened and Priority flora report forms, or equivalent information, to <a href="mailto:communities.data@dpaw.wa.gov.au">communities.data@dpaw.wa.gov.au</a> (Parks and Wildlife Species and Communities Branch).</p>
2	Chapter 17 Offsets	<p><b><i>Recommendation 2: That should the proposed survey of the loppolo Road offset site shows that it does not comprise critical habitat for the threatened flora species Caladenia huegelii, an alternative offset package should focus on the management and protection of existing populations or critical habitat, rather than on translocation options.</i></b></p> <p><b>Discussion</b> In relation to offsetting the loss of critical habitat for <i>Caladenia huegelii</i> (grand spider orchid), the PER includes the following statement:</p> <p><i>"If surveys show that the loppolo Road site does not comprise suitable habitat, then MRWA commits to offsetting the amount of critical habitat impacted by the proposal through a package that may comprise protection of habitat through acquisition or covenant, and contributions to the recovery plan such as a cultivation and translocation program."</i></p> <p>Based on experience gained from flora conservation and recovery actions in WA, Parks and Wildlife advises that cultivation and translocation programs often have limited success and should be implemented only when other options that focus on the protection and management of existing populations and critical habitat have been exhausted.</p>

Item No.	Section No./Title	Reviewer Comment / Advice
3	Appendix F Environmental Management Plan	<p><b>Recommendation 3: That the Environmental Management Plan incorporates monitoring and performance criteria for Threatened and Priority flora.</b></p> <p><b>Discussion</b>  Parks and Wildlife supports the operational management frameworks outlined in the draft Environmental Management Plan to protect Threatened and Priority flora from accidental disturbance, and the introduction and spread of weeds and dieback, and would support the addition of performance criteria and associated commitments to monitor Threatened and Priority flora. In particular, the department recommends the inclusion of performance criteria and monitoring commitments in relation to <i>M. tenuifolia</i> var. <i>laevis</i> individuals occurring within 50m of the project footprint.</p>
4	Chapter 8 – Flora and Vegetation, and Appendix I – Wetland Assessment	<p><b>Recommendation 4: That commitments to protect the Communities of the Tumulus Springs (Organic Mound Springs, Swan Coastal Plain) Threatened Ecological Community adjacent to the development footprint include water balance studies for pre- and post-development situations, and highway design measures to mitigate effects of significant chemical spills.</b></p> <p><b>Discussion</b>  While recognising that the road has been aligned to avoid direct impacts on the Communities of the Tumulus Springs (Organic Mound Springs, Swan Coastal Plain) Threatened Ecological Community (Mound Springs SCP TEC), this TEC occurs in close proximity to the development footprint and is therefore vulnerable to indirect impacts during both construction and operational phases of the development.</p> <p>Parks and Wildlife notes that Appendix I. Wetland Assessment (May 2015) includes a recommendation that Groundwater Dependant Ecosystems (including the Mound Springs SCP TEC) be monitored pre- and post-construction, and that monitoring includes existing, and additional piezometers across the study area. The department supports this recommendation, but also recommends the development of a robust water balance analysis to increase confidence and reduce uncertainty in relation to risks associated with potential changes in the hydrology.</p> <p>The incorporation of strategically located highway design measures to facilitate effective pollution response; e.g. that allow for the rapid establishment of enhanced containment or diversion capabilities, would provide further protection for the Mound Spring SCP TEC and other high value conservation assets at risk from significant chemical, including hydrocarbon, spills.</p>

Item No.	Section No./Title	Reviewer Comment / Advice
5	Chapter 8 – Flora and Vegetation, and Chapter 17 Offset	<p><b>Recommendation 5: If Offset Proposal 3; 'Conservation of TEC' proves difficult to implement, alternative offset options for the loss of 0.4 ha of the Southern wet shrublands, Swan Coastal Plain Threatened Ecological Community should be developed and implemented, in consultation with Parks and Wildlife.</b></p> <p><b>Discussion</b>  Land containing the Southern wet shrublands, Swan Coastal Plain Threatened Ecological Community (TEC SCP02) may not be available for purchase or covenanting. If supplementary surveys confirm the presence of TEC SCP02 within the development footprint, Offset Proposal 3 'Conservation of TEC', may require further consideration.</p> <p>Following completion of site surveys and final determination of TECs/PECs present in the vicinity of the proposal, the department requests that shape files of identified areas be provided to <a href="mailto:communities.data@dpaw.wa.gov.au">communities.data@dpaw.wa.gov.au</a> (Parks and Wildlife Species and Communities Branch).</p>
6	Chapter 9 – Terrestrial Fauna	<p><b>Recommendation 6: That Parks and Wildlife be provided an opportunity to contribute to, and comment on, the planned development of an Environmental Management Plan (EMP) relating to fauna management.</b></p> <p><b>Discussion</b>  Parks and Wildlife supports the proponent's commitment to prepare and implement an EMP for fauna management relating to the loss of fauna habitat from vegetation clearing. As the agency responsible for protection of, and licensing actions involving, native fauna, it is considered appropriate that the proposed fauna management components of the EMP be developed in consultation with Parks and Wildlife.</p>

Item No.	Section No./Title	Reviewer Comment / Advice																				
7	Chapter 10 Hydrological Processes and Inland Waters Environmental Quality	<p><b>Recommendation 7: That the estimated residual loss of wetland values, and the extent of wetlands to be monitored during and post construction, include wetlands that, while not mapped as Conservation Category, may retain values commensurate with Conservation Category wetlands.</b></p> <p><b>Discussion</b> Parks and Wildlife previously advised in its draft PER advice that some areas within the disturbance footprint currently mapped as Multiple Use category wetlands, may retain values commensurate with Conservation Category wetlands (CCWs). As described previously, these include:</p> <table><tr><th>Wetland UFI</th><th>Wetland type</th><th>Vegetation condition</th><th>Other values</th></tr><tr><td>15200</td><td>Sumpland</td><td>Excellent to Very Good</td><td></td></tr><tr><td>15030</td><td>Sumpland</td><td>Excellent</td><td>Significant veg association: AsMIEv</td></tr><tr><td>8464</td><td>Sumpland</td><td>Pristine</td><td>Significant veg association: AsMIEv</td></tr><tr><td>15732</td><td>Palusplain</td><td>Very Good to Good</td><td></td></tr></table> <p>The proponent has not addressed these possible mapping / classification anomalies in the PER.</p> <p>Parks and Wildlife has not requested that the <i>Geomorphic Wetlands Swan Coastal Plain</i> dataset be formally modified. However, an accurate estimation of wetland values lost through proposal implementation (and therefore used as the basis for considering significant residual impacts on wetlands) should take these potential mapping anomalies into account.</p> <p>Parks and Wildlife supports the proposed preparation and implementation of a wetland management and monitoring plan. However, as a review of the wetland mapping within and adjacent to the disturbance footprint has not been undertaken and some potential mapping anomalies have already been identified, the department advises that monitoring should include all wetland areas that may potentially meet the criteria for Conservation Category and that retain intact native vegetation in good or better condition.</p>	Wetland UFI	Wetland type	Vegetation condition	Other values	15200	Sumpland	Excellent to Very Good		15030	Sumpland	Excellent	Significant veg association: AsMIEv	8464	Sumpland	Pristine	Significant veg association: AsMIEv	15732	Palusplain	Very Good to Good	
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Item No.	Section No./Title	Reviewer Comment / Advice
8	<p><b>Section 10.4.6.1 Permanent Loss and/or Degradation of Wetlands</b></p> <p><b>and</b></p> <p><b>Chapter 17 Offsets</b></p>	<p><b>Recommendation 8: That Offset Proposal 2; 'Conservation of Land Comprising CCWs', be refined to align as far as practicable with the types of impacted wetlands within each consanguineous suite.</b></p> <p><b>Discussion</b>  Classification of a wetland as Conservation Category is based on assessment of attributes relating to the condition, conservation values and significance of a wetland and does not describe the wetland type or consanguineous suite.</p> <p><b>Offset Proposal 2 'Conservation of Land Comprising CCWs'</b> involves securing protection for approximately twice the area of CCWs impacted by the development. The department supports this proposal and suggests that to ensure that the range of wetland types lost during development are represented, the offset should aim to incorporate, as far as practicable, protection of a similar set of wetland types within each consanguineous suite, to those impacted by the development. (With reference to Recommendation 7 above, the set of protected wetland types within each consanguineous suite should also take account of potential wetland category mapping anomalies for the impacted wetlands).</p> <p>The conclusion in the PER that "<i>as the proportion of CCWs within the Jandakot consanguineous suite is well above 10%, clearing of CCWs within the Jandakot consanguineous suite is not considered to be significant from the perspective of regional representation</i>"... is based on an incorrect interpretation of the Parks and Wildlife evaluation methodology for determining wetland Conservation Category classification (Department of Parks and Wildlife 2013). The evaluation methodology indicates that an individual wetland is more likely to be allocated a high Conservation Category classification if less than 20 per cent of wetlands in that consanguineous suite remain in Conservation Category condition.</p>

Item No.	Section No./Title	Reviewer Comment / Advice
9	<p>Chapter 10 Hydrological Processes and Inland Waters Environmental Quality</p> <p>and</p> <p>Appendix L Drawdown Position Paper</p>	<p><b>Recommendation 9: That the potential for indirect impacts on wetland values from lowering the water table be minimised by:</b></p> <ul style="list-style-type: none"> <li>• <i>restricting to summer months, the construction of footings for bridges and utility services at locations where dewatering would be likely to lower the water table in CCWs; and</i></li> <li>• <i>managing drawdown associated with extraction bores in the vicinity of CCWs to maintain groundwater at depths that will not result in significant impacts on wetland values.</i></li> </ul> <p><b>Discussion</b></p> <p>Parks and Wildlife supports the proponent's stated intention to construct deep footings for bridge and utility services located near wetlands during summer months when seasonal groundwater levels are naturally below the required excavation depths. Summer excavation will avoid the requirement for dewatering that may have the potential to lower the water table in CCWs, and other wetlands with CCW equivalent values below seasonally normal levels.</p> <p>It is noted that drawdown from abstraction wells during construction may exceed 6m within hydrological domains 1 and 2, and 8m within hydrological domain 3 depending on pumping rates, and while seasonal fluctuations of 1 to 1.5m are expected in Bassendean Sands, fluctuations of 2 to 3m are expected in areas of clay. In recognition of this, the <b>PER</b> includes a statement indicating that: "...<i>the operating parameters of bores will be limited such that modelled changes to groundwater levels at wetlands remain within usual seasonal variations for those wetlands</i>". The term "<i>usual seasonal variations</i>" could be interpreted in more than one way; e.g. the difference between the winter maximum and summer minimum groundwater levels; or the variation between maximum and minimum groundwater levels taken over several years during the same season. Further explanation is considered necessary to clarify the meaning of this statement and how it is intended to be applied to the establishment of trigger levels. Such levels are considered critical to the design and implementation of an adaptive management program to protect wetland values from the effects of groundwater drawdown.</p> <p>Monitoring of depths to groundwater should include monthly evaluations and comparisons with expected seasonal depths. Contingency actions to address significant impacts on groundwater levels should include vegetation condition monitoring and the cessation of abstraction from any bores not meeting agreed thresholds within time frames that will prevent the significant loss of wetland values.</p> <p>(With reference to recommendation 7 above, the identification of wetlands to be protected from dewatering and extraction activities should take account of the identified potential wetland category mapping anomalies).</p>

Item No.	Section No./Title	Reviewer Comment / Advice
10	Chapter 14 European Heritage  and  Chapter 15 Amenity (Reserves)	<p><b><i>Recommendation 10: That the proponent continues to work with the Swan Coastal District office of the Department of Parks and Wildlife regarding the translocation of heritage cork trees and the reestablishment of fencing and accessways associated with Parks and Wildlife managed lands.</i></b></p> <p><b>Discussion</b> Parks and Wildlife supports the proponent's intention to translocate heritage cork trees from the site of the old Forestry Department's Divisional Headquarters, and re-establish boundary fencing and public access ways located within the project footprint. Continued liaison with the department's district office will facilitate the preparation of detailed site plans and design specifications to minimise impacts on heritage and amenity values.</p>

#### References

Department of Parks and Wildlife (2013) Draft - A methodology for the evaluation of specific wetland types on the Swan Coastal Plain, Western Australia. <http://www.dpaw.wa.gov.au/management/wetlands/publications-and-links>

**End of Document Review Sheet**



Government of Western Australia  
Department of Aboriginal Affairs

ENQUIRIES : Cesar Rodriguez- Ph 6551 8092

OUR REF: 2015/0624-01

YOUR REF: AC01-2014-0005

Chairman  
Environmental Protection Authority  
Locked Bag 10  
EAST PERTH WA 6892

Environmental Protection Authority	
File: .....	
15 SEP 2015	
A:	
fA:	
<input type="checkbox"/> General Manager	<input type="checkbox"/> For Information
<input type="checkbox"/> Dir.AC	<input type="checkbox"/> For Discussion
<input type="checkbox"/> Dir. SPPD	<input type="checkbox"/> For Consideration/Advice
<input type="checkbox"/> Dir. Bus Ops	<input type="checkbox"/> Draft Response
<input type="checkbox"/> Exec Assist	<input type="checkbox"/> No Further Action

Dear Dr Vogel

**RE: PERTH - DARWIN NATIONAL HIGHWAY - PUBLIC ENVIRONMENTAL REVIEW - ASSESSMENT NO: 1994**

I refer to the letter sent by Mr Hans Jacob on 2 September 2015 to the Department of Aboriginal Affairs (DAA) requesting comment on the Perth-Darwin National Highway Public Environmental Review Assessment No. 1994 (the PER). Thank you for providing the opportunity to comment on the PER.

DAA has reviewed the relevant information and can confirm that there are currently a number of Registered Aboriginal Sites and other Aboriginal heritage places that overlap with the area of proposed development. It is understood that the PER also indicates that a number of newly recorded heritage places have been located following recent heritage surveys over the area.

It is noted on page 13-6 of the PER that Main Roads WA (the Proponent) intends to incorporate a number of management measures into an Aboriginal Heritage Management Plan (AHMP) for the project area. It is also noted that those measures include consultation with the South West Aboriginal Land and Sea Council (SWALSC) and the intention to apply for consent under section 18 of the *Aboriginal Heritage Act* (1972) (the AHA) to impact Aboriginal sites where necessary.

DAA advises that any potential impacts to Aboriginal heritage from the project can be addressed through the proposed AHMP and the provisions of the AHA.

It is suggested that the Proponent contact Mr Cesar Rodriguez, Manager Advice and Approvals Officer DAA on (08) 6551 8092 or via email at [Cesar.Rodriguez@daa.wa.gov.au](mailto:Cesar.Rodriguez@daa.wa.gov.au) should they have any further heritage concerns.

Yours sincerely

Kathryn Przywolnik  
DIRECTOR, APPROVALS AND ADVICE

10 September 2015



Government of **Western Australia**  
Department of **Lands**

**Land Asset Management and Projects**

Your ref: AC01-2014-0005  
Our ref: 00009-2015, A5477267.  
Enquiries: Matt Pestell, ph 08 6552 4625

Mr Hans Jacob  
Manager – Infrastructure Assessments Branch  
Office of the Environmental Protection Authority  
Locked Bag 10  
EAST PERTH WA 6892

Dear Mr Jacob

**PERTH-DARWIN NATIONAL HIGHWAY – PUBLIC ENVIRONMENTAL REVIEW –  
ASSESSMENT NO: 1994**

Thank you for your letter dated 2 September 2015 regarding the Public Environmental Review (PER) for the Perth-Darwin National Highway.

I note that the proposed area for the Perth Darwin National Highway includes land within the Dampier to Bunbury Natural Gas Pipeline (DBNGP) corridor. On that basis, I provide the following advice for consideration by the applicant:

- Prior to the commencement of any development works within the DBNGP corridor, the applicant must seek written approval from the DBNGP Land Access Minister;
- Registration of new interests within the DBNGP corridor is considered contrary to the intention of the *Dampier to Bunbury Pipeline Act 1997* and will not be allowed; and
- The applicant must ensure major water flows do not impact the DBNGP corridor.

For further enquiries please contact Mr Matt Pestell, Manager – Infrastructure Corridors, Land Asset Management and Projects, Department of Lands on telephone 08 6552 4625.

Yours sincerely

Antoine Macmath  
A/Executive Director  
Land Asset Management and Projects

Office of the Environmental Protection Authority	
File: <b>AC01-2014-0005</b> <b>2015-0001265369</b>	
30 SEP 2015	
A:	<input type="checkbox"/> For Information
fa:	<input type="checkbox"/> For Discussion
Officer:	<input type="checkbox"/> For Action
<input checked="" type="checkbox"/> Dir. AC	Response please:
<input type="checkbox"/> Dir. + Ops	<input type="checkbox"/> Dir. Signature
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23 September 2015



Government of **Western Australia**  
Office of the **Environmental Protection Authority**

Mr Rob Arnott  
Project Director  
Main Roads Western Australia  
PO Box 6202  
**EAST PERTH WA 6892**

*Our Ref:* AC01-2014-0005  
*Enquiries:* Leanne Thompson, 6145 0820  
*Email:* [leanne.thompson@epa.wa.gov.au](mailto:leanne.thompson@epa.wa.gov.au)

Dear Mr Arnott

**RESPONSE TO SUBMISSIONS DOCUMENT – PERTH-DARWIN NATIONAL  
HIGHWAY – PUBLIC ENVIRONMENTAL REVIEW – ASSESSMENT NO. 1994**

Thank you for your Response to Submissions document (Revision 0, 31 March 2015) that was received by the Environmental Protection Authority (EPA) on 8 December 2015.

The Office of the Environmental Protection Authority (OEPA) has reviewed the Response to Submissions document. Please revise the document to incorporate the attached comments and advice (Attachment 1).

The OEPA has also consulted with relevant Decision Making Authorities (DMAs) regarding the Response to Submissions. Specific comments from DMAs have been incorporated into the OEPA comments. The Commonwealth Department of the Environment has yet to provide comments on the Response to Submissions document. These will be forwarded once received by the OEPA.

Please note that the comments in Attachment 1 under offsets are provided to ensure consistency with the WA Environmental Offsets Policy and WA Environment Offsets Guidelines, noting that the EPA has yet to consider the level of significant residual impact and whether an offset can be applied to counter balance the impact.

Please contact Leanne Thompson on (08) 6145 0820 for any further queries. Please advise the OEPA by 10 February 2016 when you intend to submit the revised Response to Submissions document. Please quote the above "Our ref" on any further correspondence.

Yours sincerely

A handwritten signature in black ink, appearing to read 'A Sutton', with a stylized flourish at the end.

Anthony Sutton  
Director  
Assessment and Compliance Division

2 February 2016

cc: Katie Foxley, Commonwealth Department of the Environment

Attachment 1: OEPA comments and advice on the Response to Submissions document

OEPA Comment	Proponents Response
<b>EPA policy and guidance</b>	
<p>The EPA is obliged to consider its policy and guidance during assessments. Please show in the Response to Submissions document how you have considered the relevant EPA policies. This should be done for sections 3-12 for those issues that has a corresponding EPA policy. The list of EPA policies that the OEPA considers relevant for this assessment are outlined in Attachment 2.</p>	
<b>General Comments</b>	
<p>Table 13.1 consolidates management measures for the proposal and notes whether the measures are unchanged from the Public Environmental Review (PER) (except for minor grammatical changes) or whether they have been revised, added or deleted (commitment has been filled).</p> <p>A review of this table has found that discrepancies exist between the proposed management measures in Table 13.1 and those proposed management measures identified in the PER. The OEPA has found examples where the commitment has changed but no explanation has been provided as well as cases where the commitment has changed but the status has not been updated. Using the preliminary key environmental factor Amenity (noise and vibration) as an example:</p> <ul style="list-style-type: none"> <li>the status for the outcomes for operational noise is listed as “unchanged” however, the PER states noise mitigation measures should ensure noise levels do not exceed the noise limit of 60 dB LAeq between Reid Highway and Hepburn Avenue and aim to ensure noise levels do not exceed 55 dB LAeq between Hepburn Avenue and Ellenbrook, however this management commitment has been changed. The status column should reflect that this commitment has been revised.</li> <li>the status for the proposed management measure for the Construction Noise and Vibration Management Plan is listed as “unchanged” however, the proposed management measure <i>“taking precautionary measures to avoid vibration damage to buildings near work sites”</i> has been removed with no explanation for the removal or correct listing of the status; and</li> </ul>	

<ul style="list-style-type: none"> <li>the proposed management measure for constructing walls to a maximum height of 2.4 metres (m) north of Ellenbrook now includes an extra criteria of “<i>within 100 m of the road</i>”, but the status is listed as “unchanged”.</li> </ul> <p>Please review Table 13.1 to ensure these discrepancies are addressed for all preliminary key environmental factors and amend as required and provide explanations for any amendments, new and deleted management measures.</p>	
<b>Flora and Vegetation</b>	
<p>The OEPA has analysed the spatial data provided as part of the Response to Submissions, plotting the provided data against key environmental assets datasets. This analysis has found the proposal footprint intersects 188.6 hectares (ha) of Bush Forever sites, however, the Response to Submissions lists impacts to Bush Forever sites as being 130 ha.</p> <p>Please provide additional information to clarify the difference between the above inconsistent areas of impact to Bush Forever sites.</p>	
<b>Terrestrial Fauna</b>	
<p>The PER states on page 9-28 that a total of 159.3 ha of natural fauna habitats will be impacted by the proposal. The OEPA notes that minor amendments to the footprint have occurred since the PER. Please confirm the impact to natural fauna habitats.</p>	
<b>Amenity (noise and vibration)</b>	
<p>On page 34 and Tables 4.2, 4.3 and 13.1 of the Response to Submissions Main Roads has amended the proposed management measure to reduce indoor noise to “acceptable level” for the residences north of Ellenbrook where the noise limit cannot be met. The PER stated the proposal would “achieve indoor noise targets”.</p> <p>An explanation will need to be provided to explain the above taking into account indoor noise targets are provided for in <i>State Planning Policy 5.4 – Road and Rail Transport Noise and Freight Considerations in Land Use Planning</i>. The proponent will need to further demonstrate if these indoor targets cannot be met how the noise levels will not have a significant detrimental impact on surrounding sensitive receivers and meet the EPA’s objective.</p>	

Offsets	
<p>Offset proposal 1:</p> <p>In recent assessments, the EPA has recommended 15-20 years of funding should be provided where the proponent is not undertaking the offset. The OEPA has also previously advised during this assessment generally 20 years of funding for ongoing management is required in addition to any upfront conversion costs (pages 48 offset 1; page 49 offset 2; page 50 offset 3 and 4; page 93). Main Roads should provide justification based on sound information and knowledge for the number of years that have been proposed for ongoing management.</p>	
<p>Offset proposal 2:</p> <ul style="list-style-type: none"> <li>As per the OEPA comments for Offset proposal 1, Main Roads should provide justification based on sound information and knowledge for the number of years that have been proposed for ongoing management. This should take into consideration the likely time lag before ongoing management and restoration measures provide the proposed environmental benefit. For example, will seven years provide for adequate time given the delay between planting and trees growing to productivity capacity or allow for the restoration of a degraded wetland to a functioning Conservation Category Wetland (CCW).</li> <li>The Response to Submissions refers to the use of the commonwealth calculator to determine an offset ratio for impacts to CCWs. The commonwealth calculator cannot be used for CCWs as they are not considered matters of national environmental significance. Please remove references to the commonwealth calculator. The EPA has recommended an offset of 3:1 for other recent assessments. The OEPA notes that the likely subject sites for offsets are of a lower value than those being lost. The OEPA therefore recommends that a greater than 3:1 offset be provided. The offset should include funding for rehabilitation and specify the standards to which these areas will be restored, noting that detailed completion criteria would be the subject of a management plan should the EPA consider the proposal acceptable.</li> </ul>	
Offset proposal 3: <i>Caladenia huegelii</i> habitat	

Main Roads should propose suitable quantum of funding in order to achieve the objectives. This should be based on advice from DPaW.	
<p>Offset proposal 4: TEC SCP20a</p> <p>The proponent has incorporated impacts to TEC SCP20a with the forest red-tailed black cockatoo calculations in Appendix J. TEC SCP20a is an endangered community while the forest red-tailed black cockatoo is listed as vulnerable. This may affect the offsets calculated. The OEPA also notes that the condition of the property to be acquired is required to properly determine the offset metric, as outlined in the offsets policy. It would be preferable if the sites to be acquired are known as this will inform whether there is an increased risk of offsets not achieving the environmental benefit. The offsets calculation for SCP20a should be resubmitted, using the Commonwealth calculator and using the correct information.</p>	
<b>Minor amendments</b>	
Page 32, Figure No. 3.1D – Inconsistent/incorrect map, it should be 3.2D and represent Threatened and Priority Ecological Communities.	
Page 48 – Third dot point references inferred TEC SCP20a at Offset Proposal 1. This should be removed.	
Page 45, Table 6.2 – In reference to the Conservation areas for the partial and complete removal of nine Bush Forever sites, the relevant offset proposal should include Offset Proposal 4 - SCP20a as 3.8 ha of TEC SCP20a is listed as a significant residual impact.	
Page 60 – Reference to EPP Lakes should be removed as this policy has been revoked.	
Page 69, Table 7.2 – In reference to Nature Reserves – Class A Nature Reserve 46920 it appears this area is fragmented into three sections (see Figure 7.1D) but only two have been identified. The section to the south of the footprint abutting Bush Forever site 399 Fragment C has been missed.	
Page 69, Table 7.2 – In reference to Threatened Ecological Communities – SCP20a the proponent states that Bush Forever site 198 is contiguous with Bush Forever site 300, however this should be Bush Forever site 304. There is also no discussion about the persistence of Fragment A.	

Page 81 – Reference to the Bassendean Complex – Central and North is incorrect should be Bassendean Complex – Central and South.	
Page 82, Table 7.5 – Pre-European extent figures differ from those listed in the EPA s16e advice (Perth and Peel @ 3.5 million Environmental impacts, risks and remedies). A footnote is also missing from this table.	
Page 192 – Reference to DPaW (2015) document titled incorrectly should be “Corporate Guideline No. 14: Environmental Offsets – Proponent Land Management Contributions.”	

## Attachment 2

### **EPA policy and guidance relevant to the proposal**

#### Flora and Vegetation

- GS 51 – Terrestrial Flora and Vegetation Surveys for Environmental Impact Assessment in WA
- Technical Guide – Flora and Vegetation Surveys for Environmental Impact Assessment
- PS 2 – Environmental Protection of Native Vegetation in WA
- PS 3 – Terrestrial Biological Surveys as an Element of Biodiversity Protection
- EPB 20 – Protection of naturally vegetated areas through planning and development

#### Terrestrial Fauna

- GS 56 – Terrestrial Fauna Surveys for Environmental Impact Assessment in WA
- PS 3 – Terrestrial Biological Surveys as an Element of Biodiversity Protection
- Technical Guide on Terrestrial Vertebrate Fauna Surveys for Environmental Impact Assessment
- EPB 20 – Protection of naturally vegetated areas through planning and development

#### Hydrological processes and Inland Waters Environmental Quality'

- PS 4 – Environmental Protection of Wetlands
- EPP – Western Swamp Tortoise Habitat
- GS 7 – Protection of the Western Swamp Tortoise Habitat, Upper Swan/Bullsbrook

#### Amenity (noise and vibration)

- EAG 13 – Consideration of environmental impacts from noise

#### Heritage

- GS 41 – Assessment of Aboriginal Heritage

#### Offsets

- WA Environmental Offsets Guidelines
- EPB 1 – Environmental Offsets
- WA Environmental Offsets Policy

#### Rehabilitation and decommissioning

- GS 6 – Rehabilitation of Terrestrial Ecosystems