DOC17/410309
SSI16/7475

Ms Amy Porter
Planning Officer
Department of Planning and Environment
GPO Box 39
SYDNEY NSW 2001

Dear Amy

Exhibited EIS - Inland Rail Project - Parkes to Narromine

I refer to your request dated 17 July 2017 seeking comment from the Office and Environment and Heritage (OEH) on the exhibited Environmental Impact Statement (EIS) for the Parkes to Narromine Inland Rail project. OEH understands that the proposed project will result in the clearing of 75.78 hectares of native vegetation across nine plant community types (PCTs), including the clearing of 63.07 hectares of threatened ecological communities (TECs). The biodiversity offset credit requirement has been calculated to be a total of 2,561 ecosystem credits and 491 species credits for the koala.

We have reviewed the information provided against the Secretary's Environmental Assessment Requirements (SEARs) sent to the Department of Planning and Environment (DPE) on 5 February 2016. A summary of our recommendations relating to the impacts on biodiversity values is provided in **Attachment A** and our detailed comments are provided in **Attachment B** and **C**. Comments relating to the impacts on hydrology and flooding are provided in **Attachment D.**

If you have any questions regarding this matter please contact Renee Shepherd on 02 6883 5355 or email renee.shepherd@environment.nsw.gov.au.

Yours sincerely

PETER CHRISTIE
Director North West
Regional Operations Division

25 August 2017

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ATTACHMENT A

Parkes to Narromine Inland Rail Project – Environmental Impact Statement

Summary of OEH Recommendations for Biodiversity

List of acronyms used in this response:

BAR	Biodiversity Assessment Report
BBCC	BioBanking Credit Calculator
BOS	biodiversity offset strategy
DNG	derived native grassland
DPE	Department of Planning and Environment
FBA	Framework for Biodiversity Assessment
OEH	Office of Environment and Heritage
PCT	plant community type
RTS	Response to Submissions
SVM	State Vegetation Mapping
TEC	threatened ecological community

Recommendations:

1. Impacts on biodiversity values, particularly native vegetation associated with temporary structures like compounds, should be avoided wherever possible. Where avoidance is not possible and has been justified accordingly, the residual impacts must be assessed using the FBA and must be offset within the BOS.
2. The impacts on biodiversity values, including the koala, and the subsequent biodiversity offset requirements as a result of temporary disturbance activities must be determined using the BioBanking credit calculator. Information entered into the calculator regarding the magnitude of these impacts must be justified in accordance with the FBA.
3. Potential impacts on biodiversity values (temporary and permanent) should be finalised prior to project approval.
4. The native vegetation mapping should be reviewed and updated to ensure that the identified deficiencies have been addressed. OEH is available to provide further advice on methods that may be used. Relevant components in the BAR and the BioBanking Credit Calculator must be updated following this review.
5. Provide a justification for the use of a 3 to 1 crown separation ratio to identify woodland areas.
6. Inconsistencies in the total area of native vegetation to be cleared as identified in the BAR and as entered into the BioBanking Credit Calculator needs to be explained. Appropriate amendments to the BAR or the credit calculator must be undertaken.
7. Justification should be provided as to why PCT 55 and PCT 70 are not considered to be potential koala habitat in the development site.
8. Phase 2 of the BOS should be submitted for review within the RTS report. Phase 3 and the subsequent retirement of biodiversity credits should be finalised to the satisfaction of OEH within 12 months of the project approval.

ATTACHMENT B

OEH Detailed Comments for Biodiversity

Parkes to Narromine Inland Rail Project – Environmental Impact Statement

The avoidance of impacts to biodiversity values has not been adequately implemented or justified

Recommendations:

1. Impacts on biodiversity values, particularly native vegetation associated with temporary structures like compounds, should be avoided wherever possible. Where avoidance is not possible and has been justified accordingly, the residual impacts must be assessed using the FBA and must be offset within the BOS.

Chapter 8 of the Framework for Biodiversity Assessment (FBA) states that the proponent must seek to avoid direct impacts on all biodiversity values. For linear projects the proponent must identify how impacts on biodiversity values have been minimised through project design, including how the location of temporary construction infrastructure minimises these impacts.

Section 8.4 of the main report provides the criteria used to determine the location of compounds – "*where no or only minor clearing would be required, and not within areas identified as threatened communities or species habitat*".

Most of the temporary impact zones identified in Figures 4.1A to 4.1E in the Biodiversity Assessment Report (BAR) are located within areas of non-native vegetation; thereby successfully avoiding impacts on biodiversity values. However, there are some compounds (in work areas 3, 11, 18 and 22 as displayed in Figures 8.2a-f in the main report) which are situated within areas of native vegetation, including threatened ecological communities (TECs). In each of these instances areas of non-native vegetation occur in close proximity, however no explanation has been provided as to why the compounds could not be re-located to these areas.

OEH understands that there may be some flexibility in the final location of the compounds. The proponent should make every attempt to avoid impacts on native vegetation and in particular TECs and threatened flora and fauna. Where these impacts cannot be avoided and are appropriately justified, the proponent will need to assess the impacts using the FBA and offset them with the corresponding biodiversity credit requirements.

Biodiversity impacted by temporary disturbance must be assessed

Recommendations:

2. The impacts on biodiversity values, including the koala, and the subsequent biodiversity offset requirements as a result of temporary disturbance activities must be determined using the BioBanking credit calculator. Information entered into the calculator regarding the magnitude of these impacts must be justified in accordance with the FBA.

Section 4.4.2 of the BAR states that the construction of compounds and access tracks will result in some temporary impacts to native vegetation. It is further stated that these temporary impacts have not been considered in the BioBanking Credit Calculator (BBCC) as "*it is considered these areas will regenerate following the completion of the construction phase*" (page 118).

Table 10.3 in the main report details the permanent and temporary disturbance areas associated with the proposed project – 75.78 hectares and 35.26 hectares respectively. Included in the temporary disturbance area is an impact to 18.46 hectares of TECs.

In order to conform to Section 9.3 and 10.3 of the FBA, the proponent must determine the future site value score for each vegetation zone being temporarily impacted, and the offset requirement for those impacts must be calculated. The information entered into the BBCC regarding the magnitude of these impacts must be justified in accordance with the FBA.

The impact of these temporary disturbance activities on the koala (the only species credit species) must also be discussed, justified and assessed using the BBCC.

The biodiversity impacts of the final footprint must be finalised prior to the project being determined

Recommendations:

3. Potential impacts on biodiversity values (temporary and permanent) should be finalised prior to project approval.

Section 10.3.2 of the main report states that the amount of native vegetation that will be directly impacted by the proposed project will change during the detailed design phase. As the project design is refined the proponent aims to reduce the amount of clearing that is required. OEH supports this approach to avoidance as detailed above.

In order to clearly identify the biodiversity credit offset requirements within the project approval, the final footprint and therefore impacts on biodiversity values should be finalised and calculated to the satisfaction of OEH prior to project approval.

The full native vegetation extent in the buffer area and development footprint has not been correctly identified

Recommendations:

4. The native vegetation mapping should be reviewed and updated to ensure that the identified deficiencies have been addressed. OEH is available to provide further advice on methods that may be used. Relevant components in the BAR and the BioBanking Credit Calculator must be updated following this review.
5. Provide a justification for the use of a 3 to 1 crown separation ratio to identify woodland areas.

The FBA requires that the extent of native vegetation in the buffer area (Section 4.1.1.14) and within the development site (Section 5.1.1.1) must be mapped. This information has been provided to OEH by the proponent as digital shapefiles. The proponent indicates that they have used the Reconstructed and Extant Distribution of Native Vegetation in the Central West and Lachlan Catchment (DEC 2006) in developing their vegetation map. OEH has analysed these shapefiles using ADS40 imagery and the Central West Lachlan State Vegetation Mapping (SVM) (OEH 2016) indicates that the area of native vegetation present in both the development site and the buffer area may have been under-estimated by the proponent. This latter vegetation map is much more accurate than the 2006 map. The proponent has mapped vegetation into three classes: non-native, DNG and woodland, without providing any data to support the separation of vegetation between non-native and DNG. The proponent appears to have used crown separation of more than 3 to delineate between woodland and DNG. Without plot data to support the allocation of vegetation to non-native, OEH

considers that there may be an underestimation of the area of DNG with a site value score more than 17, resulting in an underestimation of the impact in terms of credits.

Figures 1 and 3 in Appendix C show the underlying satellite imagery, the area of native vegetation mapped by the proponent in the development site (solid polygons) and the buffer area (transparent blue polygons), and the area mapped as native vegetation by the Central West Lachlan SVM (yellow hatching). The amount of native vegetation identified in the Central West Lachlan SVM is substantially larger than that identified by the proponent, with the underlying satellite imagery appearing to support the native vegetation classification. Also of note in Figure 1 is that the compound has been identified as containing native vegetation and has been assigned a PCT by the proponent (PCT 244 moderate-good DNG), however it has not been identified as native vegetation in the native vegetation data layer.

A similar issue has been identified in Figure 2. The native vegetation data layer has identified areas within the development site as native vegetation (light blue polygons), however these polygons have not been assigned a PCT and have been mapped as non-native in the PCT layer. The Central West Lachlan SVM (yellow hatching) again indicates that a larger area than that mapped by the proponent may be native vegetation.

These three examples highlight the issues that appear to exist with the vegetation mapping that has been completed by the proponent, and which subsequently informs the biodiversity credit requirement for the development. These issues exist along the length of the development site and the buffer area. The proponent provides some explanation of the digital aerial photograph interpretation (Section 2.3.2 of the BAR) and the vegetation mapping (Section 2.3.7). However no detailed justification has been provided in the BAR to account for the decision-making process that has led to these mapping outcomes. OEH has not completed any field verification of these issues.

We suggest that the proponent reviews and updates the vegetation mapping. OEH is willing to provide further advice on appropriate methods that could be used, but the following items should be incorporated into updated mapping:

- the extent of native vegetation should be reviewed against the Central West Lachlan SVM
- the native vegetation extent data layer and the PCT data layer should align
- the extent of woodland compared to derived native grassland should be reviewed
- the mapping extent of TECs should be reviewed against the NSW Scientific Committee listing advice to ensure the full extent has been captured
- justification should be provided where decisions have been made regarding the extent of native vegetation including mapping products, evidence of plot data or other information sources or field validation information.

We also note that Section 2.3.2 of the BAR states that a 3 to 1 crown separation ratio was used to map areas of remnant woodland. No explanation has been provided as to why this method was used. Potentially areas of woodland have been under-estimated throughout the project. This again will impact on the final biodiversity credit requirement.

Inconsistencies exist in the amount of native vegetation to be cleared

Recommendations:

6. Inconsistencies in the total area of native vegetation to be cleared as identified in the BAR and as entered into the BioBanking Credit Calculator needs to be explained. Appropriate amendments to the BAR or the credit calculator must be undertaken.

Information contained throughout the BAR and the BBCC is inconsistent regarding the total area of native vegetation to be cleared. Page 114 of the BAR states that 75.78 hectares of direct impacts to native vegetation communities have been entered into the BBCC. Table 4.3 details the amount of

each PCT that will be impacted. Page xiv of the main report states that 75.8 hectares of native vegetation will be permanently removed, as does Section 10.3.2 and Table 10.3 of the main report.

However, Table 5.2 states that 66.72 hectares of native vegetation will be impacted and this is the total area that has been entered into the BBCC, not the 75.78 hectares as stated on page 114 of the BAR. The GIS information provided by the proponent does not differentiate between permanent and temporary disturbance, therefore a comparison with the spatial data cannot be completed. An explanation of this discrepancy needs to be provided, and any necessary amendments to the BAR or the BBCC must be undertaken. If the total area of native vegetation to be cleared has been under-represented in the credit calculator the total credit requirement for the project will also have been calculated incorrectly.

No explanation has been provided regarding the exclusion of two PCTs as potential koala habitat

Recommendations:

7. Justification should be provided as to why PCT 55 and PCT 70 are not considered to be potential koala habitat in the development site.

Table 3.9 of the BAR lists the PCTs within the development site that are considered to contain potential koala habitat. This is based on the presence of primary and secondary food tree species associated with the Western Slopes and Plains Koala Management Area in the NSW Recovery Plan. PCT 244 has been incorrectly identified in Table 3.9 as PCT 105. We also note that PCT 55 and PCT 70 have not been considered to contain potential koala habitat. The descriptions of these PCTs in Section 3.2.1.4 and 3.2.1.6 respectively show that the secondary feed tree species bimble box is either sub-dominant or occurs sporadically within the project area. No explanation has been provided as to why these PCTs are not considered to be potential koala habitat. Justification of this decision should be provided in the BAR as the outcome will impact on the species credits requirement for the koala.

A clear timeframe for the retirement of biodiversity credits is required

Recommendations:

8. Phase 2 of the BOS should be submitted for review within the RTS report. Phase 3 and the subsequent retirement of biodiversity credits should be finalised to the satisfaction of OEH within 12 months of the project approval.

Appendix L of the main report outlines Phase 1 of the Biodiversity Offset Strategy (BOS). This includes the biodiversity offset credit requirements and the preliminary offset investigations that have occurred to date. No details have been provided regarding specific offset sites. The minimum information requirements for a BOS as outlined in Table 22 of the FBA have not been met as no offset site has been identified, and no improvement in biodiversity values at the offset site or supplementary measures details have been provided.

Section 1.2 of the BOS states that prior to commencement of construction activities Phase 2 of the BOS will be prepared. Phase 2 will consist of confirmation of the biodiversity credits required, preliminary field inspection outcomes for proposed offset sites, and assessment of condition, key threats and likely management actions of the offset site. Phase 3 is proposed to be submitted for approval within 12 months of construction commencement and will detail the biodiversity credits at the offset site/s, provide the completed biodiversity credit calculator report, and include a detailed site management plan. It is proposed the offset site/s would be secured by a conservation mechanism

within two years of construction activities commencing. This is potentially after the construction activities have been completed (Figure 8.1 main report).

OEH provided advice to the proponent (and DPE) on 21 June 2017 stating that ideally a BOS that meets the minimum information requirements in Table 22 of the FBA would be provided at the EIS stage, and at the latest this would be provided at the Response to Submission stage.

OEH understands that the Parkes to Narromine project is the first project of seven in NSW in the Inland Rail program. The proponent has previously indicated that they are investigating the potential to secure larger strategic offset properties that can meet numerous biodiversity offset requirements across a number of projects. OEH supports this strategic approach and is willing to extend the timeframe of the finalised BOS beyond what is required in the FBA for the Parkes to Narromine project on the understanding that BARs for future projects are accompanied by completed BOSs.

Whilst OEH agrees in principle with the processes outlined above we suggest that completion of each of the phases of the BOS must be undertaken in a more timely manner. In order to assess the appropriateness of the BOS prior to project approval, Phase 2 of the BOS should be submitted at the RTS stage. Phase 3 and the subsequent retirement of biodiversity credits should be finalised to the satisfaction of OEH within 12 months of the project approval.

References

OEH (2016) *Central West Lachlan State Vegetation Mapping _v1p4_PCT_E_4468*, Office of Environment and Heritage.

ATTACHMENT C

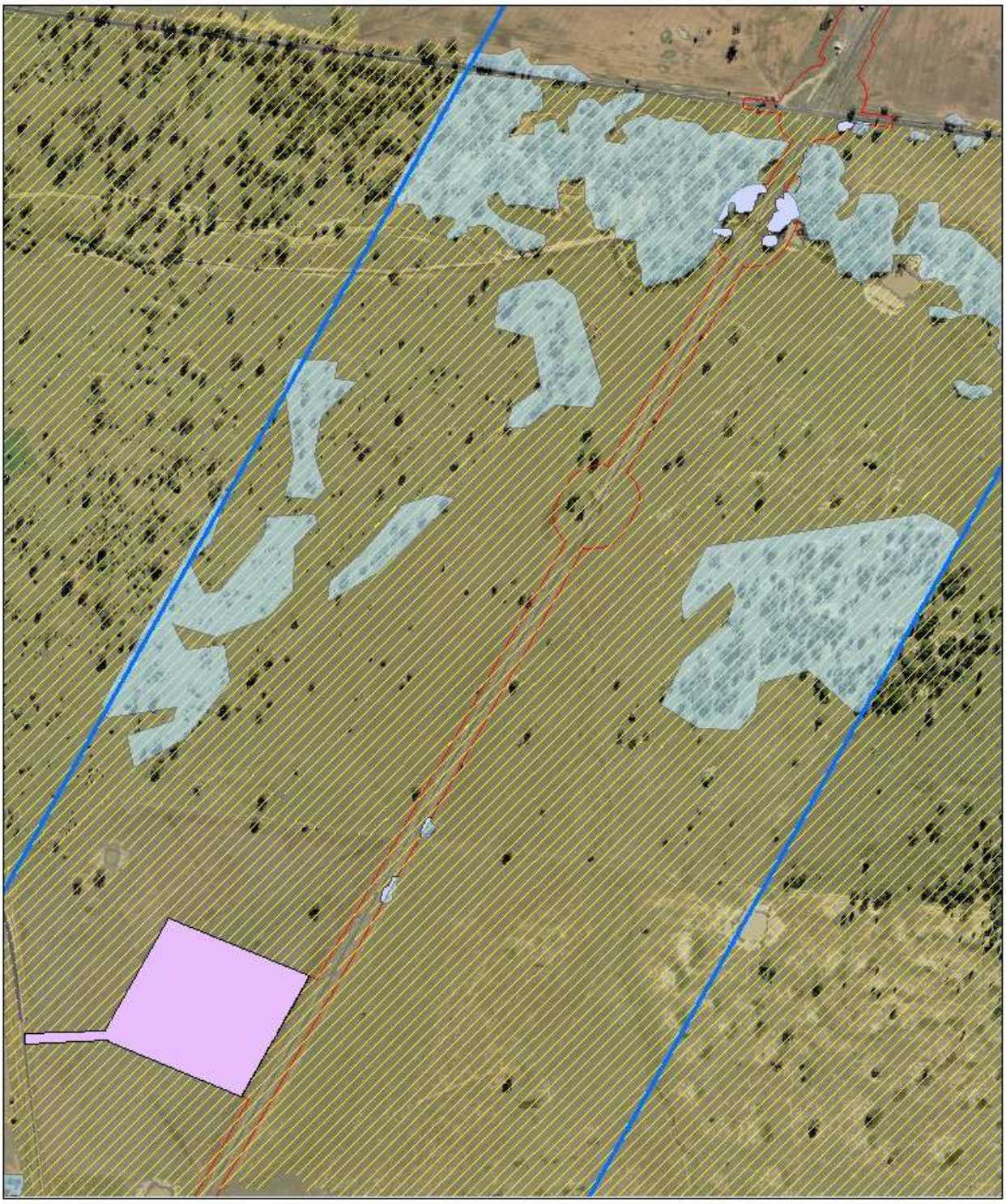

Figure 1 - Work Area 3 - Mapping Discrepancies

Legend

- Buffer
- Native Vegetation - Supplied by Umwelt
- Vegetation Communities - Supplied by Umwelt
- Construction Impact Zone - Supplied by Umwelt
- OEH Central West Lachlan Mapping - Native Veg

N

Figure 2 - Work Area 4 - Mapping Discrepancies

Legend

- Buffer
- Native Vegetation - Supplied by Umwelt
- Vegetation Communities - Supplied by Umwelt
- Construction Impact Zone - Supplied by Umwelt
- OEH Central West Lachlan Mapping - Native Veg

N

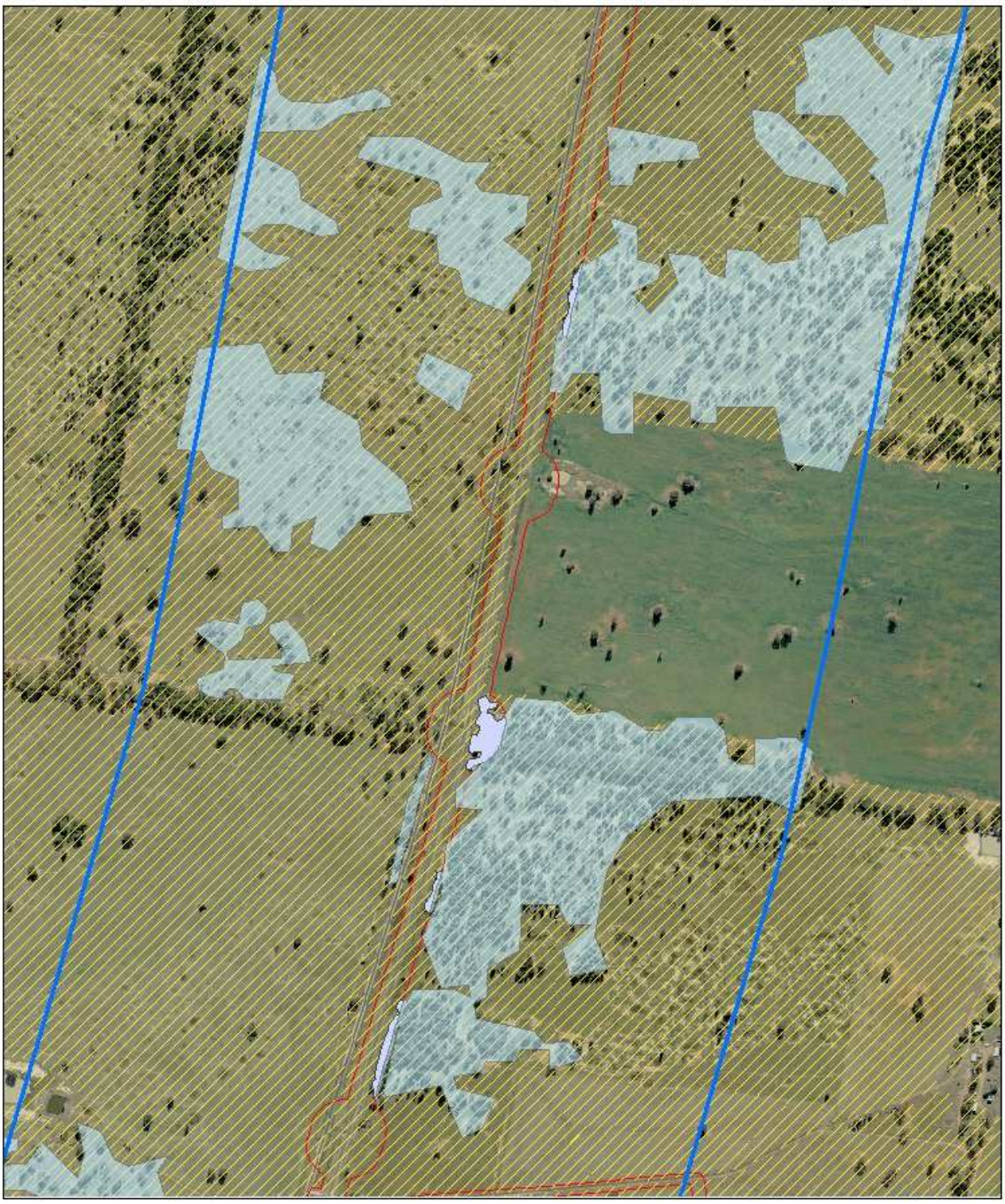

Figure 3 - Work Area 6 - Mapping Discrepancies

Legend

- Buffer
- Native Vegetation - Supplied by Umwelt
- Vegetation Communities - Supplied by Umwelt
- Construction Impact Zone - Supplied by Umwelt
- OEH Central West Lachlan Mapping - Native Veg

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ATTACHMENT D

OEH Detailed Comments for Flooding and Hydrology

List of acronyms used in this response:

AEP	Annual Exceedance Probability
FRMP&S	Flood Risk Management Plan and Study
PMF	probable maximum flood

Summary of technical requirements, modelling and reports that were considered

The proponent's technical requirements establish that the ballast for the upgraded track needs to be above the modelled 1% AEP (Annual Exceedance Probability) local flood level. The flood modelling followed the proponent's design guidelines and current local government requirements were consulted. In particular, the following reports were considered: Floodplain Development Manual (DIPNR, 2005), Parkes Shire Local Flood Plan (SES, 2014a), Narromine Shire Local Flood Plan (SES, 2014b), Flood Policy for Developments in Urban Floodplains, Adopted February 2011 (Narromine Shire Council, 2011) and Floodplain Risk Management Plan and Study (Narromine Shire Council, 2009).

Investigation into tail water conditions downstream of culverts was not considered

Recommendations:

1. Tail water conditions downstream of culverts should be investigated to ensure the upgraded culverts do not increase flooding impacts.

When necessary, existing culverts along the 106 kilometre corridor would be upgraded with larger hydraulic capacity to convey updated peak flow rates and the corresponding flooding modelling was undertaken to show the ponding areas for a broad range of design rainfall events. Upstream flood modelling was undertaken for a range of design flood events, including the 50, 20, 10, 5, 2 and 1% AEP events, and the Probable Maximum Flood (PMF). Furthermore, 0.5 and 0.2 % AEP events were modelled to represent climate change scenarios. Nevertheless, tail water conditions downstream of the culverts were not considered and further investigation is suggested, otherwise the proposed culverts might actually cause larger flooding areas than those modelled.

Breakout of the Macquarie River during large flood events was not considered

Recommendations:

2. Investigate the breakout of the Macquarie River during large flood events to ensure the proposed culvert upgrade minimise flood impacts.

The Backwater Cowal Creek at Narromine is the largest stream crossing in this project, however only the catchment immediately upstream was considered. Unfortunately, the breakout of the Macquarie River during a large flood event was not considered. The current flood prone area established in the

adopted Narromine Flood Risk Management Study and Plan (FRMS&P) does not cover this region. Nevertheless, potential land use change may occur in the future and hence, the breakout of the Macquarie River should be further investigated to minimise the risk of flooding.

Spoil mounds should not adversely impact on flooding

In relation to the spoil mounds to be placed on both sides of the railroad as result of the excavation, Narromine Shire Council advised that such embankments might create ponding areas that would adversely affect farming activities (Letter from Council to Department of Planning and Environment, 17 August 2017). However, the environmental impact statement states that gaps will be provided to avoid flooding and also mounds would be located outside of regions likely to be flooded. As a result, spoils mounds should not be an issue as long as they are appropriately located. Unfortunately the legends in most figures are very difficult to read, specifically on Figures 2-13-4a, 3-4b, 4-2, 4-3, 4-4 and 4-5.