Beaufort Bypass

Minister's Assessment under Environment Effects Act 1978

NOVEMBER 2023

Acknowledgement


The Victorian Government acknowledges Aboriginal and Torres Strait Islander people as the Traditional Custodians of the land and acknowledges and pays respect to their Elders, past and present.

List of abbreviations

CEMP	Construction Environment Management Plan
CHMP	Cultural heritage management plan
CVA	Beaufort Bypass Cultural Values Assessment, August 2021
DEECA	Department of Energy, Environment and Climate Action
DELWP	Department of Environment, Land, Water and Planning
DTP	Department of Transport and Planning
EE Act	Environment Effects Act 1978
EES	Environment effects statement
EMF	Environmental management framework
EP Act	Environment Protection Act 2017 (Vic)
EPA	Environment Protection Authority (Vic)
EPBC Act	Environment Protection and Biodiversity Conservation Act 1999 (Cth)
EVC	Ecological Vegetation Class
FFG Act	Flora and Fauna Guarantee Act 1988 (Vic)
GED	General environmental duty
GHCMA	Glenelg Hopkins Catchment Management Authority
IAC	Beaufort Bypass Inquiry and Advisory Committee
MNES	Matters of national environmental significance
ORTs	Off Reservation Treatments (with respect to noise)
PAO	Public Acquisition Overlay
PE Act	Planning and Environment Act 1987
PONLs	Project Objective Noise Levels
Project	Beaufort Bypass Project
PSA	Planning Scheme Amendment
RAP	Registered Aboriginal Party
RRV	Regional Roads Victoria
SCO	Specific Controls Overlay
TRG	Technical reference group
WHCG	Western Highway Conservation Group
WTOAC	Wadawurrung Traditional Owners Aboriginal Corporation

Table of Contents

Executive summary

On 22 July 2015, following receipt of a referral from VicRoads (now Regional Roads Victoria, RRV) under the *Environment Effects Act 1978*, a former Minister for Planning decided that an environment effects statement (EES) was required for the Beaufort Bypass Project, to examine opportunities to avoid or minimise significant adverse effects through alignment selection and integrated assessment of environmental effects.

The bypass project aims to achieve a number of road network performance benefits including a time saving along the recently upgraded Western Highway, compared to driving through Beaufort township, and improved road safety and amenity, particularly for pedestrians and cyclists in the town centre.

Uncertainty regarding the bypass alignment needed resolution through the EES and planning process, given the potential for a range of significant impacts, the future need to compulsory acquire land for the bypass route, and the influence of the bypass on strategic planning of the town.

RRV examined different alignment options within their EES and the likely effects of the preferred alignment (C2). The Minister for Planning authorised the EES for public comment, which was exhibited from 28 March 2022 to 13 May 2022. On 3 April 2022, the Minister for Planning appointed an inquiry under the Environment Effects Act to consider the project's EES. Planning Panels Victoria received 25 submissions and the inquiry and advisory committee (IAC) held a public hearing over eight days between 26 July and 8 August 2022. The IAC provided its report to a former Minister for Planning on 18 October 2022. The IAC's report, EES documentation and other material including submissions and documents provided at the hearing have informed the preparation of my assessment of the environmental effects of the project, as set out within this document.

Overall, it is my assessment that, while the project will result in significant adverse effects particularly from construction, the environmental effects can be acceptably managed, provided there is effective implementation of the recommendations of this assessment. This includes a requirement for a design management document to confirm detailed design considerations needed to ensure acceptable environmental outcomes are achieved for different, interfacing aspects. My assessment also recommends specific measures be included in the design management document, as well as environmental outcomes that the project needs to achieve for some project effects to be acceptable.

Construction of the project will necessitate clearing of native vegetation and fauna habitat and will also result in impacts on surface water hydrology, downstream environments (including associated biodiversity values), as well as landscape and visual amenity due to the establishment of sizable new infrastructure. Some land use and access impacts from construction will also be significant, particularly for landowners that are directly affected by the project footprint. Noise impacts will also occur from traffic during the operations phase, which will need to be carefully mitigated. However, I consider that the further design work recommended in this assessment, together with an environmental management framework (EMF) and mitigation measures, incorporating amendments set out by the IAC and this assessment, can enable the adverse effects of construction and operation to be minimised and managed to acceptable levels.

While the EES did apply avoid, minimise and mitigation principles in the development of a functional design for the bypass, there are some aspects of the design and associated environmental management regime that need further work to ensure a sufficient level of certainty that appropriate environmental outcomes can be achieved. This will entail refining the design and mitigations to further account for different environmental impacts and outcomes that need to be balanced. There is also a need for further avoidance and minimisation to be achieved through the design, for biodiversity and hydrology impacts in particular.

My assessment includes some key recommendations to further develop the design to address required outcomes for some important biodiversity and surface water values, as well as for visual amenity and land access. This includes the need for further hydrological modelling to improve the characterisation of wetland hydrology and to inform the detailed design, as well as the further development of mitigations as part of the design process. Further development of habitat connectivity measures is also required (including for the land bridge to re-connect habitat in the Camp Hill State Forest) to ensure the acceptability of the project's impacts on biodiversity values.

The primary approval to be informed by the EES is a planning scheme amendment covering the preferred bypass alignment C2, enabling the application of a public acquisition overlay and introduction of an incorporated document into the planning scheme. The EES process enabled the preferred alignment to be selected and designed to a point where the impacts and proposed mitigation measures could be sufficiently understood to inform an assessment of acceptability of the likely effects. There were, however, some deficiencies with RRV's functional design and impact assessments, which did not enable the EES to fully resolve some key impacts and mitigation measures. Therefore, this assessment recommends that the above-mentioned design management document be prepared to my satisfaction, through a condition of the proposed incorporated document. The design management document will need to detail how the environmental outcomes, mitigation measures, and management approaches discussed in the EES process will be achieved and integrated into the final design.

The Victorian EES process served as the accredited process for the purposes of examining the significant impacts of this 'controlled action' on matters of national environmental significance (MNES) under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). My assessment is to be issued to the Australian Government Minister for the Environment and Water to inform the decision about whether and under what conditions to approve the project under the EPBC Act.

On balance, I consider the residual impacts on MNES can be acceptable with implementation of the appropriate environmental management and offsetting, as outlined in this assessment. I support amendments to mitigation measures as recommended by the IAC and have provided further recommendations in my assessment to assist in achieving acceptable outcomes for MNES, in particular for Growling Grass Frog and Seasonal Herbaceous Wetlands. The project is likely to have a significant residual impact on Golden Sun Moth due to direct impacts on habitat. While residual impacts on MNES may be able to be further reduced during the detailed design process, unavoidable significant impacts will need to be offset in accordance with the EPBC Act Environmental Offsets Policy. The project is unlikely to have significant impacts on any of the other EPBC Act-listed threatened species and communities assessed through the EES.

My assessment includes specific recommendations to inform the proponent and statutory decision-makers, responsible for approval decisions under Victorian and Commonwealth law. Decision-makers need to consider this assessment before deciding whether and how the project should proceed. As a matter of good practice, I also expect decision-makers to write to me to advise how my assessment was considered and applied.

1. Introduction

On 16 June 2015, VicRoads, now Regional Roads Victoria (RRV), referred the Beaufort Bypass Project to the former Minister for Planning under the *Environment Effects Act 1978* (EE Act).

On 22 July 2015, a former Minister for Planning decided that an environment effects statement (EES) was required under the EE Act. The decision to require an EES included procedures and requirements for the EES, in accordance with section 8B(5) of the EE Act and the Ministerial Guidelines. The EES was required to examine opportunities to avoid or minimise significant adverse effects through alignment selection and integrated assessment of environmental effects, including investigating and reporting on:

- potential effects on biodiversity values, including native vegetation, listed flora, fauna and communities and Crown land reserves;
- potential effects on Aboriginal cultural heritage values; and
- potential effects on land uses, infrastructure and communities along the proposed route.

1.1. Purpose of my assessment

This document constitutes my assessment of the environmental effects of the project under the EE Act. It represents the final step in the EES process and provides authoritative advice to decision-makers on the likely environmental effects of the project and their acceptability subject to recommendations on how those effects should be mitigated and addressed through relevant statutory decisions. My assessment is largely informed by the report of the inquiry and advisory committee (IAC) that I appointed, together with the EES, submissions and documents tabled at the public hearing. Legislation, policy, strategies and guidelines, and the objectives and principles of ecologically sustainable development, also contextualise my assessment.

My assessment will inform decisions required under Victorian law for the project to proceed, as well as a decision by the Australian Government Minister for the Environment and Water on whether to approve the project under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

1.2. Project history and context for the EES

VicRoads (now RRV) initiated the bypass project and preparation of the EES, with only sufficient funding to undertake the planning and environmental assessment, in order to identify a preferred alignment to connect the Western Highway duplication either side of the township. There was an imperative to resolve the location of the bypass alignment and its incorporation into the planning scheme. Funding for the detailed design and delivery of the project and its construction was not secured and is not expected soon.

Uncertainty regarding the bypass alignment needed resolution through the EES and planning approval process, given the potential for a range of significant impacts, the future need to compulsory acquire land for the establishment of the bypass route, and its influence on strategic planning of the town. Through the EES process, the proponent sought to clearly identify the preferred alignment and the land area to be affected by the necessary public acquisition overlay, to help establish more certainty for the local community.

The primary approval to be informed by the EES is a planning scheme amendment. It is intended to establish a public acquisition overlay (PAO) for the preferred bypass alignment. No details were provided in the EES or at the IAC hearing regarding timelines for further development or delivery of the project after the EES and primary approvals stage. The progression of detailed design and delivery will be subject to future funding arrangements yet to be progressed and therefore remains uncertain at this stage.

At the EES referral stage it was identified that the project had the potential for significant effects on a number of environmental values, that required integrated assessment to inform examination of alignment options and likely effects of preferred alignment(s). To progress the EES process, the project design needed to be developed to a point where the impacts and proposed mitigation measures could be sufficiently understood to allow the acceptability of the likely effects of the preferred alignment to be assessed. The design approach used for the EES is discussed further in Section 4, including its implications for the assessment of likely effects in this assessment.

1.3. Structure of the assessment

My assessment follows the general structure:

- Section 2 provides a brief description of the project;
- Section 3 outlines the EES process and statutory approvals required for the project;
- Section 4 summarises my approach to assessing the environmental effects of the project and provides my overarching findings in relation to selected key matters;
- Section 5 provides my assessment of the proposed environmental management and planning frameworks for the project;
- Section 6 assesses the environmental effects of the project, providing findings and recommendations in the context of the applicable legislative and policy framework;
- Section 7 contains my overall conclusions and key recommendations;
- Appendix A contains a consolidated list of the IAC's recommendations, and my assessment of these recommendations.

2. Project Description

RRV proposes to construct an 11 kilometre long, freeway standard dual carriageway that will bypass the township of Beaufort. The project is located approximately 160 km west of Melbourne's CBD and 50 km west of Ballarat. The proposed bypass would connect two recently duplicated sections of the Western Highway to the east and west of the township.

The EES described the project (i.e. preferred alignment) using a functional design comprising the following main components:

- designed as a freeway standard bypass;
- dual carriageway, approximately 11 km in length, on a new alignment around the town of Beaufort (Figure 1);
- designed to 120 km per hour and sign posted to 110 km per hour for its entirety;
- two interchanges (entry and exit ramps) to connect the town of Beaufort to Western Highway at the east and west tie-ins (Figures 2 and 3);
- one road over rail bridge at the Melbourne-Ararat rail line;
- waterway crossings;
- treatment swales and bioretention systems at discharge points to protect downstream water quality;
- noise attenuation barries (as required);
- fill material to build up the road in certain areas;
- cutting into hillsides to achieve adequate grades;
- service and access roads;
- diamond interchange at Beaufort-Lexington Road (Figure 4); and
- three overpass bridge structures over the local road network (excluding the diamond interchange).

The preferred alignment option for the bypass selected by RRV is option C2. From the western tie-in point, approximately 3 km from the Beaufort township, the alignment would leave the existing Western Highway and deviate east then north-east, following the northern side of a gully formed by a tributary of Yam Holes Creek. The alignment would then pass over Back Raglan Road and head in a south-east direction across the Yam Holes Creek floodplain, to the north of the Beaufort Trotting Track. Crossing Main Lead Road, the alignment would ascend into the southern extent of Camp Hill State Forest, then descend to form a full diamond interchange at Beaufort-Lexton Road. The alignment would cross Yam Holes Creek and Racecourse Road, before bearing south, south-east and crossing the Melbourne-Ararat rail line. The bypass would then re-join the existing Western Highway at an interchange approximately 4.5 km to the east of Beaufort. Half-diamond interchanges are proposed to be constructed at the eastern and western tie-ins to connect to the existing Western Highway.

The preferred alignment intersects 66 land parcels. These parcels are predominately freehold land in private ownership, with the remaining land in Crown land titles. Sections of the western tie-in and Melbourne-Ararat rail line are subject to an existing Public Acquisition Overlay. For the land parcels not included under the existing Public Acquisition Overlay, a Planning Scheme Amendment would be required. A draft planning scheme amendment (PSA) with public acquisition overlay (PAO) was exhibited with the EES.

Further details regarding the project description are provided Chapter 4 of the EES.

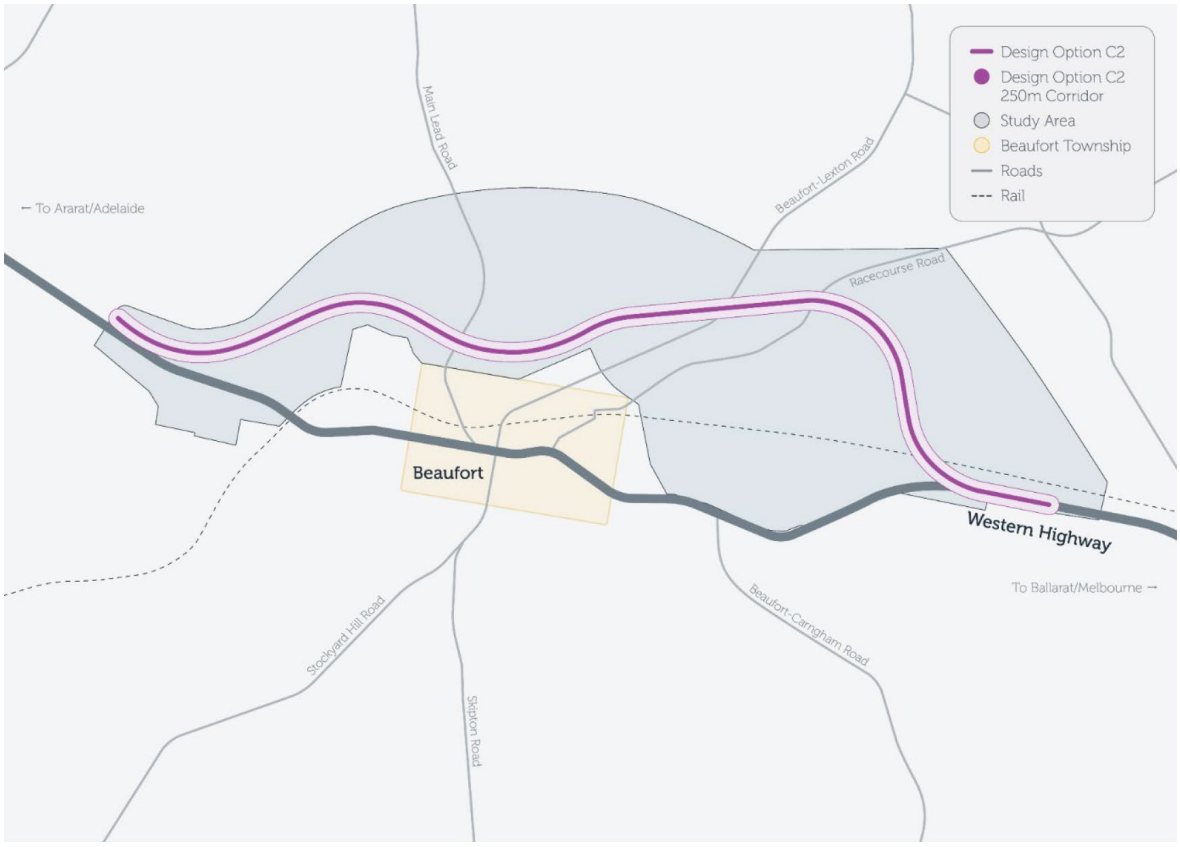

Figure 1: Project location and overview of preferred alignment option C2 (Source: project EES).

Figure 2: Project access arrangement – eastern tie-in (Source: project EES).

Figure 3: Project access arrangement – western tie-in (Source: project EES).

Figure 4: Project access arrangement – Beaufort-Lexton Road interchange (Source: project EES).

3. Statutory processes

To proceed with the project, RRV require a variety of statutory approvals under Victorian and Commonwealth law. My assessment under the EE Act will inform approval decisions under Victorian legislation including the *Planning and Environment Act 1987, Aboriginal Heritage Act 2006* and *Environment Protection Act 2017, as* well as a range of other permits and consents. In addition, the project is a controlled action requiring approval under the EPBC Act.

3.1. Environment Effects Act

The EE Act provides for assessment of proposed projects that are capable of having a significant effect on the environment. The Minister for Planning issued scoping requirements to specify the matters to be addressed by the proponent in its EES for the project in late December 2016, following the exhibition of draft scoping requirements for public comment between 21 November and 9 December 2016. The former Department of Environment, Land, Water and Planning (DELWP)[1] convened a technical reference group[2], in accordance with normal EES practice, to provide advice to RRV (and DELWP) on the preparation of the EES. The EES was prepared by the proponent in response to the scoping requirements. The EES was placed on public exhibition from 28 March 2022 to 13 May 2022. A draft PSA was also prepared together with the EES and exhibited for public comment.

On 3 April 2022, with the consent of the Governor in Council, an inquiry was appointed under section 9(1) of the EE Act to review submissions and inquire into the environmental effects of the project in accordance with its terms of reference, which were approved by the Minister for Planning on 30 June 2021. The inquiry members were also appointed as an advisory committee under section 151 of the *Planning and Environment Act 1987* to consider the draft PSA.

The inquiry and advisory committee (IAC) held a directions hearing on 17 June 2022 via videoconference. The main hearing was then held over eight days between 26 July and 8 August 2022, mainly by videoconference with an in person/videoconference hybrid day held at the Mercure Hotel Ballarat on 4 August 2022. The IAC provided its report on 18 October 2022.

The next step under the EE Act requires me to provide this assessment (i.e. this document) of the environmental effects of the project to statutory decision-makers under Victorian law, to consider before deciding whether and how the proposal should proceed. This assessment will also inform the approval decision under Commonwealth law, as outlined in Section 3.6.

3.2. Planning and Environment Act 1987

The *Planning and Environment Act 1987* (P&E Act) sets out processes for planning permits and the amendment of Victorian planning schemes. The project is pursuing an amendment to the Pyrenees Planning Scheme, to provide comprehensive statutory planning controls to facilitate the construction and operation of the project, rather than multiple separate planning permits, required under various provisions of the relevant planning scheme. If approved, the Planning Scheme Amendment (PSA) would exempt the project from the individual planning permit requirements of the Pyrenees Planning Scheme. The bespoke amendment would introduce a comprehensive planning control for the project, using an incorporated document. The amendment would also create a right-of-way over the amendment area by applying a Public Acquisition Overlay, which would enable RRV to acquire land for the construction of the project and associated works.

The draft PSA included in the exhibited EES is discussed in Section 5.1.

1. Note following the recent Machinery of Government changes, the Planning group is now part of the Department of Transport and Planning (DTP).
2. The technical reference group comprised representatives of government agencies, regional authorities and municipal councils with statutory or policy interest in the project, including DELWP Planning and DELWP Region, First Peoples State Relations, Heritage Victoria, Pyrenees Shire Council, Fire Rescue Victoria, Glenelg Hopkins Catchment Management Authority, Southern Rural Water, and Central Highlands Water. The proponent and relevant members of its consultant team also attended meetings of the technical reference group.

3.3. Aboriginal Heritage Act 2006

The *Aboriginal Heritage Act 2006* provides for the regulation of the protection of Aboriginal cultural heritage in Victoria. A Cultural Heritage Management Plan (CHMP) is required under the Act before commencing works associated with the Beaufort Bypass Project. Matters relevant to the assessment of the CHMP are addressed in Section 6.7 of this assessment.

As outlined in the EES, RRV is preparing a CHMP for this project in consultation with the Wadawurrung Traditional Owners Aboriginal Corporation, the Registered Aboriginal Party (RAP) for the area. The draft CHMP13830 will be submitted to the Wadawurrung Traditional Owners Aboriginal Corporation for approval. As required under section 49 of the Aboriginal Heritage Act, construction of the project cannot commence until CHMP13830 has been approved.

3.4. Environment Protection Act 2017

The *Environment Protection Act 2017* came into effect on 1 July 2021. It is supported by the *Environment Protection Regulations 2021*, and other subordinate instruments and subsidiary documents.

The new Environment Protection Act established a proactive legislative framework for the protection of human health and the environment from pollution and wastes. The Act also imposes a number of duties, including an overarching 'general environmental duty' (GED), as well as duties in relation to pollution incidents, contaminated land and waste. Furthermore, the Act and associated regulations have resulted in state environment protection policies being largely replaced by environmental reference standards.

As outlined in the IAC Report, the IAC requested RRV to provide details showing how the EMF will address the GED and evolving state of knowledge under the EP Act, particularly in relation to noise and air impacts. Following some updates to mitigation measures proposed by RRV during the hearing, the IAC was satisfied that the recommended mitigation measures are consistent with and will implement the EP Act requirements and guidance. This is further discussed in Section 6.9.

3.5. Other Victorian statutory approvals

The project is expected to require other Victorian statutory approvals including:

- a permit to remove listed flora and/or fauna from public land under the Flora and Fauna Guarantee Act 1988;
- consent for works on waterways under the Water Act 1989;
- consent for works potentially impacting listed heritage places under the Heritage Act 2017;
- a permit to remove trees containing habitat or any other fauna habitat areas, or for fauna salvage and translocation under the Wildlife Act 1975;
- permits to transport noxious weeds to or from work sites under the Catchment and Land Protection Act 1994; and
- road opening permits to undertake road works under the Road Management Act 2004.

3.6. Commonwealth statutory approval

In January 2021, RRV referred the project to the Commonwealth (EPBC 2019/8874) for a determination on whether the project is a controlled action requiring assessment and approval under the EPBC Act. On 24 February 2021, a delegate for the former Commonwealth Minister for the Environment determined that the project is a controlled action, as it is likely to have a significant impact on listed threatened species and communities, which are protected as MNES under Part 3 of the EPBC Act.

The EES is an accredited assessment process under a bilateral agreement between the Australian and Victorian governments. Hence, my assessment will inform the Australian Government Minister for Environment and Water's (or delegate) decision about whether the action is approved, approved with conditions or refused under the EPBC Act, therefore fulfilling the assessment requirements for MNES under the EPBC Act. My assessment of the potential impacts on MNES is addressed in detail in Section 6.3.

4. Environmental assessment – key matters

This part of the document provides my assessment on some key matters. On balance, it is my assessment that, while the project will result in significant adverse impacts particularly associated with construction, the impacts can be acceptably managed, subject to the effective implementation of the recommendations of this assessment. This includes further examination and refinement of key aspects of design and mitigation measures needed to achieve acceptable environmental outcomes, as discussed below.

Construction of the project will necessitate clearing of not insignificant amounts of native vegetation, resulting in direct and indirect impacts on threatened flora and fauna species. It will also result in impacts on surface water hydrology, downstream environments, as well as landscape and visual amenity, due to the establishment of the new bypass infrastructure in an undulating environment that has significant floodplains and watercourses. These environmental values surround the Beaufort township located at the bottom of local catchments. While the EES applied avoid, minimise and mitigation principles in the development of a functional design, there are some aspects of the design and associated environmental management regime that need further work to ensure a sufficient level of certainty about how outcomes are balanced and that appropriate environmental outcomes can be achieved.

The further design work recommended in this assessment, together with an environmental management framework and mitigation measures, incorporating amendments set out by the IAC and this assessment, can enable the adverse effects of construction and operation to be minimised and managed to acceptable levels. This will need to encompass further avoidance and minimisation through the design phase, particularly for some significant biodiversity values and impacts on downstream hydrology.

As set out below a core recommendation of the IAC and this assessment is the requirement for a design management document, to confirm detailed design considerations needed to ensure acceptable environmental outcomes. Throughout my assessment I have recommended additional measures be included in the design management document and environmental outcomes that the project needs to achieve for the project's effects to be considered acceptable.

While specific environmental effects are considered further in Section 6, below I have examined some overarching issues related to:

- design approach for this project;
- resolving mitigation and environmental management; and
- consideration of project alternatives.

4.1. Design approach

The preferred C2 alignment of the bypass route is described in Chapter 4 of the EES, including the following key elements:

- the physical footprint of the alignment;
- major infrastructure elements, including preliminary designs for interchanges;
- design specifications for some key aspects (e.g. road, bridge and drainage design); and
- an indicative construction methodology.

Chapter 4 of the EES notes that the EES sought to use a 'functional design' to demonstrate that the project could achieve its desired objectives. The functional design acted as a proof-of-concept, against which the proponent aimed to identify and assess the project's potential effects and demonstrate that these effects can be managed within acceptable levels. As discussed further in Section 5.1, RRV undertook the EES with a view to introduce a public acquisition overlay (PAO) via a PSA. No clarity was provided through the EES regarding timelines for further development of the design and delivery of the project. EES section 4.8 notes that "timing of the detailed road design will depend on funding and the final alignment selected by the EES process, and the method of construction delivery (e.g. construct only, or design and construct)."

The IAC discussed the use of a functional design for the Beaufort Bypass in Chapters 1 and 13 of the IAC report. The IAC considered that the functional design was a suitable approach to defining the proposed project for the impact assessments and development of proposed mitigation measures in the EES. However, the IAC qualified this by noting the application of the functional design approach had deficiencies, such as limiting the level of certainty able to be ascribed to both predicted effects and the likely effectiveness of some proposed mitigations.

The IAC also highlighted the lack of a clear commitment in the EES to the implementation of some key mitigation measures. I agree with the IAC's concerns regarding these issues. In my assessment I have identified where there is residual uncertainty regarding the extent of some impacts due to the high-level nature of mitigation measures that are yet to be developed in detail, including:

- the extent to which native vegetation impacts will be further avoided, the overall amount of native vegetation to be removed and the associated approach to sourcing biodiversity offsets (see Section 6.2);
- the extent of residual impacts on fauna movement, due to the lack of a clear commitment to habitat connectivity measures including as the land bridge at Camp Hill (see Section 6.2);
- the extent to which private property, public property, and biodiversity values of wetlands will experience changes in flooding behaviour and the extent to which this will be mitigated (see Section 6.4);
- the social impacts arising from an uncertain timeline for the delivery of the project (including uncertainties in timelines for compulsory acquisition of private properties, see Section 6.5);
- the extent to which native vegetation impacts will be further avoided, the overall balance of native vegetation removal and the associated approach to sourcing biodiversity offsets (Sections 6.2 and 6.3); and
- the extent to which the final project will create habitat and revegetate natural environments (Section 6.2, 6.3 and 6.8).

The EES proposes that the uncertainty associated with the final extent of residual impacts and degree of mitigation for these matters will be resolved during the detailed design phase. However, the proposed approach to resolving the remaining issues and uncertainties were not clearly articulated in the EES, nor are any associated reporting outputs or transparency during the detailed design process.

To address core key issue, the IAC recommended that a 'design management document' be required as part of the project approvals and EMF, to provide an overarching reference point and guideline for detailed design considerations that need to be addressed. I support the recommendation, as discussed further below.

4.2. Resolving mitigation and environmental management

The IAC commented on the complexity of project and environmental governance arrangements proposed in the EES. Responsibilities for key matters, including refining the impact assessments and determining final mitigation measures, are proposed to be spread between several delivery agencies, including MRPV, RRV, DTP and the construction contractor. It is unclear how governance and coordination between these parties would be managed to provide sufficient assurance that there will be a suitably integrated approach to addressing impacts and environmental outcomes, and how the existing information in the EES would apply and be refined to inform the detailed design.

The IAC notes that the EES, and particularly the EMF contains an array of mitigation measures and associated management documents and proposed to further define the extent of mitigation and the associated residual environmental effects at the design and construction stage, particularly in relation to mitigation measures for biodiversity, surface water, visual amenity and land access. It was not entirely clear to the IAC how the mitigation of these disparate but interrelated environmental aspects would come together to inform the final project design. For example, it was unclear whether mitigation measures such as the provision of a land bridge or strategic revegetation will be committed to or how the final decision to add or remove design features would be made as the detailed design is developed.

To address these issues, the IAC recommended that a design management document be prepared to provide overarching guidance for detailed design. The IAC envisaged the design management document as including:

- key design objectives and considerations;
- a process for design development and finalisation that includes expert ecological, cultural heritage, soil and geology, landscape, dust and acoustic specialist inputs; and
- identification of the relevant management documents and mitigation measures and inputs to be integrated into the design.

The IAC also recommended the design management document identify the design approach to:

- minimise the impact on native vegetation associated with the project including for cases where alternative property access may need to be established;
- the alignment of the western tie-in treatment to avoid impacts on existing native vegetation patches and minimise intrusion into the golden sun moth confirmed and high quality potential habitat areas;
- provision of a land bridge linking the bisected Camp Hill areas;
- opportunities to reduce to one lane the eastern tie in on ramp from the 'old' Western Highway;
- appropriate design of the slope for the Camp Hill area, balancing any erosion risks with the desire to reduce land take and native vegetation impacts;
- the potential staging of early works to implement habitat, fauna crossing, landscaping and amenity outcomes; and
- the Beaufort Bypass Cultural Values Assessment actions.

The IAC also said that "the [design management] document should set out key design objectives and considerations, a multidisciplinary process for design to ensure key expert inputs, including the incorporation of outcomes from relative mitigation measures to inform detailed design (for example further targeted flora surveys, soil investigations and the like)".

I agree with the IAC that the design management document will be an important means by which environmental outcomes, mitigation measures and management approaches discussed in the EES process are ultimately integrated into the final design and delivery of the project. As outlined in Section 6 of this assessment, there is residual uncertainty about a number of surface water, biodiversity and visual and landscape mitigation measures and impacts. Development of a design management document is an appropriate means by which to resolve and document further work to resolve these issues, with a focus on balancing and achieving some key environmental and project outcomes.

Consequently, throughout my assessment I have recommended additional measures be included in the design management document as well as environmental outcomes that the project must achieve for the impacts of the project's effects to be considered acceptable. These additions include further analysis and the progression of design-led mitigations to demonstrate that the future design of this project will have commensurate impacts to that assessed against the current design in the EES. These additional recommendations incrementally change the purpose of the design management document from what the IAC envisioned. The design management document's key purpose will be to provide direction and prioritisation of environmental mitigations or management measures in discrete areas of the project and ultimately demonstrate that the environmental impacts can be managed as described in the EES to an acceptable

level to ensure appropriate outcomes. This would need to include further analysis and design work that builds on existing knowledge and should address the recommendations in this assessment to address the existing uncertainties. Once developed and approved, the design management document can then be used to guide the future detailed design process to ensure the final design addresses the requirements and outcomes set out in this Assessment.

Consultation, approval, and reporting requirements for the design management document

The IAC recommended that Table 17.6 of the EMF is amended to identify the design management document to be prepared by the construction contractor and for review and approval of MRPV. It is my assessment that stronger governance structures are required to appropriately address uncertainties regarding potential project impacts and confirm the environmental outcomes identified in the EES are achievable through the approach proposed. To that end, it is my recommendation that the design management document needs to be prepared to the satisfaction of the Minister for Planning.

I also support the view of the IAC that preparation of a design management document would allow for examination of the staging of works to help ensure that key mitigation measures can be advanced prior to major construction activities (e.g. landscaping treatments, strategic revegetation and fauna crossing treatments including the land bridge). This should also include a more detailed description of preparatory works or early works and the confirmation of no-go zones to facilitate staged construction.

To help ensure the design management document appropriately considers relevant environmental aspects and regulatory requirements, I recommend that the EMF specifies the need to consult with relevant stakeholders in the development of the design management document. At a minimum this should include consultation with the public (including public interest groups such as Western Highway Conservation group), public authorities including DEECA (NEP and FFR), DTP Planning, EPA, GHCMA, the local council, First Peoples - State Relations as well as the Wadawurrung Traditional Owners Aboriginal Corporation (WTOAC).

It will be important for the design management document to clearly communicates how the recommendations of this Assessment are being implemented and how the outcomes of the detailed design process will be documented, including documentation of how the feedback from relevant stakeholders has been considered in the process of developing the detailed design. I therefore recommend that the scope of the design management document outlined in the final EMF specifies the need to identify the key reporting outputs of the detailed design process, including review and approval requirements of these outputs. The reporting outputs of the detailed design process will be critical to inform the development of subsidiary strategies and plans required by the EMF such as the CEMP, Landscape Management Strategy, Access Management Strategy, and Threatened Species Management Plan.

4.3. Consideration of project alternatives

The project's EES was required to describe and assess effects of relevant feasible alternatives for the project. The EES was required to investigate and document the likely social, strategic, economic and environmental effects of the alternatives, particularly where an alternative(s) offer(s) a potential for superior environmental, social or economic outcome and are still capable of meeting the project objectives. This needed to include comparative integrated assessment of the feasible alignment alternatives identified for the proposed project particularly with respect to key social, economic and environmental effects, as well as explain why the preferred alternative was selected.

Chapter 3 of the EES provided a summary of the various project options that were considered in the project development process including the four bypass alignment options (A0, A1, C0 and C2) that were assessed in some detail. An analysis of the four bypass alignment options and their likely environmental performance was provided in EES Attachment IV – Options Assessment Report. The assessment used an Objective Based Evaluation Matrix to compare and rank the four options. The options assessment showed that there is potential for significant and diverse impacts across all four alignment options. For example, A2 was identified as requiring the most native vegetation removal and C2 was identified as having the greatest impact on floodplain and surface water environs. Ultimately C2 was considered the best

performing alignment option on balance. This option was selected as the preferred option in the EES and assessed in further detail within technical studies and the EES impact assessment chapters.

Following consideration of relevant submissions, the IAC concluded that the EES's assessment of alternative route alignment options was sufficient to meet the scoping requirements, and that the selection of alignment option C2 was appropriate (IAC Report Section 3.3). I support these findings and agree that preferred alignment option C2 is a sound selection particularly due to its lower impacts on habitat values, flora and fauna as well as cultural heritage values compared to the other options considered.

My assessment considers specific alternatives for various aspects of the design and layout in sections 5 and 6.

5. Environmental management and planning framework

This part of my assessment explains relevant aspects of the environmental management framework and proposed planning controls for the project and my recommendations in relation to those. This has been informed by consideration of the IAC report in particular, as well as the EES, public submissions and documents tabled at the IAC hearing.

I acknowledge that the project will generate both positive and negative environmental effects. A sound regulatory framework and environmental control regime is needed to ensure that adverse effects of the project are effectively minimised, mitigated and managed. I have considered and made findings on key elements of that regime, as described below, and taken account of these when assessing the project's environmental effects.

5.1. Planning controls

The primary approval for the project is planning approval, which is proposed to be via an amendment (PSA) to the Pyrenees Planning Scheme, introducing a public acquisition overlay (PAO) and bespoke controls to facilitate the delivery of the project.

A draft PSA (Amendment C50 to the Pyrenees Planning Scheme) was prepared by the proponent and included in the exhibited EES in Attachment V. The draft PSA seeks to:

- facilitate the delivery of the project;
- establish a framework to manage environmental effects during design, construction and operation; and
- ensure the project and surrounding land-uses can be planned with certainty.

In broad terms, the draft PSA would:

- apply a Public Acquisition Overlay (PAO) to the land associated with the Beaufort Bypass Project (Planning Scheme Map Reference 19PAO and 20PAO);
- insert the Beaufort Bypass Project incorporated document into the planning scheme to allow the use and development of land for the project in accordance with the specific control outlined in Clause 4 of the incorporated document; and
- apply a specific controls overlay (SCO) to enable the delivery of the project (Planning Scheme Map Reference 19SCO and 20SCO).

Amending the planning scheme to insert a SCO and an incorporated document would allow the project to be delivered without the need for a series of individual planning permits required under a range of planning provisions in the local planning scheme, provided conditions in the incorporated document are met.

The IAC was appointed both as an Inquiry under the Environment Effects Act to assess the environmental effects of the project and also as an Advisory Committee under the Planning and Environment Act to provide the Minister for Planning with advice as to the content and structure of the proposed PSA. This assessment will form part of the Minister for Planning's consideration of the PSA at a later stage when the proponent submits that for the Minister for Planning's formal consideration of whether or not that planning approval should proceed.

The IAC has made recommendations on the draft PSA in various sections of its report, with the key components of the draft PSA considered particularly in Section 15.1. I have considered those recommendations in the context of my assessment of the environmental effects of the proposed works and the manner in which those environmental effects should be mitigated.

Specific controls overlay

The SCO is one of the tools available in the Victorian Planning Provisions. It allows land to be used or developed in accordance with a specific control contained in an incorporated document corresponding to that land.

The IAC considered that an SCO is an "appropriate planning control for a project of this nature and provides for a coordinated and transparent process that aligns project implementation with key mitigation measures and management documents identified in the EES[3]." I support that finding.

The IAC was satisfied that the SCO is appropriately mapped to include key elements of the project corridor including interchanges and provides sufficient flexibility to allow for carriageway alignment refinement following the detailed design process. Indicative locations for haul roads, site offices, stockpiles and laydown areas have been identified and illustrated in EES Chapter 4, which are within the proposed SCO. While I agree that the proposed SCO will allow for some refinements of the project footprint, there are some key design elements of the project, such as the Access Management Strategy, that are yet to be completed, and it is unclear if the SCO will sufficiently cover all such areas where project works are required to restore access to private property. There is also some uncertainty regarding the way these access arrangements will sit alongside the necessary design refinements for addressing biodiversity, surface water and landscape and visual mitigation measures. Both these access and mitigation approaches need to be confirmed through the design process and therefore the extent of the SCO will need to be reviewed in light of the design development. This assessment addresses what should be incorporated into the design management document within Section 4.2. The design management document should consider the project's SCO and should consider if any revisions are necessary to reflect updates to the project footprint.

Public Acquisition Overlay

The IAC considered that the PAO is an appropriate tool to apply to land parcels or portions of them that need to be acquired to enable the delivery of the project. The IAC stated that the PAO "provides a transparent mechanism for landowners and prospective land purchasers and the wider community to identify land that is to be acquired and the purpose of that acquisition. It also establishes a mechanism for compensation under both the Planning and Environment Act and Land Acquisition and Compensation Act." I agree with that finding and the important role the EES process has played in informing the application/location of the PAO for this project.

The IAC was generally satisfied with the extent of the PAO mapping because of the overlapping application of the Restructure Overlay (RO27), which provides a basis for managing small land parcels. However, the IAC considered that a review of the PAO extent is required to ensure that it extends to any small remnant parcels that cannot be readily consolidated into adjoining lots; a situation likely limited to the northern portion of Submitter 10's land. The IAC considered inclusion of such small parcels to be consistent with the purpose of the PAO where directly aligned with the purpose of creating a bypass, and with the objectives of the PE Act. There may also be opportunity for these remnant parcels to be used for strategic vegetation to support habitat links. The IAC recommended that RRV review the PAO mapping extent to include remnant portions of freehold land not included in the PAO within the Farming Zone that cannot be readily or practically consolidated into adjoining freehold land parcels or accessed and used consistent with the purpose of the zone. I agree with that recommendation.

Incorporated document

The draft Amendment C50 proposes to insert an incorporated document into the Pyrenees Planning Scheme to facilitate the project by allowing the use and development of land for the project in accordance with the control in the incorporated document. The proposed incorporated document incudes specific conditions, some of which require plans and documents to be prepared and approved before the main construction works commence. These include:

- an EMF and associated plans and environmental performance requirements;
- a Native Vegetation Management Plan and Offset Statement;
- a Threatened Species Management Plan;
- a Wildlife Management Plan;
- a landscape strategy; and

3. IAC (2022) Beaufort Bypass IAC Report. Page 148.

- plans to manage, protect and replace Beaufort Waste Water Treatment Plant assets.

The incorporated document also defines preparatory buildings and works that may be undertaken before these plans and documents are approved (Clause 5.2). As discussed in Section 6.2 I have recommended that an offset statement be required prior to any native vegetation removal (including for preparatory works). I further note that the current wording of clause 5.2 in relation to preparatory works is too open ended and needs to be reviewed in consultation with my department.

The IAC considered the structure and content of the incorporated document to be appropriate, providing additional modifications are made consistent with the recommendations of the IAC. It was the IAC's view that the proposed conditions are generally appropriately constructed and have a clear nexus with the approval sought and are consistent with planning policy and particular provisions of the Pyrenees Planning Scheme, relevant ministerial guidelines and planning practice notes and the principles and objectives of ecological sustainable development. The IAC recommended several changes to the incorporated document and provided an amended version in Appendix G of the IAC Report. I generally agree with these recommended changes, subject to the additional amendments I have recommended within this assessment.

Given the central role of the design management document in helping achieve acceptable outcomes and guiding the detailed design process (see Section 4.2), I recommend that the design management document be required via a condition of the incorporated document. This will help ensure it clearly sits within the approvals to be applied for the project, that collectively drive the project outcomes. The new condition of the incorporated document should specify that the design management document is prepared to the satisfaction of the Minister for Planning and should outline the key elements required as part of the scope of the design management document consistent with this assessment, including those listed in Section 4.2.

The EMF is the key planning tool to manage the impacts of the project through the incorporated document and it is important that there remains a strong link between the content of the final version of the EMF and the EES Technical Appendices and the version prepared and approved under the incorporated document. The IAC recommended strengthening this link by additions to the wording of the EMF in the incorporated document. I agree with that recommendation.

5.2. Environmental management framework

An environmental management framework (EMF) was presented in Chapter 17 of the exhibited EES, which consists of a regime of plans, controls and responsibilities to be given statutory weight through a planning scheme amendment (PSA) and associated incorporated document. The EMF outlines the roles and responsibilities for environmental management, key environmental management documentation proposed to be developed for the project, as well as compliance and reporting requirements (as summarised in Figure 5). The EMF also provides a consolidated list of the proposed environmental management measures. Consistent with the IAC report, these are referred to in this report as 'mitigation measures'.

The draft PSA exhibited with the EES stated that prior to the commencement of any development (excluding preparatory buildings and works under clause 5.2), an EMF must be prepared to the satisfaction of the Minister for Planning. It then sets out what the EMF is to include. It is expected that this 'final' EMF would build on the EMF exhibited as Chapter 17 of the EES, incorporating recommendations from the IAC and this assessment where appropriate.

A key element of the proposed EMF is the proposed mitigation measures, which set out the commitments RRV has made to manage and monitor the potential environmental effects of the project identified in the EES. The mitigation measures were the subject of considerable discussion during the IAC hearing. RRV proposed a number of revisions to the mitigation measures to address the issues raised during the hearing, for example within Tabled Document 69.

The IAC addressed overarching aspects of the EMF in Section 15.2 of the IAC Report. The IAC provided several recommendations regarding the EMF and its mitigation measures in Appendix F of the IAC report. These include

recommendations in relation to RRV's proposed changes to the EMF during the hearings as well as additional recommendations made by the IAC.

The IAC concluded that the EMF generally provides a transparent framework with clear accountabilities for managing environmental effects and hazards associated with construction and operation phases of the Project. Without prejudice to any decisions that may follow with respect to the proposed PSA and secondary consents, I am generally satisfied that the overarching framework for environmental management set out within the EMF chapter of the EES will be acceptable, once updated to reflect the amendments proposed by the IAC and this assessment. It incorporates clear accountabilities and key elements required for environmental management for both construction and operation and specifies the need to prepare appropriate strategies and management plans moving forward. Requirements for further work to be conducted during the detailed design stage are also provided in the EMF mitigation measures, as well as the need to prepare plans that provide more detail on various aspects of the design such as the Landscape Management Strategy and Access Management Strategy. However, as discussed in Section 4.1, a key recommendation of the IAC and this assessment is that an additional design management document is required to provide an overarching reference point for design considerations. I recommend that the requirements for this additional design management document as outlined in Section 4.2 are included in the final EMF.

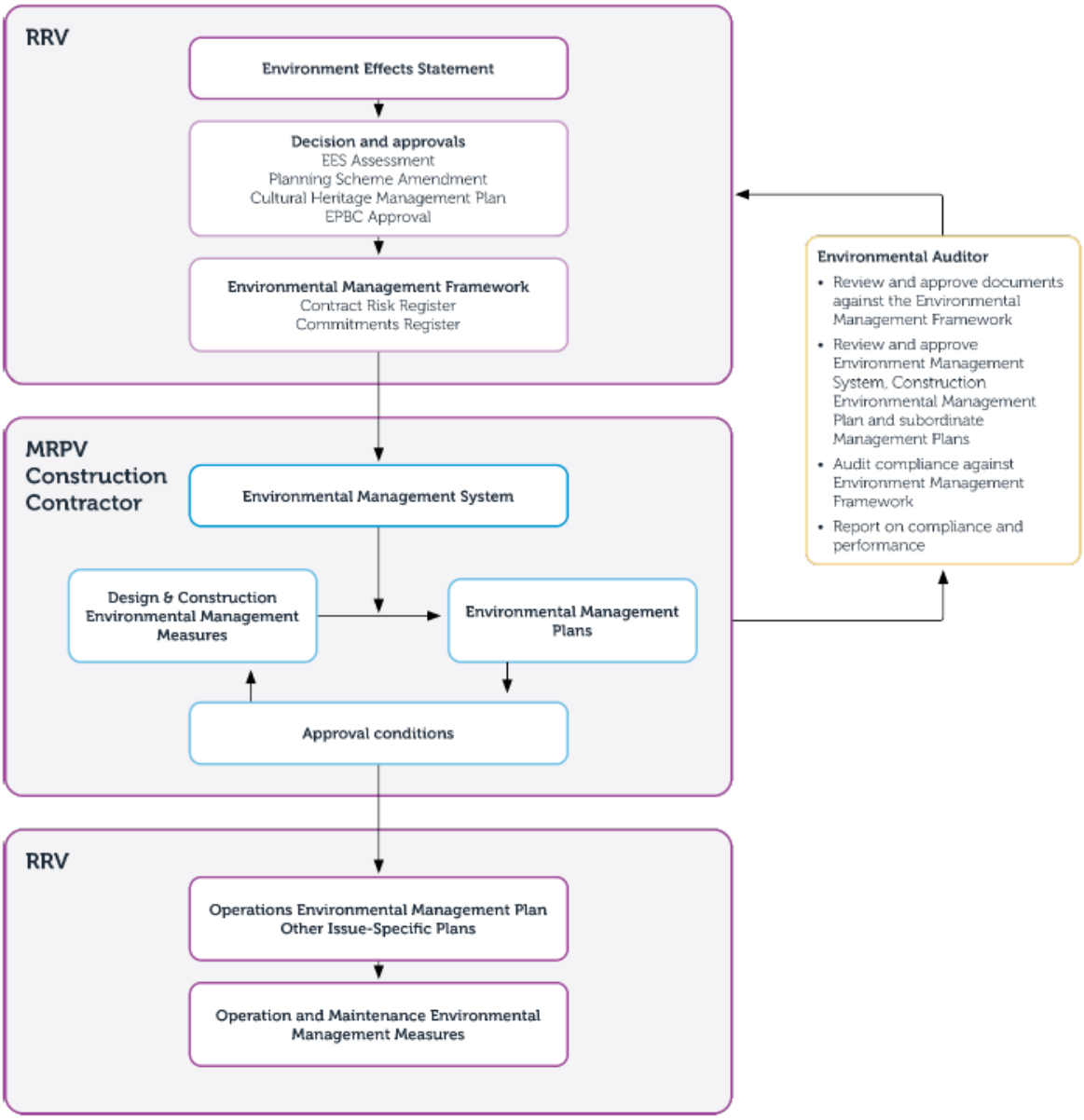

Figure 5: Overview of proposed environmental management structure (Source: Chapter 17 of the EES).

The IAC also considered that monitoring, auditing and reporting requirements in the EMF are appropriate, subject to their additional recommendations such as for operational noise and fauna crossing monitoring. In general, I support the approach to monitoring, auditing and reporting requirements proposed in the EMF. It will be important to ensure that an appropriate framework for the monitoring program is provided in the relevant management plans to help ensure an integrated approach to monitoring for the project. I recommend that the final EMF specify that the CEMP to be developed for the project needs to address the following monitoring for each relevant environmental aspect:

- monitoring objectives;
- monitoring indicators (noting these should be specific, measurable, attainable, relevant, time-based indicators in line with best practice);
- monitoring requirements (including methods, parameters, locations and frequency);
- responsibilities for analysis of monitoring data (including analysis of trends over multiple monitoring rounds);

- thresholds for action including specific contingency actions/investigations to be taken when thresholds are reached;
- requirements for internal reporting of monitoring results – including to ensure integration between monitoring programs (e.g. water monitoring will inform biodiversity monitoring); and
- requirements for external reporting of monitoring results.

Audits to be conducted by the independent auditor will play a key role in ensuring there is appropriate accountability and transparency in relation to the environmental management and monitoring of construction activities. I support the approach to six-monthly independent environmental auditing during construction, as outlined in Table 17.3 of the EMF. The exhibited EMF also outlines roles and responsibilities that states that the role of the independent auditor will be to audit "compliance with the Environmental Management Framework and associated management plans". Therefore, I recommend the scope of these audits in the final EMF is expanded to include evaluation of:

- compliance with legislative requirements including the incorporated document and conditions of approval;
- responses to non-compliances, incidents and complaints received;
- effectiveness and implementation of mitigation measures and monitoring programs; and
- continuous improvement of environmental performance and sustainability.

I support the publishing of audit reports on the project website as outlined in the exhibited EMF. This approach has been adopted for a number of major projects during recent years, as recommended by my assessment of those for projects previously assessed under the EE Act. Allowing the community to find out about the project's environmental performance improves transparency and accountability of the proponent and construction contractors.

I note that the exhibited EMF does not specify how often the construction contractor will be required to report to MRPV/government on monitoring results and compliance against the relevant environmental management requirements. I recommend this reporting is conducted at least monthly (e.g. via a concise monthly environmental report) to help ensure the contractor is held accountable to respond rapidly to any outcomes of the monitoring program that may require corrective actions, and provide regular updates on progress of responding to any non-compliances, incidents and/or complaints received.

Environmental mitigation measures

As identified in Appendix F of the IAC Report, the IAC recommended numerous changes to the mitigation measures proposed by RRV (including in relation to amendments made by RRV during the hearings) to achieve acceptable environmental outcomes consistent with the EES evaluation objectives. As summarised in Appendix A, I generally support these recommendations with some further amendments proposed in some cases. These recommendations are further examined in Section 6 of my assessment.

Overarching issues relating to environmental mitigation measures were discussed in Section 15.3 of the IAC Report. It was understood by the IAC that the assessment of residual impacts from the Project assumed that the recommended mitigation measures would be implemented. On this basis, the IAC found that all recommended mitigation measures should be incorporated into the EMF or various supporting plans. In particular, the IAC highlighted that Chapter 10 of EES Technical Appendix C provides very thorough details of commitments and recommendations in relation to management of biodiversity issues for the Project, however these detailed measures are not reflected in the EMF in some cases.

The IAC noted that the level of detail provided in the exhibited EES was appropriate for this stage of the project, but that there is a risk that detailed mitigation measures in the EES technical appendices could be lost in the next phases of the project. To help address this, the IAC recommended that the final EMF should use EES Chapter 17 and specific mitigation measures in Technical Appendix C as a starting point. They also emphasised the need for clear cross referencing between reports to increase clarity. I support these findings and recommendations of the IAC to help ensure

that the final EMF includes all the key mitigation measures required to appropriately avoid and minimise the key potential impacts of the project.

As outlined in Section 4.2 I have also supported the IAC's recommendation for the preparation of a design management document that includes further development and clarification of the commitments to design and mitigation measures for the project.

5.3. Sustainability

As part of the overall objective to achieve a sustainable balance of environmental, economic and social outcomes and provide a net community benefit, the EES scoping requirements included a requirement to consider and assess relevant aspects of sustainability not otherwise addressed. This included evaluating the overall implications of the project against the principles and objectives of ecologically sustainable development and environment protection. As noted by the IAC, the scoping requirements also identify the need to "evaluate the proposed project's energy consumption and greenhouse gas emissions during construction and identify measures to improve energy efficiency and reduce greenhouse gas emissions" (Section 4.9 of the EES Scoping requirements).

The key mitigation measure proposed by RRV to address greenhouse gas emissions as well as the broader aspects of sustainability is the preparation of a Sustainability Management Plan (mitigation measure MD20) which is a requirement of the EMF. As outlined in Section 17.5 of the exhibited EMF this plan is proposed to "detail the initiatives to reduce the carbon footprint during road construction, adopt 'avoid, minimise, mitigate and offset' principles and opportunities for continual improvement of environmental performance throughout the construction phase, in line with RRV's Sustainable development policy and strategy". The Sustainability Management Plan is proposed to be prepared by the construction contractor, and then reviewed and approved by MRPV, with no inputs from other agencies identified. The EMF also identifies compliance with the VicRoads Sustainability and Climate Change Policy as well as the VicRoads Sustainability and Climate Change Strategy 2015–2020.

I support the proposed development of the Sustainability Management Plan to help guide the implementation of sustainability measures for the project that are not covered by the other management plans to be prepared. I note the timing of preparation of the Sustainability Management Plan is not specified in the EMF. I recommend this plan is prepared during the detailed design phase, to help ensure sustainability opportunities are embedded into the project design. The sustainability aspects of the design process should then be documented in the Design Management Document to be developed for the project (see Section 4).

I note the current wording of the EMF measure MD20 provides only limited detail regarding the required scope and contents of the proposed Sustainability Management Plan. To assist in clarifying the required scope, I recommend that mitigation measure MD20 is listed as a commitment in section 17.6.10 of the EMF and that MD20 is updated to state that the Sustainability Management Plan is to include consideration of the following aspects of sustainability for the design, construction and operational phases:

- measures to reduce scope 1 and scope 2 greenhouse gas emissions, including the need to develop targets and implement appropriate greenhouse gas monitoring and reporting methods;
- measures to promote selection of construction materials with lower embodied emissions;
- waste management measures, including details of how the waste hierarchy is to be applied to maximise reuse and recycling of construction materials;
- measures to minimise water use during construction and maximise reuse/recycling of water;
- requirements for sustainable approaches to water treatment where practicable e.g. use of wetland water treatment systems;
- internal and external sustainability reporting requirements; and
- incentives for innovation and continuous improvement during the design and construction phase.

Given some strategy and policy documents referred to in the EMF are outdated (e.g. the VicRoads Sustainability and Climate Change Strategy 2015–2020) the Sustainability Management Plan should consider any updated RRV/MRPV strategy and policy documents available at the time of preparation.

I also recommend that MRPV consider applying a requirement for the project to achieve a specific minimum sustainability rating. I note this approach is helping to achieve significant improvements in sustainability outcomes for transport projects in Victoria.

6. Assessment of environmental effects

This section details my examination of the project's potential effects on each aspect of the environment in the context of relevant evaluation objectives, which are set out below. My assessment has been informed by consideration of the EES, public submissions, evidence tabled with the IAC, information and submissions presented at the IAC's public hearing, the IAC report and other relevant resources.

Legislation, policy, strategies and guidelines, and the objectives and principles of ecologically sustainable development, also contextualise my assessment. To provide an integrated structure for this assessment, the key aspects of legislation and statutory policy have been synthesised into a set of evaluation objectives (Table 1). These objectives are derived from the evaluation objectives included in the scoping requirements for the EES and used by RRV in its assessment of alternatives and environmental effects within the EES. The IAC also assessed the project and its effects having regard to the evaluation objectives.

Table 1: Assessment evaluation objectives.

Evaluation objective	Relevant section
To provide for an effective Western Highway bypass of Beaufort, to improve travel efficiency, road safety, and capacity, as well as improve amenity and local transport network in Beaufort.	6.1
To avoid and minimise adverse effects on native vegetation, as well as habitat for threatened flora and fauna species and ecological communities, including those listed under the FFG Act and address offset requirement for predicted losses consistent with relevant policy.	6.2, 6.3
To protect catchment values, surface water and groundwater quality, stream flows and floodway capacity and avoid impacts on protected beneficial uses.	6.3, 6.10
To avoid and minimise adverse effects on Aboriginal and historic cultural heritage values and to identify best practice mitigation measures.	6.7, 6.10
To minimise and manage adverse effects on well-being of the local community, including potential impacts on cohesion and severance of community access to services, facilities and infrastructure.	6.5, 6.6
To minimise and manage adverse effects on local business (including agriculture) and existing or planned land uses	6.6
To minimise adverse air quality, noise or vibration effects on the amenity of residents and local communities, as far as practicable during construction and operation	6.9, 6.10
To minimise adverse effects on visual and landscape values as far as practicable during construction and operation	6.8
To provide a transparent framework with clear accountabilities for managing environmental effects and hazards associated with construction and operation phases of the proposed project, in order to achieve acceptable environmental outcomes.	5.2
Overall to identify an alignment and conceptual design for the Western Highway bypass of Beaufort that would achieve a sustainable balance of environmental, economic and social outcomes and provide a net community benefit	4.3, 5.1, 5.3

The IAC made several findings and recommendations for the project. My response to its key findings and recommendations, along with my assessment of the environmental effects of the project, are detailed in the sections below. My findings in relation to matters of national environmental significance (MNES) are also provided in Sections 6.3 and 6.4.

6.1. Traffic and transport

Traffic and transport impacts are addressed in the EES in Chapter 8 and Technical Appendix M (the Traffic and Transport Impact Assessment), as well as in section 4 of the IAC report. Project benefits associated with traffic and transport are also described in Chapter 2 of the EES.

In the exhibited EES, RRV proposed two primary mitigation measures for traffic and transport impacts. Mitigation measure T01 is proposed to manage traffic impacts during the construction phase, and T02 is proposed to mitigate local access impacts during both construction and operations. During the hearings, the RRV proposed some updates to the mitigation measures in response to issues arising during the inquiry process. The IAC then made further recommendations regarding the mitigation measures in the IAC report.

Evaluation objective

To provide for an effective Western Highway bypass of Beaufort, to improve travel efficiency, road safety, and capacity, as well as improve amenity and local transport network in Beaufort.

Assessment context

The key aspects of traffic and transport considered by the IAC included:

- Network performance assessment;
- Construction impacts on traffic and transport;
- Bypass tie ins and interchange design; and
- Access and road management.

The assessment context of each of these is provided below.

Network performance assessment

The impacts of the project on the traffic network were considered in EES Technical Appendix M. Traffic modelling conducted for the EES estimated that the C2 alignment of the bypass would result in around 60 to 70 per cent reduction in traffic passing through the Beaufort town centre. No significant changes in traffic flows or volumes were predicated for other local roads, including Beaufort-Lexton Road.

The EES also concluded that alignment option C2 would result in a time saving compared to driving through Beaufort (e.g. a six minute time saving for light vehicles) and would also improve road safety by reducing traffic volumes along the Western Highway within Beaufort. This is expected to result in less crashes and vehicle related incidents in the township and also help reduce safety risks to other road users, particularly pedestrians and cyclists.

The change in traffic conditions in Beaufort township due to reduced traffic volumes is expected to result in amenity benefits for sensitive receptors within Beaufort, particularly due to reduced noise. My assessment of amenity impacts, and benefits of the project is provided in sections 6.5, 6.8 and 6.9.

The EES also found that there was little difference between the alignment options in relation to the amount of time saving they would produce for the traffic network, and associated construction traffic and safety issues.

Construction impacts on traffic and transport

The EES identified the potential for several adverse impacts associated with traffic and transport during the construction phase including:

- increased traffic volumes on Beaufort's local road network due to:
  - construction vehicles and the haulage of construction materials to and from construction sites;
  - construction worker trips to and from the site;
- temporary impacts on access to and from the existing road network for some properties near construction sites; and
- other impacts on local traffic such as road/lane closures and changes in speed limits.

The main mitigation measure proposed to minimise and manage these impacts is T01 which requires a detailed construction Traffic Management Strategy to be developed to the satisfaction of the Department of Transport and Pyrenees Shire Council. Impacts on local access during construction are proposed to be mitigated via development and implementation of a construction and operational access strategy as required by mitigation measure T02.

Bypass tie ins and interchange design

The EES described the proposed functional design for tie ins and interchanges, including applicable design standards in Chapter 4. The project functional design aimed to ensure effective integration of the Project with the local transport network. There are three key interchanges proposed along the bypass route as described below.

Half diamond interchanges are proposed at the east and west tie-ins to the Western Highway. The western interchange would provide only westbound access (for vehicles travelling towards or from Ararat), while the eastern interchange would provide only eastbound access (for vehicles travelling towards or from Ballarat). A full diamond interchange (allowing travel in both directions) is proposed at Beaufort-Lexton Road to access local roads. All three interchanges would utilise roundabouts to connect the on and off ramps to the existing road network.

At the western interchange, the project footprint would necessitate several changes to the existing road network and access points as outlined in the EES. Caulfield Lane would need to be realigned to allow it to tie in. Driver Lane would also be realigned and existing access to the highway removed. A new highway access point is proposed to be established at McKinnon Lane. Existing access from Martins Lane to the highway would also be removed and a cul-de-sac established.

Access and road management

Key potential impacts of the project on accessibility identified in the EES included both temporary and permanent changes to the local road network. Due to the linear nature of the bypass alignment access between and within some areas would be impacted. It was noted in the EES that a few properties would lose their access to the local road network and alternative access arrangements would need to be provided in these cases.

The primary mitigation measure to address access impacts is the development of an Access Management Strategy (MD06) which is proposed to be developed to the satisfaction of the Department of Transport, Pyrenees Shire Council and DELWP. Mitigation measure T02 identifies that this strategy would be prepared during the detailed design and pre-construction phases, and would cover both the construction and operational phases. T02 also includes requirements to conduct a thorough community and landholder/manager consultation process and publicly advertise works.

Discussion

Network performance effects

The IAC found that the Project would deliver a safer and more efficient road network. I support this conclusion. The traffic modelling conducted for the EES indicated that the bypass would greatly reduce the number of vehicle movements passing through Beaufort township, including a significant reduction in heavy vehicles. This is expected to reduce safety risks in the township, particularly for pedestrians and cyclists and will also have some amenity benefits as discussed further in Section 6.9. The bypass is also expected to provide time savings for motorists using the new route.

The IAC found that the benefits associated with delivering a safe and more efficient road network were largely the same for each of the four bypass options considered in the alternatives assessment conducted for the EES. I support this conclusion as the results of the assessment indicated that the various options considered would not have any significant differences in this respect.

Construction impacts on traffic and transport

I support the finding of the EES that while there will be some unavoidable impacts from traffic and transport during the construction phase (e.g. associated with movement of construction vehicles and temporary access restrictions), these impacts will be temporary and can be minimised and managed to an acceptable level through the implementation of the proposed mitigation measures. As outlined in the EES, the impacts of construction works will be reduced by the fact that construction works will largely occur in greenfield areas and will not require substantial changes to the existing road network. The mitigation measures also include provision of alternative access arrangements during construction where temporary access impacts to adjacent landholders occur.

The implementation of a robust complaints management process will be important to help works respond to concerns from local residents during the construction period. The EES indicates the complaints management process would be developed by the construction contractor as part of the preparation of the Community and Stakeholder Engagement Plan.

Bypass tie ins and interchange design

For the bypass tie ins and interchange designs, the IAC considered each of the western interchange, the Beaufort-Lexton Road interchange and the eastern interchange. My assessment of these proposed interchanges is provided below.

Western interchange

As outlined in the EES, the proposed western interchange consists of a half diamond interchange providing only westbound access. The IAC found that the western interchange design elements and approach for the western interchange are generally appropriate, however further refinement of the design should be conducted in the detailed design stage. I generally support this conclusion noting the issues discussed below.

There were some concerns raised in submissions regarding the height above existing ground level and noise associated with the western interchange, however there was sufficient evidence provided in the hearing to demonstrate that these were not expected to be significant issues. For example, the height of the interchange is proposed to be lower than the existing Western Highway elevation.

Potential impacts of vegetation loss associated with the interchange footprint and design were also raised in submissions. In response to this, RRV proposed changes to one of the biodiversity mitigation measures (BH01) to include specific reference to tie ins and intersections in relation to the need to conduct detailed refinement of design/construction footprint to avoid and minimise vegetation to be removed as well as undertaking further development of no-go zones. Along with the IAC, I support this recommendation to help ensure avoidance and minimisation of native vegetation loss associated with the interchanges and tie ins is considered in the design process. My assessment of vegetation loss impacts of the project is discussed in further detail in Section 6.2.

The IAC further recommended that modifying the western interchange to minimise vegetation loss and potentially providing local access for landholders from the southern roundabout should be further explored at the detailed design stage utilising a multidisciplinary design team approach, rather than changing the existing functional design. I support this recommendation. The multi-disciplinary approach will be important to allow other potential impacts such as noise and visual amenity impacts to be considered and balanced against biodiversity impacts and local access needs in the detailed design process. This further refinement of the interchange design should be informed by the design management document as discussed in Section 4.1.

Beaufort-Lexton Road interchange

The IAC found that full diamond interchange utilising roundabouts at the Beaufort-Lexton Road location is appropriate, an approach supported by the Pyrenees Shire Council. The Council queried the use of roundabouts rather than T-intersections as part of the functional design approach; however, I support the view of the IAC that the use of roundabouts where possible is preferrable to reduce safety risks.

The submissions included requests to reduce speed limits on roads connecting to the interchange due to safety concerns. The IAC recommended that RRV should review all speed zones on roads between Beaufort township and all interchanges with the Western Highway and supported RRV's final changes to mitigation measure T02 in this regard (see Appendix A). I support this change to T02, and further recommend that T02 is amended to note that this review should include specific consideration of the need to reduce speed limits on Beaufort-Lexton Road, given that this has been raised as a concern in submissions.

The potential need to upgrade existing pedestrian and cycling infrastructure along Beaufort-Lexton Road to accommodate any increase in traffic volumes was also raised in submissions. The IAC considered that the Project does not trigger a need to improve existing amenity and safety issues along Beaufort-Lexton Road, and that any such improvements should be separately managed by RRV in consultation with the Council as required. I support this finding.

Eastern interchange

I support the finding of the IAC that the overall eastern interchange design approach and treatment is generally appropriate, however a concern raised in submissions is the potential for headlight glare to impact on local residents, particularly for 47A Paxton Court. The IAC concluded that vehicle headlight glare from Bypass southbound vehicles is unlikely to have significant impact on the dwelling at 47A Paxton Court, given the distance of the dwelling from the bypass and that based on the current design, vehicle headlights are likely to be largely directed away from the dwelling.

As highlighted by the IAC, the issue of headlight glare can be further reviewed during detailed design as necessary, such as through the development and implementation of the Landscape Management Strategy as outlined in mitigation measures LV01. I support this conclusion and further recommend that headlight glare is considered as part of Landscape Design Plans as detailed in LV03 as these will be focused on mitigating visual amenity at the local scale and ensuring visual amenity considerations are integrated into the design and landscaping approach. Accordingly, I recommend mitigation measure LV03 is amended to specifically refer to the need to consider potential headlight glare when planning screening of adjacent roads and dwellings using plants and/or landforms.

IAC found that modifying the eastern interchange eastern on ramp to one lane with the merging of two to one lane occurring on the 'old' Western Highway should be explored through the detailed design. I support this finding given it could potentially minimise potential impact on roadside vegetation and land disturbance. This aspect should be investigated as part of the detailed design process which is further discussed in Section 4.1. As discussed for the western tie in – it will be important that the eastern tie in is examined by a multidisciplinary team so that the various environmental and social impacts and benefits can be considered and balanced where needed in developing the final design.

Access and road management

Due to the nature of the bypass project with a long and wide linear footprint, some adverse impacts on accessibility at the local scale will be unavoidable. A small number of properties will have their access permanently impacted and there will

be some changes required to the local road network. Concerns were raised in multiple submissions regarding access impacts, and various options for mitigation were discussed in the IAC report. The IAC found that the Access Management Strategy as proposed in the EMF (MD06) is an appropriate measure to mitigate access impacts to an acceptable level. I support this conclusion and highlight the need for a thorough consultation process with those landholders affected by access changes, to help ensure that design and mitigation options are identified to minimise any adverse impacts on access where feasible. I note the EMF states that the Access Management Strategy will be developed in consultation with landholders directly and indirectly impacted by temporary and permanent changes to access.

The Access Management Strategy is proposed to be developed to the satisfaction of the Department of Transport (now DTP), Pyrenees Shire Council and DELWP (now DEECA). As DEECA includes a wide range of groups, I recommend this document should be prepared specifically to the satisfaction of the DEECA Regional Director Grampians Region (or delegate).

RRV proposed several changes to the mitigation measures outlined in the draft EMF in the EES, to help address access issues raised by submissions. These included amending the requirements of the Operations and Maintenance Plan to include a description of assets to be handed over to Council and updating mitigation measure LV03 to allow for the consideration of Council comments on issues of connectivity including recreation, pedestrian and cyclist networks. I support the finding of the IAC that these EMF changes are appropriate, and should be incorporated into the final EMF to be submitted for approval, so they can be implemented via the relevant management plans.

It was noted by the IAC that, during operation of the project, traffic flows would be greatly reduced along the 'old' Western Highway between the eastern tie in and Beaufort, and that this may provide opportunities to provide additional breaks in the central median wire rope barrier to improve access for properties located along this section. The IAC concluded that RRV/DoT should review opportunities to improve and provide full local access to side roads and other local access points which are currently restricted to left in-left out arrangements along the 'old' Western Highway between the eastern and western tie ins as part of the detailed design. I support this finding to help minimise adverse impacts on local accessibility and recommend that the scope of the Access Management Strategy in the EMF is updated to include consideration of this aspect.

Assessment

It is my assessment that:

- On balance, potential adverse traffic and transport effects can be acceptably managed via the implementation of the proposed mitigation measures, including the amendments recommended by the IAC and this assessment.
- The project is expected to result in several road network performance benefits including time savings compared to driving through Beaufort township, and improved road safety particularly for pedestrians and cyclists due to reduced traffic volumes within the town. There is also likely to be amenity benefits within the township from reduced traffic volumes such as reduced noise levels.
- However, the project will result in some impacts to accessibility at the local scale for landholders with properties directly within or adjacent to the project footprint. I consider these impacts can be acceptably mitigated via the development and implementation of the Access Management Strategy.
- Traffic during both construction and operations will result in amenity impacts for some residents close to the project footprint. My assessment of amenity effects of the project is provided in sections 6.5, 6.9 and 6.10.
- I generally support the recommendations of the IAC to strengthen the mitigation measures proposed for traffic and transport, and in addition I have recommended that:
    - Mitigation measure T02 be amended to note that the review of speed zones on roads between Beaufort township and all interchanges with the Western Highway should include specific consideration of the need to reduce speed limits on Beaufort-Lexton Road.

- Mitigation measure LV03 be amended to specifically refer to the need to consider potential headlight glare when planning screening of adjacent roads and dwellings using plants and/or landforms.
- The scope of the Access Management Strategy (MD06) in the EMF be updated to include review of opportunities to improve and provide full local access to side roads and other local access points which are currently restricted to left in-left out arrangements along the 'old' Western Highway.

- The use of a multidisciplinary design team approach during the detailed design stage, as recommended by the IAC and this assessment will be critical, to facilitate an integrated consideration of environmental issues in the final design of the interchanges and tie ins, whereby trade-offs between the various impacts and benefits can be considered and balanced. In addition to land access issues discussed in this section, key issues to be considered in the detailed design process for the interchanges will include vegetation loss (see Section 6.2), Aboriginal cultural heritage (see Section 6.7), landscape and visual amenity (see Section 6.8), as well as noise (see Section 6.9).
- Implementation of a thorough consultation process during the detailed design phase, particularly with adjacent landholders and residents, will be critical to inform the development of key documents such as the Traffic Management Strategy and Access Management Strategy.

6.2. Biodiversity and Habitats – General

This section considers general impacts on biodiversity values and habitats from the project. Section 6.3 covers the impacts on specific threatened species and communities protected under the EPBC Act and/or FFG Act. Impacts on wetlands are further considered in Section 6.4.

Biodiversity effects were discussed in Chapter 9 and Technical Report C of the EES, as well as in Chapter 5 of the inquiry's report. The EES proposed 32 environmental management measures to address biodiversity effects, some of which have been the subject of recommendations by the IAC. The proponent commissioned a peer review and tabled their findings at the hearing as Tabled Document 23.

Evaluation objective

To avoid and minimise adverse effects on native vegetation, as well as habitat for threatened flora and fauna species and ecological communities, including those listed under the FFG Act, and address offset requirements for predicted losses consistent with relevant policy.

Assessment context

The project study area is located to the north of the Beaufort township in predominantly broadacre farming use, interspersed with native forested woodland. This is most evident in the rolling hills and plains, where there is agriculture. The more steeply sided hills, unsuited to agriculture, are generally vegetated and have conversation values, such as Camp Hill, which is reflected within the local planning scheme.

The potentially significant environmental effects on biodiversity and habitat values that were examined by the EES and IAC included:

- loss or degradation of native vegetation and/or habitat for fauna and flora species;
- impacts on threatened species and communities listed under the EPBC Act and FFG Act;
- impacts on fauna movements and habitat connectivity across the landscape; and
- disturbance effects from changes in surface water (quality and hydrology).

There were five submissions to the IAC relating to biodiversity, including from DELWP Grampians Region. The EES and IAC also examined 32 proposed environmental management measures, management strategies and offset requirements

under the EPBC Act and FFG Act. Key management documents proposed in the draft EMF related to biodiversity matters include:

- construction environmental management plan (MD04);
- native vegetation offset strategy (MD07);
- EPBC Act offset strategy (MD08);
- threatened species management plan (MD09); and
- landscape design plan (MD16).

Discussion

Extent of native vegetation removal

Ecological Vegetation Classes (EVCs) and trees were mapped for the study area to assess potential impacts on native vegetation, as set out within Technical Appendix C of the EES. The proposed project requires the removal of approximately 48.54 ha of native vegetation. Most of this area consists of patches of Grassy Dry Forest EVC (classified as 'depleted'), however it also includes small areas of several endangered EVCs. The EES rightly notes that this quantum of native vegetation loss is likely to be a significant impact. This vegetation removal will result in impacts on specific habitats and habitat connectivity for threatened species and communities within this landscape. These aspects are discussed further the following sections of my assessment.

The IAC concluded that the EES' characterisation of the likely native vegetation removal associated with the Project for the proposed C2 alignment was, for the most part, appropriate to inform examination of impacts within the EES. However, I concur with the IAC's finding that the EES did not fully characterise the total extent of native vegetation to be removed to facilitate the project, as there are some unknowns associated with further design work that will need to be resolved to accurately establish the area of native vegetation to be cleared and offset. One example identified by the IAC is the potential need for native vegetation clearance to establish new access arrangements, outside the project's proposed footprint, to reinstate access to private properties which will be permanently affected by the project (see Section 6.1).

To ensure these unknown impacts are accounted for and minimised to the extent practicable, I support the IAC's view that impacts on native vegetation from providing new access tracks should be considered as part of the Access Management Strategy (MD06) and be included in the Native Vegetation Management Plan. It is important this explicitly encompasses the imperative to avoid and minimise impacts on native vegetation during selection of the access track alignments. I also support the IAC's recommended changes to Clause 5.1.1 of the incorporated document in this regard. This will help ensure the application for approvals to remove native vegetation includes considers the full extent of native vegetation removal required across the whole project (not just that within the SCO).

I note some discrepancies between the RRV-commissioned peer review of Technical Report C, conducted by Brett Lane (Tabled Document 23) and the findings of the EES. This peer review identified that the assessment had underscored the leaf litter and log components of some habitat zones, and identified three additional habitat zones that had not been accounted for in the assessment. The IAC recommended amendments be incorporated into the final native vegetation assessment to address these points of difference, which I support. These amendments are expected to result in a minor increase in the extent of native vegetation removal required. I support the IAC's view that it will also be important to ensure that the final assessment of the required native vegetation removal is completed in line with the Native Vegetation Guidelines, including clearly addressing the avoid, minimise and offset hierarchy. As highlighted by DELWP in its submissions to the hearing, the assessment had used a 10 metre buffer around trees as opposed to the 15 metres required under the Guidelines.

The IAC noted that while high-level mitigation measures in the EES do require further avoidance and minimisation of native vegetation removal during the detailed design stage (e.g. BH01), it would be appropriate for these measures to identify areas where potential reductions are more important and/or possible. I support this recommendation to ensure that efforts during the detailed design to further avoid and minimise impacts on native vegetation are focused on key areas. Key project components for such investigations include the three interchanges, as there are expected to be opportunities to avoid and minimise impacts on vegetation in these areas (see Section 6.1). Furthermore, I recommend

that the design management document (see Section 4.2) incorporate an assessment and identification of priority areas where further avoidance of vegetation should be considered beyond that proposed in the EES. Victoria's Native Vegetation Guidelines require that efforts to avoid removal of, and minimise impacts on, native vegetation should be commensurate with the biodiversity values of the vegetation.

Trees

An assessment of impacts on trees in the EES used a sampling approach to estimate the number of large trees in patches and all scattered trees. As outlines in Technical Appendix C of the EES, this assessment estimated up to 348 large trees (both in patches and scattered) and 7 small scattered trees have the potential to be impacted by the project.

The method used to estimate the number of trees likely to be impacted was examined during the IAC hearing. The IAC concluded that the tree surveys were appropriate for the current stage of the project development, which I support. However, I also note some uncertainty remains regarding the exact number of trees to be removed for the implementation of the project; there is a need to further develop both the project's design and mitigation measures needed to achieve appropriate outcomes. The detailed design stage will in turn resolve the project's final footprint.

During the hearing, RRV proposed an arborist assessment during the detailed design stage, to help ensure that the number of trees to be removed is accurately measured to inform project offsetting requirements. The IAC supported this and recommended the pre-construction arborist assessment is included as a specific requirement in the EMF, which I also support. Furthermore, I recommend that the design management document (see Section 4.2) include assessment and identification of priority areas where further avoidance of trees be considered, beyond that proposed in the EES. This is important to ensure native vegetation (and habitat) clearance is avoided wherever possible when the detailed design process occurs.

The EES acknowledged that the loss and impact on a large number of native trees will impact fauna habitat in this landscape, including the loss of numerous hollows impacting hollow-dependent species, as well as reducing habitat connectivity. To help mitigate these impacts, a timber re-use program was recommended in the EES and relevant mitigation measures are provided in the EMF as a means of re-creating some of the habitat that would be lost.

The issue of hollow replacement was raised in public submissions and the hearing, including the potential need for targets for hollow replacement. The loss of hollow-bearing trees from Victorian native forests and woodlands is an FFG Act listed threatening process. Mitigation measure BH06 outlines the requirement for a suitably qualified, experienced and licensed ecologist to identify, inspect and remove tree hollows that are likely to support native fauna, and requires provision of replacement hollows in nearby/retained native vegetation. To help address this, the IAC recommended mitigation measure BH06 be strengthened to require a Hollow Replacement Strategy with a minimum replacement ratio of 1:1, which I support, noting the recommended additions and amendments below.

I note that RRV's final proposed changes to the EMF provided to the IAC include to "update EMF consistent with DELWP submission to identify – implementation details of the Tree Re-use Program, specifically how cleared trees will be reused and the number and type of replacement logs and hollows to be installed to compensate for the loss of hollows, as described in Section 10.4.1.2 of Appendix C". I support this change, as having measurable targets for tree re-use and hollow replacement would support the effective implementation and verification of these important mitigation measures. I further recommend that the scope of the Tree and Timber Re-use and Repurposing Strategy included in the final day incorporated document is outlined in the final EMF, including requirements for consultation (with environmental and community groups), review and approval. This should also entail consultation with DEECA Grampians region about establishing the numbers/targets for tree reuse and hollow replacement, as well as the need to publicly report progress against the targets (e.g. on the project website). In addition, I recommend that the commitment to replace tree hollows is strengthened to require the number and type of artificial hollows to be commensurate with the number and type to be removed, as determined by a qualified zoologist. The agreed location and specification of artificial hollows should be developed as a project GIS layer and incorporated into site maps prior to the commencement of works.

Whilst I consider that hollow replacement is an important mitigation measure in the short term, to replace/provide alternative habitat, I note that it is a not a complete, long-term solution to address loss of habitat from the project, as artificial hollows require ongoing maintenance and monitoring and the formation of natural hollows takes many decades. Mitigation measure BH11 in the EES includes planting of trees as part of the approach to mitigate landscape and visual

impacts of the project (refer to Section 6.8), which should also lead to further trees and hollows for habitat in the longer term.

Given the interest of community members in the potential impacts of this and other projects on trees and associated values, I agree with the IAC that continuing to actively engage with the public on this matter will be important to help build public confidence in the project and its approach to minimising and managing impacts. I support the recommendation of the IAC that the proposed Community and Stakeholder Engagement Plan (MD12) or a new mitigation measure should specify the need for further engagement with the community on native vegetation and biodiversity issues, including through the publication of further arborist assessment and commitments to revegetation /reinstatement activities.

Potential impacts on habitat and habitat connectivity associated with the loss of trees for the project are also discussed in the sections below.

Fauna movement and habitat connectivity

The EES included a habitat connectivity study undertaken for the project by the University of Nottingham, which was included as Appendix M to EES Technical Appendix C. The study used leading practice to model habitat connectivity for priority species and surrogate species. The existing conditions of habitat connectivity varied significantly for each type of fauna modelled (woodland birds, small terrestrial mammals, arboreal mammals, reptiles and golden sun moth). The habitat connectivity study acknowledges that that construction of the bypass and associated vegetation removal will potentially have significant long-term consequences for regional scale habitat connectivity, due to the isolation of patches of habitat in the north from the patches in the south and separation of patches of habitat in the east of the alignment from those to the west.

The EES proposes several mitigation measures in the EMF to address loss of habitat connectivity, with BH02 being the primary measure proposed. BH02 proposes the design will use structures to facilitate safe passage across the road and discourage fauna from crossing the road at grade. The broad types of mitigation proposed in the EES are:

- a land bridge;
- modified drainage structures to include wildlife movement and drainage;
- canopy rope bridge;
- extended bridge underpass;
- dedicated wildlife culvert;
- strategic revegetation;
- fencing to prevent wildlife from accessing the road and to funnel them towards the crossing structures; and
- culverts and bridges designed to the Growling Grass Frog Crossing Design Standards (DELWP 2017).

The habitat connectivity study was able to quantitatively model the improvements in habitat connectivity derived from individual fauna crossing structures for species represented by Woodland Birds, Echidna and Brush-tailed Phascogales. This level of analysis was not possible for Golden Sun Moth and Growling Grass Frog due to data deficiency in current knowledge of these species. The EES does not propose mitigation measures for Golden Sun Moth as there are no known methods for identifying habitat connectivity or mitigating habitat connectivity for this species, short of habitat creation. My assessment of potential impacts on the Growling Grass Frog and Golden Sun Moth, as listed threatened species, is provided in Section 6.3.

While no specific commitments to implementing particular structures from the list above are provided in the EMF, mitigation measure BH02 states that the detailed design of features to mitigate loss of connectivity will be developed in consultation with ecologists, and with consideration of the ecology of the relevant species most requiring mitigation. Approximate locations for the proposed connectivity measures are provided in the EES in Appendix K6 of Technical Appendix C. Mitigation measures BH02 refers to this appendix and states that the precise locations will be determined during the detailed design process.

As highlighted by the IAC, a key aspect of examining the acceptability of the likely biodiversity impacts of the project is establishing whether critical mitigation and design components (e.g. the Camp Hill land bridge) will be adopted (and

refined) or be an optional aspect of the project design, perhaps depending on project funding. This is unclear from the EES. The IAC recommended the implementation of the proposed land bridge to re-connect habitat in the Camp Hill State Forest – they considered it essential to appropriately mitigate the project's impacts on biodiversity values in the region and reduce impacts to acceptable levels. I support this recommendation.

Consistent with the IAC, I consider this proposed land bridge to be an integral component of a broader suite of mitigation measures to address the likely significant long-term impacts of the project on regional-scale habitat connectivity and biodiversity values. However, the land bridge alone would not sufficiently mitigate impacts to habitat connectivity. The habitat connectivity study within Technical Appendix C of the EES indicated for most species that a suite of mitigation measures was necessary to return habitat connections to an acceptable level. However, I acknowledge that of all the mitigation measures, the land bridge appears to be the most essential, as well as the most complex and costly measure. To ensure its inclusion in the project, it is my recommendation that the incorporated document in the proposal planning approval include a requirement that the land bridge at Camp Hill be included as part of the package of habitat connectivity measures to be implemented for the project.

As part of the design management document the IAC recommended be required for the project (see Section 4.2), the IAC recommended that the design management document must set out further guidance on the detailed design approach for the land bridge at Camp Hill, in order to achieve environment mitigation objectives. I support this recommendation and recommend that the design management document encompass the design and development of the other habitat connectivity measures, including crossing structures (mitigation measure BH02), and address the areas where strategic revegetation is required (mitigation measures LV03 and BH29) to mitigate impacts on habitat connectivity.

The submission from DELWP noted the EES proposed a detailed assessment of design improvements for connectivity and to reduce the rate of roadkill/collisions; it submitted it should be part of a Wildlife Management Plan. RRV agreed to include the requirement for a separate Wildlife Management Plan in the incorporated document. I support the IAC's recommendation for preparation of a separate Wildlife Management Plan, in addition to the proposed Threatened Species Management Plan. This will allow the Wildlife Management Plan to cover general biodiversity and habitat management and monitoring measures, while the Threatened Species Management Plan focuses on the needs of particular threatened species and communities likely to be affected by the project, as set out below within this assessment.

In addition to including a requirement for the Wildlife Management Plan in the incorporated document, I recommend that the scope of this plan and requirements for consultation and approval during its preparation are documented in the final EMF (e.g. through updating Tables 17.5 and 17.6 of the current EMF). I recommend this encompass the Wildlife Management Plan needing to be prepared in consultation with, and to the satisfaction of DEECA Grampians Region.

The IAC further recommended that a monitoring program be developed and implemented to evaluate the degree of success of the habitat connectivity measures, with appropriate contingencies for improving habitat connectivity where needed. It was recommended this monitoring program be included in the Wildlife Management Plan, as required by the incorporated document and within mitigation measure BH02. I note that the land bridge at Camp Hill could be the first sizable land bridge to be constructed in Victoria for environmental purposes, and that there is uncertainty regarding the degree of success of this measure and other design measures. So, I support the IAC's recommendation to require a monitoring program to evaluate mitigation of impacts on habitat connectivity.

Additionally, the IAC recommended that mitigation measure BH02 be amended to specify the need for involvement of a suitably qualified ecologist. I support this proposed amendment to help ensure appropriate expertise is applied to the design and implementation of the habitat connectivity measures, including the development of the monitoring program.

Habitat disturbance

The EES considered the potential for indirect impacts on fauna habitat (habitat disturbance) to occur as a result of noise and dust during construction, visual impacts, introduction and spread of weeds and pathogens, roadkill and rubbish. The EES also considered the potential for the project to exacerbate threatening processes. This highlighted that increases in habitat fragmentation from the project may advantage some introduced species that are tolerant of disturbance, such as noisy miners and red foxes. Clearing of vegetation may also provide opportunities for weeds and soil pathogens to establish and result in downstream impacts due to erosion and sedimentation.

Mitigation measure BH05 is the primary mitigation proposed for habitat disturbance impacts in the EES. It entails the development of the CEMP which covers aspects such as no-go zones, tree protection, fauna fencing and weed and pathogen control. BH10 also specifies that maintenance contractors will be required to develop and implement an Operational Environmental Management Plan, which documents operational controls relating to environmental impacts including for flora and fauna as well as weed management.

DELWP's submission to the hearing highlighted a number of potential drivers of habitat disturbance that had not yet been addressed in the EES and EMF, including blackberries, fox and *Phytophera cinnamomi*. RRV proposed some changes to the EMF during the hearing to specifically address these, which were supported by the IAC, and are also supported by this assessment. These changes include the need to add a mitigation measure specific to blackberry and measures to minimise spread of diseases such as *Phytophera cinnamomi*.

While the IAC considered that the updated EMF generally provides a robust framework for managing disturbance to habitat, it found that the EMF did not sufficiently address some specific aspects of habitat disturbance and needs to be updated. The updates need to further address risks to habitat and biodiversity from weeds, pathogens and pest animal species. The IAC specifically noted the importance of updating the EMF to include any practicable, proven mitigation measures to prevent a further increase in noisy miners by the project. I support these recommendations to help ensure that indirect impacts on native fauna habitat are minimised and managed appropriately. Further to the IAC recommendations, I consider that specific measures should also be adopted to minimise potential increases in fox populations, as highlighted by the DELWP submission.

No-go zones and exclusion fencing

Establishment and implementation of no-go zones will be a key measure to help ensure impacts on native vegetation and fauna habitat are minimised and confined to the approved direct footprint of the project works. EMF measure BH01 includes further development of no-go zones as part of the detailed refinement of design/construction footprint to avoid and minimise impacts on native vegetation. I recommend this be conducted as part of a multi-disciplinary exercise to determine construction requirements and identify if any additional or refined areas (beyond those in the EES) should be included in the no go zones, as discussed above. This should be undertaken as a component of the design management document, to be prepared for the project. This should in turn inform the detailed design process (see Section 4.2) and should be conducted prior to any vegetation removal including for preparatory works (see Section 5.1).

Once the detailed design is complete, BH15 identifies the need for 'no-go zone identification/mapping, fencing and signage to protect retained native vegetation, habitat and threatened species to be included in landscape plan'. BH09 also includes penalties for contractors that impact no-go zones or any vegetation/ habitat outside of the project area and these will be incorporated into the contract. I support these measures to help ensure that vegetation to be retained is clearly marked and protected. I also recommend that the site inductions required by mitigation measures BH06 should specifically refer to the need to cover restrictions on no-go zones, as well as the need for regular inspections by environmental personnel to confirm no-go zones are being appropriately maintained.

Habitat creation and rehabilitation

The EES included various commitments to habitat creation and/or rehabilitation in mitigation measures BH02, BH06, BH11 and BH29-31. The EES stated that the landscape plan should include habitat creation for several species including Brolga, Brown Toadlet, Brush-tailed Phascogale, Growling Grass Frog and Golden Sun Moth. A number of recommendations are provided including using site-indigenous species for revegetation, conducting additional revegetation in the broader area, and creation of specific habitat features for species such as the Golden Sun Moth and Growling Grass Frog.

The IAC noted that the level of detail on habitat creation in the mitigation measures provided in the EMF chapter do not reflect the level of detail on recommendations provided in EES Technical Appendix C. To address this the IAC recommended the final EMF should be strengthened by including more detail on the habitat creation via specific cross references, in particular, mitigation measure BH29 should specifically reference revegetation practices to be implemented and refer to species to be targeted for habitat creation. I support this, to help guide the planning and implementation of effective habitat creation activities needed to sufficient mitigate impacts.

The IAC further recommended that input from an experienced ecologist should be included in the preparation of the Landscape Design Plans (LV03) and Landscape Management Strategy (LV01). I support this, as technical expertise will be required to ensure these plans provide sufficient detail on how to undertake the habitat creation and revegetation activities to provide maximum benefit for native species and biodiversity values, including the selection of key species to target for revegetation activities. I note that during the hearing RRV agreed and proposed amending LV03 to include this requirement.

To help ensure appropriate areas are identified for habitat creation and rehabilitation works, and integrated in the detailed design process, I recommend that potential areas for these works for each target species are clearly identified in the design management document to be prepared for the Project (see Section 4.2). I further recommend that the implementation of the habitat creation/rehabilitation measures is overseen by an appropriately qualified and experienced ecologist, to help ensure the works conducted appropriately consider the specific habitat needs of the target species in the context of the local ecological setting.

Submitters raised the need for seeds from local flora to be collected early in advance of revegetation activities to achieve the best possible outcomes. The WHCG submission suggested that local seed collectors (e.g. Seeding Victoria) be advised in advance. The IAC supported this suggestion and recommended that local seed collectors should be included as a stakeholder in the Community and Stakeholder Engagement Plan to be developed for project construction. I support this recommendation to help ensure the use of local seed collectors is considered as part of the planning for revegetation activities. I further recommend that the Landscape Design Plans to be prepared (as per mitigation measure LV03) include targets for the use of seeds collected from the local area in revegetation activities and that these targets are developed in consultation with the DEECA Grampians Region.

Biodiversity offsets

The EES indicated that offsets would be provided for impacts on native vegetation and associated species and communities in line with Victoria's requirements set out in Native Vegetation Guidelines. Key issues considered by the IAC were whether suitable offsets can be provided for the potential impacts of the project, and whether the preparatory works provision is appropriate and reasonable.

It was noted by the IAC that the EES did not provide an appropriate offset strategy. As highlighted in the DELWP submission, the EES also identified that there is a current shortfall in available offsets for some specific species associated with the native vegetation proposed to be cleared (e.g. Ben Major Grevillea and Rough Wattle), and the EES did not identify a strategy for how this risk could be addressed. During the hearing Mr McCaffrey submitted that evidence of offsets should be provided as a condition of the Native Vegetation Offset Strategy (MD07) once project funding was provided. He also proposed an approach to investigate the potential shortfall in offsets, to be included in the final EMF. The IAC considered that Mr McCaffrey's evidence provided a reasonable response to address the issue. I agree with the IAC that, as the timing of funding of the project is uncertain, a pragmatic approach is needed to determine the availability of offsets that will ultimately be required for the project.

The EES stated that in accordance with the proposed incorporated document, appropriate offsets will need to be secured prior to the removal of native vegetation. As discussed in Section 6.1, further work is required to determine any alteration to native vegetation clearance required to mitigate impacts associated with maintaining private land access. There is also the need to explore opportunities to further reduce vegetation clearance (e.g. at the interchanges) during the detailed design, while considering trade-offs with other environmental values. The exact extent and type of offsets needed will therefore need to be resolved when the detailed design is progressed, and the proposed project footprint is finalised. This will need to be undertaken prior to proposed clearing proceeding. Once the offsets required are identified, it will also be important to confirm the ability to secure the necessary offsets prior to vegetation clearance being approved. I consider the proposed incorporated document includes appropriate conditions to manage this risk, such as through the need for preparation and approval of the Offset Statement required under the Native Vegetation Guidelines.

The proposed wording of the draft incorporated document exhibited with the EES allows for preparatory works, including native vegetation removal (clause 5.2), to be undertaken prior to preparation and approval of related management plans including the final EMF, Native Vegetation Management Plan, Offset Statement and Threatened Species Management Plan. The draft incorporated document also allows for these preparatory works to proceed prior to the securing of native vegetation offsets in accordance with the Native Vegetation Guidelines. As a result of the uncertainty regarding the

availability of necessary, suitable offsets for some species proposed to be impacted, the IAC considered it reasonable that an offset statement be required prior to undertaking any preparatory works. I agree with the IAC that the provision of an Offset Statement is necessary to help ensure the availability of offsets is resolved for relevant species and vegetation communities prior to any clearance of native vegetation. However, I note that some preparatory works may be able to be conducted prior to this which do not require any impacts to or removal of native vegetation (e.g. investigating and testing to determine the suitability of land, property condition surveys, establishment of no-go zones etc). I recommend that the incorporated document be revised to require the Offset Statement for preparatory works and address this issue appropriately, in consultation with the DEECA Grampians Region. My assessment of preparatory works and proposed controls is further discussed in Section 5.1.

The IAC further recommended that the EMF should include a requirement to consider opportunities to provide strategic revegetation to strengthen habitat corridors (with the PAO/ SCO and in the broader study area). I support this recommendation in principle, as such works would assist in mitigating impacts on fauna movement, and recommend that the design management document include the consideration and assessment of potential opportunities for strategic revegetation (see section on Habitat connectivity and disturbance above). However, I note that it is not a requirement of the Native Vegetation Guidelines to implement this mitigation measure as part of the offset strategy. I recommend this measure is also considered in the planning of revegetation works as part of the Landscape Management Strategy (see Section 6.6).

Assessment

For general biodiversity and habitats, including native vegetation, it is my assessment that:

- The residual impacts from the project on native vegetation and biodiversity values will be significant, even with diligent implementation of mitigation measures and detailed design to further minimise impacts. This is particularly due to the large extent of native vegetation likely to be removed and associated impacts on several threatened species, which is necessary for the bypass to traverse crown land in proximity to the town.
- However, the scale of expected impacts is commensurate with this type of infrastructure project and on balance, I consider the project's overall impacts associated with native vegetation loss, habitat fragmentation and habitat disturbance are acceptable providing the successful implementation of all the recommendations of the IAC and this assessment. As set out within this assessment, achieving acceptable outcomes requires some further work to refine the necessary mitigations and design elements.
- While some avoidance and minimisation of impacts on native vegetation and biodiversity values has been achieved via the EES process, there will be further opportunities for refinement of the project footprint and its impacts through the detailed design process. Recommendations of this assessment and the IAC further strengthen mitigation measures and processes for the detailed design phase, to help ensure acceptable environmental outcomes can be achieved.
- Further work has been recommended during the detailed design process to also clarify the full extent of native vegetation and trees requiring removal for the project. Some uncertainty also remains regarding the availability of suitable offsets, so I have also recommended an Offset Statement is prepared prior to undertaking any native vegetation removal for the project (including for preparatory works).
- RRV's proposal to develop a Tree and Timber Re-use and Re-purposing Strategy and a Hollow Replacement Strategy for the project should be implemented, to help mitigate impacts on associated biodiversity values.
- Specifically in relation to impacts on habitat connectivity:
    - The project has the potential to result in significant impacts on habitat connectivity, not only due to clearance and severance of larger areas of native vegetation, but also due the ongoing presence of new infrastructure, particularly for threatened fauna species such as Brush-tailed Phascogale and other species discussed in Section 6.3. The EMF outlines a number of potential design options for mitigation with further investigation of which options will be implemented proposed.
    - The construction of habitat connectivity measures (including the land bridge to re-connect habitat in the Camp Hill State Forest) will be an essential aspect of ensuring the acceptability of the project's impacts

on biodiversity values. These are not measures or offset requirements that fall directly out of native vegetation policy or regulations, so the requirement to implement key connectivity mitigation measures such as the land bridge should be included within the conditions of the proposed incorporated document.

  - The design management document recommended by the IAC and supported in this assessment, needs to provide further guidance regarding the detailed design approach for the land bridge, and I recommend it also provides guidance on the design process for other key measures such as the rope bridges that will be important for the Brush-tailed Phascogale.
  - A monitoring program also needs to be developed to evaluate the success of the habitat connectivity measures implemented, with appropriate contingencies for improving habitat connectivity where needed.

- Input is to be sought from a suitably experienced ecologist for the preparation of the Landscape Design Plans and Landscape Management Strategy, to assist in ensuring habitat rehabilitation measures are appropriate for the target species. I also recommend target areas for habitat creation and rehabilitation are included in the design management document.

My assessment in relation to specific species and communities protected under the EPBC Act and/or FFG Act is provided in the following section.

6.3. Threatened species and communities

This section considers impacts on specific threatened species and communities protected under the EPBC Act and/or FFG Act, drawing upon the assessment of related matters discussed in other sections of my assessment, including findings on aspects of general habitat and biodiversity (Section 6.2), noise and vibration (Section 6.9) as well as surface water, floodplains and wetlands (Section 6.4).

Potential impacts on threatened species and communities are assessed in the EES in Technical Appendices B and C and are summarised in EES Chapter 9. The peer review by Brett Lane also considered impacts on threatened species and communities identified in surveys, as well as the adequacy of surveys conducted (Tabled Document 23).

Evaluation objective

To avoid and minimise adverse effects on native vegetation, as well as habitat for threatened flora and fauna species and ecological communities, including those listed under the FFG Act, and address offset requirements for predicted losses consistent with relevant policy.

Assessment context

Matters of National Environmental Significance

As set out in Section 3.6, the project is a controlled action requiring approval under the EPBC Act and is being assessed through the accredited EES process. Under the Bilateral Agreement between the Australian and Victorian governments, the project's EES and this assessment need to examine and make findings on likely impacts on relevant matters of national environmental significance (MNES), i.e. listed threatened species and communities.

Chapter 14 of the IAC report summarised the likely impacts on MNES, with detailed discussion of evidence and submissions related to MNES provided in Chapter 5. EPBC Act-listed threatened species identified in the EES as having a medium or higher likelihood of occurrence in the project areas are listed below.

- Flora species and threatened ecological communities:
  - Seasonal Herbaceous Wetlands (Freshwater) of the Temperate Lowland Plains;
  - White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland;
  - River Swamp Wallaby-grass;
  - Matted Flax-lily;

- Ben Major Grevillea; and
- Ornate Pink Fingers.

- Fauna species:
  - Growling Grass Frog;
  - Golden Sun Moth;
  - Little Galaxias; and
  - Painted Honeyeater.

The EPBC Act-listed species Matted Flax-lily, Ben Major Grevillea, Growling Grass Frog and Little Galaxias are also listed as threatened in Victoria under the FFG Act (see below).

Other threatened species and communities

In addition to those listed above, the EES indicated the project has the potential to impact on habitat for several species and communities that are currently FFG Act-listed:

- Yarra Gum[4];
- Brown Toadlet;
- Brush-tailed Phascogale;
- Wetland bird habitat (provides habitat for several listed species); and
- Woodland bird habitat (provides habitat for several listed species).

In addition, offset requirements were also triggered based on habitat importance models for several flora species.

Mitigation

A key mitigation measure outlined in the EMF relevant to MNES species and communities is the proposed preparation of a Threatened Species Management Plan (mitigation measure MD09/BH12) which will focus on key threatened species likely to be impacted, and will incorporate the more detailed management measures for threatened species outlined in the EMF (measures BH13 to BH32). A Construction Environmental Management Plan will also be developed (mitigation measure MD04, BH05) and implemented which will address a range of environmental risks and impacts relevant to biodiversity and MNES values.

There is also potential to further avoid and minimise impacts on a range of MNES via the implementation of mitigation measure BH01 which requires detailed refinement of design and construction footprint to avoid and minimise vegetation to be removed, and further development of no-go zones.

Discussion

My assessment is provided below for each of the relevant species and communities protected under the EPBC Act and/or FFG Act. The adequacy of EES' surveys and examination of impacts on threatened species and communities is also discussed.

Seasonal Herbaceous Wetlands

Seasonal Herbaceous Wetlands (Freshwater) of the Temperate Lowland Plains (hereafter referred to as 'Seasonal Herbaceous Wetlands') are listed as critically endangered under the EPBC Act. EES Technical Appendix C outlined that the project has the potential to impact on this threatened ecological community via direct removal of up to 0.312 hectares.

4. Note at time of EES preparation Yarra Gum was on the Victorian Advisory List. The species now FFG Act-listed (amendments to the FFG Act have removed duplication by establishing a single comprehensive list of threatened flora and fauna species for Victoria).

The potential for additional indirect impacts on the threatened ecological community was also highlighted in the EES. It included the potential for the project to modify existing surface water conditions and environmental hydrology, which could then result in indirect impacts to wetland areas outside the project footprint. To mitigate these impacts, the EES provided an initial assessment of proposed design measures to minimise the risk of impacts on surface water values, including changes to hydrology (see Section 6.4). In addition, mitigation measures for Seasonal Herbaceous Wetlands are proposed to be covered by the Threatened Species Management Plan to be prepared for the project (MD09).

The EES assessed residual impacts with the implementation of these mitigation measures, and determined that a minor reduction in the extent of Seasonal Herbaceous Wetlands, as well as a change to the hydrological regime for wetland 35402, is unlikely to represent a significant residual impact. An assessment of the impacts of the project on Seasonal Herbaceous Wetlands under the EPBC Act Significant Impact Guidelines 1.1[5] was also undertaken as part of the EES and it was determined that the likelihood of significant impact on this MNES is low with implementation of the measures proposed (EES Chapter 9).

Mapping of Seasonal Herbaceous Wetlands

Accurate mapping of Seasonal Herbaceous Wetlands is required to determine potential impacts and required design and mitigation measures to avoid and minimise impacts. As described in Section 6.4, there is uncertainty regarding the reliability of the mapping of wetlands conducted for the EES. I note in Section 6.4 that the use of the Water Observation from Space (WOfS) dataset for the EES may have underestimated the extent and/or quality of wetland habitat potentially impacted.

I therefore recommend that updated mapping of Seasonal Herbaceous Wetlands be prepared to inform detailed design and assist in confirming the extent of potential direct and indirect impacts on this MNES. This work and its outcomes should be provided in the design management document to be prepared for the project (see Section 4.2) so that it can be used to inform the detailed design of both the project and the mitigation measures. Appropriate ecological expertise should be utilised for the mapping, as well as consultation with DCCEEW. The mapping process will also need to consider the outcomes of the further flood modelling to be conducted as per EMF mitigation measure SW01.

Impacts on Seasonal Herbaceous Wetlands

A key issue raised during the hearing was the potential for indirect impacts on the Seasonal Herbaceous Wetlands due to changes in hydrology resulting from the project. DELWP highlighted in their submission that there was an unspecified extent of Seasonal Herbaceous Wetland in Wetland 35402 that could be impacted through a change in flooding conditions. The EES notes that the outstanding modelled afflux could be addressed at detailed design stage, if practicable. However, the EES does not commit to a specific measurable extent of change or to maintaining a specific hydrological regime for the wetland.

As outlined in Section 6.4, given the nature and scale of the project and the extent of floodplains intersected by the project, there is expected to be impacts on hydrology in the area surrounding the project footprint, including some localised changes in hydrological regimes. RRV submitted during the hearing that engineering controls could be implemented to ensure the hydrological regime for EPBC Act-listed wetlands is not altered. However, I consider that the mitigation measures provided in the EES do not provide sufficient assurance at this stage that the project design will be able to achieve the predicted outcome of avoiding significant indirect impacts on Seasonal Herbaceous Wetlands.

While I acknowledge that further detailed modelling of hydrological changes is proposed in mitigation measure SW01, to inform the detailed design, at this stage the exact changes and residual impact from the project to hydrology in some specific locations has not been determined. This includes not having a complete understanding of final residual impacts expected for Seasonal Herbaceous Wetlands, particularly given the effectiveness of the proposed mitigations have not been confirmed. This uncertainty creates an unacceptable risk of significant effects on this ecological community due to changes in the wetland hydrology from the project.

[5]. Department of Environment (2013) Matters of National Environmental Significance: Significant impact guidelines 1.1., Environment Protection and Biodiversity Conservation Act 1999. Department of Environment, Australian Government.

To address this risk the project needs to strictly limit its impact on this critically endangered ecological community and the hydrology of these wetlands. The IAC did not provide a finding on the extent to which these critically endangered wetlands might be affected by the project. It is my recommendation that the project needs to at least maintain the hydrology (and water quality) of these wetlands and therefore not indirectly impact this ecological community. To achieve this, RRV should progress the remaining work on modelling, design specifications and mitigation required, through the development of the design management document. This document should include characterisation of the full extent of seasonal herbaceous wetlands and in doing so demonstrate that the project design and operation can at least maintain the hydrology and conditions of the downstream wetland environments for this critically endangered ecological community.

To incorporate the requirements above into the environmental management documentation for the project, I recommend that the final EMF include the performance requirement to at least maintain the hydrology and wetting conditions of the wetlands and to avoid indirect impacts on the Seasonal Herbaceous Wetlands in the area surrounding the project footprint. The specific requirements included in the final EMF should be informed by input from a suitably qualified floodplain ecologist and should detail the geographic area and timeframes over which this this requirement will need to be implemented. The requirements should be informed by the further mapping of the ecological community (see above) and additional hydrological modelling proposed to be conducted for the project and detailed design (see Section 6.4).

I further recommend that the scope of the design management document (see Section 4.2) include demonstration that the design and engineering controls will be able to at least maintain the hydrology and downstream environmental conditions for each wetland area. I recommend that this accompanied by the development and implementation of a monitoring program for this ecological community, including provisions for implementation of contingency measures as appropriate. The details of the monitoring program should be incorporated into the Threatened Species Management Plan to be developed for the project (MD09). The monitoring program should be developed in consultation with DCCEEW as well as the DEECA Grampians region, and should include measurable indicators for monitoring and thresholds for further intervention/mitigation via an adaptive management process.

With implementation of the mitigation measures proposed, including the additional and amended measures proposed by the IAC and the recommendations of this assessment, I consider that there are unlikely to be significant residual impacts from the project on Seasonal Herbaceous Wetlands. Impacts on wetlands more broadly are further discussed in Section 6.4.

White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland

The White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland ecological community is listed as critically endangered under the EPBC Act. This ecological community was recorded in the study area in surveys conducted for the EES, however no direct impacts from the project are expected as the mapped locations occur outside the project footprint (EES Chapter 9). To ensure the project has no impact on this community, a key mitigation measure proposed in the EES is the establishment of no-go zones to ensure there is no inadvertent clearing of this community. The establishment of no-go zones is included in several mitigation measures in the EMF including BH01, BH05, BH09 and BH15. It is also proposed that the Threatened Species Management Plan to be developed (mitigation measure MD09/BH12) will cover mitigation measures specifically for the ecological community.

An assessment of the impacts of the project on White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland under the Significant Impact Guidelines 1.1 was undertaken and it was determined that the likelihood of significant impacts is low (EES Chapter 9). With implementation of the mitigation measures proposed, I agree that there are unlikely to be a significant residual impact on this ecological community.

River Swamp Wallaby-grass

River Swamp Wallaby-grass is an aquatic perennial species growing mostly in wetlands and listed as vulnerable under the EPBC Act. The species was recorded within the construction footprint (in a dam off Topp Lane - see Figure 6). This area will be directly impacted by proposed works; an estimated area of 300 m^2 is proposed to be cleared (EES Chapter 9). The EES stated that the area to be removed is unlikely to have a material impact on the size of an important population. Additional records of the species were also recorded outside the construction footprint with the closest record being 55 m from the construction footprint (see Figure 6).

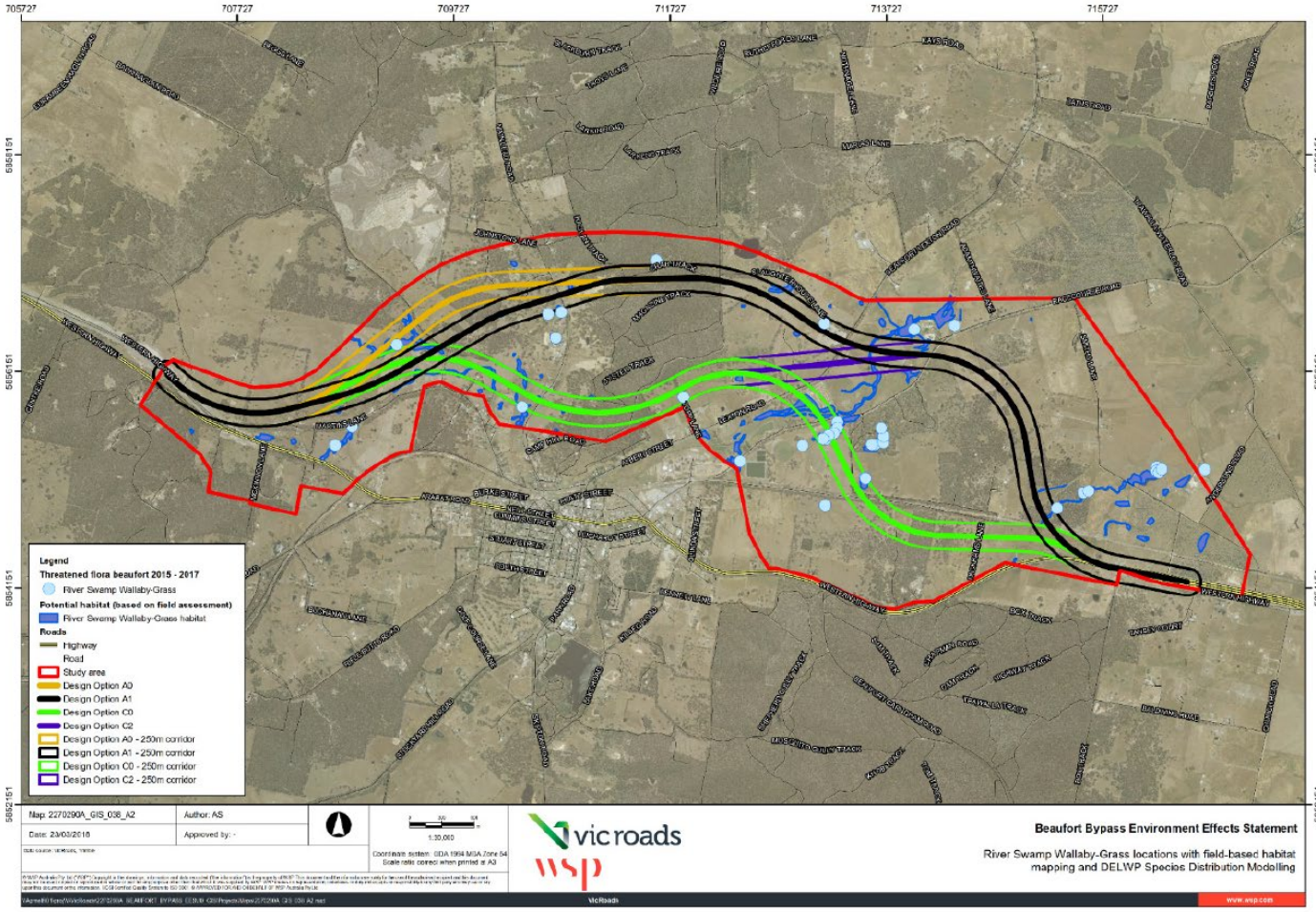

Figure 6. River Swamp Wallaby-grass locations (Source: EES)

It is proposed that the Threatened Species Management Plan (mitigation measure MD09/BH12) will cover mitigation measures specifically for River Swamp Wallaby-grass. These measures include a translocation and/or restoration plan for any River Swamp Wallaby-grass plants which cannot be avoided (BH17) and seed collection for the species (BH18). As described above, no-go zones would also be implemented to help avoid any inadvertent clearing of the species outside the project footprint. I support these proposed mitigation measures. Given the predicted direct impact on this species from clearing, I further recommend that the design management document (see Section 4.2) identifies potential areas for translocation and/or restoration of the species. These areas can then be considered as part of the detailed design process and development of subsequent mitigations and plans for implementation of these works.

In regards to the consideration of translocation for the species, the *EPBC Act Policy Statement - Translocation of Listed Threatened Species – Assessment under Chapter 4 of the EPBC Act* (2013) states that the high risk associated with translocation proposals generally means that, unless it can be shown that there is a high degree of certainty that a particular translocation attempt will be successful, the proposed removal of individuals of a species from a site should usually be considered as equivalent to the complete loss of those individuals. This needs to be considered and addressed in any avoidance and mitigation plans, as well as the offset strategy.

As part of the translocation and/or restoration plan I recommend a monitoring program is implemented for rehabilitated areas of River Swamp Wallaby-grass to help verify success/outcomes. The monitoring program would need to continue until vegetation in rehabilitated areas is well established, which is likely to require monitoring for several years into the operational phase of the project.

An assessment of the project's impacts on River Swamp Wallaby-grass under the Significant Impact Guidelines 1.1 was undertaken in the EES and it was determined that the species is unlikely to be significantly impacted (EES Chapter 9). With implementation of the proposed mitigation measures, including the amendments proposed by this assessment, I agree that there is unlikely to be a significant residual impact on this species.

Matted Flax-lily

Matted Flax-lily is listed as endangered under the EPBC Act and as critically endangered under the FFG Act. One record of the species was recorded in the surveys conducted for the EES and this plant/clump is currently proposed to be impacted as it occurs within the project footprint (EES Chapter 9). The EES stated that this impact is unlikely to result in a material long-term decrease in the size of the population.

It is proposed that the Threatened Species Management Plan to be developed (mitigation measure MD09/BH12) will cover mitigation measures specifically for Matted Flax-lily. These measures include translocation and/or restoration plan for any Matted Flax-lily plants which cannot be avoided (BH17). As discussed in relation to River Swamp Wallaby-grass above, the high risk associated with translocation proposals generally means that, unless it can be shown that there is a high degree of certainty that a particular translocation attempt will be successful, the proposed removal of individuals of a species from a site should usually be considered as equivalent to loss of those individuals when calculating offset requirements[6]. This needs to be considered and addressed in any avoidance and mitigation plans, as well as the offset strategy.

An assessment of the impacts of the project on Matted Flax-lily under the Significant Impact Guidelines 1.1 was undertaken in the EES and it was determined that the species is unlikely to be significantly impacted (EES Chapter 9). With implementation of the proposed mitigation measures, I agree that there is unlikely to be a significant residual impact on this species.

Ben Major Grevillea

Ben Major Grevillea is listed as vulnerable under the EPBC Act and as critically endangered under the FFG Act. The EES stated that no individuals are expected to be directly impacted within the construction footprint, however, the footprint is located in close proximity to the species where a fire track is proposed to be constructed (EES Chapter 9).

It is proposed that the Threatened Species Management Plan to be developed (mitigation measure MD09/BH12) will cover mitigation measures specifically for Ben Major Grevillea. As described above, no-go zones would also be implemented to help avoid any inadvertent clearing of Ben Major Grevillea outside the project footprint.

An assessment of the impacts of the project on the species under the Significant Impact Guidelines 1.1 was undertaken in the EES and it was determined that the project is unlikely to have a significant residual impact (EES Chapter 9). On the basis that no direct impacts on the species are expected to occur and the potential for indirect impacts will be avoided or managed through no-go zones, I agree that there is unlikely to be a significant impact on this species. Given that weed invasion is listed as a threat to the species in its recovery plan[7], I do however recommend that targeted weed control is conducted where the species occurs near the project footprint along the fire track. This weed control measures should be incorporated as part of mitigation measure BH19.

Ornate Pink Fingers

Ornate Pink Fingers is listed as vulnerable under the EPBC Act and as endangered under the FFG Act. Surveys conducted for the EES identified that the proposed project footprint avoids all records of this species, with the nearest records located greater than 600 m away (EES Chapter 9).

An assessment of the impacts of the project was undertaken in the EES for Ornate Pink Fingers under the Significant Impact Guidelines 1.1 and it was determined that the species is unlikely to be significantly impacted (EES Chapter 9). I agree with this conclusion.

6. See EPBC Act Policy Statement - Translocation of Listed Threatened Species – Assessment under Chapter 4 of the EPBC Act (2013)

7. https://www.dcceew.gov.au/sites/default/files/documents/g-floripendula.pdf

Yarra Gum

Yarra Gum is listed as critically endangered under the FFG Act. Targeted surveys for the species were conducted as part of the EES and a number of new records were found in the study area during surveys in 2015, 2016 and 2017. Two records of the species were identified within the construction footprint. One is likely to require removal and the other has potential for indirect impacts given its close proximity to proposed infrastructure. The EES highlights that in the absence of appropriate mitigation there is also potential for indirect impacts on Yarra Gum located outside the construction footprint, such as from dust, weeds, or inadvertent clearing. It is also noted that any significant changes in surface water hydrology or creek realignments may have indirect effects on this species.

General biodiversity measures proposed in the EMF would apply to the Yarra Gum. These include the need for detailed refinement of design/construction footprint to further avoid and minimise native vegetation removal, further development of no-go zones (BH01), as well as the development of the Construction Environmental Management Plan, which is proposed to include a range of measures (e.g. tree protection). I note that RRV's final proposed changes to the EMF include adding Yarra Gum to list of species to be covered in the Threatened Species Management Plan, which was supported by the IAC. Given that the species has potential for both direct and indirect impacts from the project I also support specific consideration of the species within the Threatened Species Management Plan. It is expected that the offset strategy to be developed for the project would include offsets for unavoidable impacts on Yarra Gum trees. If offsets are required, an offset management plan would also be need for the offset site.

Growling Grass Frog

Growling Grass Frog is listed as vulnerable under both the EPBC Act and FFG Act. While the species was not recorded within the study area, EES Chapter 9 of the EES stated the assessment has assumed the species is present within the landscape. The assumption of presence is appropriate as the frogs were detected at a reference site adjacent to the project's study area.

The EES stated that 87.065 ha of potential habitat for the Growling Grass Frog will be removed to support the project. The EES differentiated habitat into high quality habitat and moderate quality habitat within both aquatic and terrestrial environments. The EES defined:

- high quality potential aquatic habitat as those with ideal habitat with characteristics that support breeding;
- moderate quality potential aquatic habitat as environments with some characteristics of high quality habitat but may lack some or a number of key features;
- high quality terrestrial habitat as habitat that surrounds high quality aquatic/breeding habitat; and
- moderate quality terrestrial habitat terrestrial habitat which surrounds moderate quality aquatic/breeding habitat.

The quality of habitat at waterbody locations was assessed in the EES as high quality or moderate quality. As described in Section 6.2 and 6.4 of my assessment, further work is required to verify the existing hydrology and habitat values of wetlands and associated surface water features within and adjacent to the project area. This also has potential to change the ascribed value of existing habitat expected to be impacted for Growling Grass Frog.

Technical Appendix C of the EES stated that 1.413 hectares of aquatic habitat will need to be removed to facilitate the project. A subset of this (0.281ha) was defined as high quality aquatic habitat and meets criteria for listing as Seasonal Herbaceous Wetlands. The EES stated that the remaining 1.413 ha of aquatic habitat didn't have sufficient microhabitats to facilitate breeding of the species, but is likely to provide habitat for other life-history needs such as dispersal, feeding and over-wintering habitat.

There is a predicted loss of 17.85 ha of potential terrestrial habitat for this species adjacent to/associated with high quality potential aquatic habitat. There is also an anticipated loss of potential terrestrial habitat (68.179 ha) associated with some moderate quality potential aquatic habitat. However, the EES concluded that "a large proportion of this terrestrial habitat would be unlikely to be used by the species, as it does not occur between waterbodies, is [already] utilised for high-intensity grazing or cropping, or does not support features preferred by the species for overwintering or foraging (rocks, tussock grasses etc.)."

The land between waterbodies and adjacent to drainage lines is predominantly agricultural land or extant native vegetation, however both are traversable by Growling Grass Frogs. The agricultural impact assessment (Appendix C of Appendix G to the EES), states that most of the agricultural activities in the region are stock grazing with very limited presence of intensive cropping due to the low quality of soil. There was insufficient technical evidence supplied to support the contention that agricultural land would be impassable by Growling Grass Frogs.

The EES suggests that impacts to terrestrial habitat predominantly affects habitat connectivity between isolated and unoccupied patches of habitat, and therefore shouldn't significantly impact Growling Grass Frog. However, insufficient information was provided to support this conclusion.

The EPBC Act policy statement 3.14 Significant Impact Guidelines for the Vulnerable Growling Grass Frog state that habitat connectivity can be provided by a linear water body or suitable terrestrial habitat between waterbodies. The guidelines also note that a key ecological requirement for the species is to be able to move across open ground (for example grasslands and pasture) to access local foraging resources, breeding sites and shelter. It notes that "movement between breeding sites (water bodies) is crucial, allowing temporal variation in habitat use and/or recolonisation of sites following local extinction and maintains genetic diversity."

The EES has demonstrated that Growling Grass Frogs are persistent in the landscape around Beaufort, through the recorded presence of Growling Grass Frog at a reference site approximately 2km east of the alignment in 2020. This wetland has persistent records of the species over a decade. There are also historic records of Growling Grass Frog from the last 20 years in discrete locations across this landscape.

The EES has also demonstrated that the project area is hydraulically connected to the broader area through meandering ephemeral drainage lines and grassy floodplains, which is landscape the species can traverse. The project will impact these drainage lines and proposes to undertake 10 creek/drainage realignments and other changes to surface water features as described in Section 6.4 of my assessment and in technical appendix L to the EES.

Potential impacts on aquatic habitat corridors for the Growling Grass Frog were considered in the EES. The EES proposes that the project design will maintain connectivity for the species through crossings and strategic habitat creation. Four crossing points for Growling Grass Frog are currently proposed (bridges or culverts).

It is proposed that the Threatened Species Management Plan to be developed (mitigation measure MD09/BH12) will cover mitigation measures specifically for Growling Grass Frog. These measures would include:

- BH23 - Maintaining connectivity for the Growling Grass Frog and Little Galaxias through crossings and strategic habitat creation, including at culvert entrances in line with Growling Grass Frog Crossing Design Standards (DELWP 2017).
- BH24 - Salvage of Growling Grass Frog from impacted ponds if required.
- BH25 - Appropriate disease controls for Growling Grass Frog to minimise spread of the waterborne fungal pathogen *Batrachochytrium dendrobatidis*.
- BH26 - Construction using techniques which minimise impacts on wetlands which are partially within the construction footprint to avoid impacts on the retained potential habitat for Growling Grass Frog.

Surface water mitigation measure SW01 also states that the detailed design will include refined sizing and location of cross drainage structures (culverts and bridges), incorporating fauna passage requirements, which are to be designed in line with and the Growling Grass Frog Crossing Design Standards (DELWP, 2017).

I support the mitigation measures proposed and agree that these will assist in reducing impacts on Growling Grass Frog.

An assessment of the impacts of the project on Growling Grass Frog under the Significant Impact Guidelines 1.1 was undertaken in the EES and it was determined that the species is unlikely to be significantly impacted (EES Chapter 9). The EES contends that Growling Grass Frog is unlikely to be significantly impacted by the project with implementation of the mitigation measures proposed in the EES. However, I do not consider the EES mitigation measures to be adequate or sufficient certain to mitigate against the risk of unacceptable effects on the species and its potential habitat, for the reasons outlined below.

In Section 6.2 of my assessment, I outline my assessment of habitat connectivity impacts and I note that the benefits of mitigation measures to restore habitat were modelled for all species with the exception of Growling Grass Frog and Golden Sun Moth. The EES proposes four locations to restore north-south connectivity between watercourses through measure BH23. The EES did not sufficiently demonstrate that habitat rehabilitation at four culverts and bridges could effectively mitigate the removal of over 80 ha of potential habitat and therefore does not eliminate the potential for a significant residual impact to the species. Furthermore, it is unlikely that there are sufficient offsets available to offset this extent of potential habitat removal.

EPBC Act policy statement 3.14 Significant Impact Guidelines for the Vulnerable Growling Grass Frog state principle threats relevant for consideration of impacts and their significance include:

- construction of barriers that affect frog movement between waterbodies;
- changes to flooding patterns of permanent and non-permanent water bodies; and
- changes to hydrology of watercourses adjoining waterbodies and their surrounding vegetation.

As a result, I consider there to be a risk of unacceptable impacts on Growling Grass Frog due to the proposed removal of a total of 87.065 of known and potential habitat, i.e. without further mitigation. To assist in strengthening the mitigation measures for the project, I recommend the development of the design management document (see Section 4.2) include mapping of potential habitat for Growling Grass Frog based on the updated wetland mapping that I have recommended for the project (see section on Seasonal Herbaceous Wetlands). This updated habitat mapping should then be used to inform further avoidance and minimisation of direct impacts on Growling Grass Frog habitat. Further to this, any habitat loss that cannot be avoided needs to be considered in meeting offset requirement, in accordance with state and federal policy. This is expected to include the need for an offset management plan for site(s) where offsets are proposed.

Similar to the approach proposed above for River Swamp Wallaby-grass, I recommend that the design management document identifies potential areas for strategic habitat creation and/or rehabilitation for the species to ensure habitat connectivity is maintained in both north-south and east-west directions. The areas to be reserved for these works should be identified by appropriate ecological experts and be commensurate with the area and quality of habitat potentially affected by the project. The extent of the area to be subject to strategic habitat creation and/or rehabilitation, and specific targets and timeframes for works to be conducted, should be agreed with relevant stakeholders, in particular DEECA Grampians Region and DCCEEW.

A monitoring program should also be developed and implemented to verify the success of the habitat creation and/or rehabilitation works. The monitoring program would need to continue until vegetation in rehabilitated areas is well established, which is likely to require monitoring for several years into the operational phase of the project. The requirements for the monitoring program should be developed to the satisfaction of DEECA Grampians Region and in consultation with DCCEEW and be documented in the Threatened Species Management Plan.

I note that there have been advancements in fauna crossing structure designs since 2017, such as the requirement for light wells or frog ponds in the median strip. So, while there is a commitment in the EMF for Growling Grass Frog crossing points to be designed to the *Growling Grass Frog Crossing Design Standards* (DELWP 2017), I recommend that the design of these crossing points be refined cognisant of current best practice, in consultation with an appropriate ecological expert and DEECA Grampians Region. Updated standards and requirements for the crossing points should be included in the design management document, to inform the detailed design of the project.

With implementation of the additional mitigation measures described above, to clarify and reduce the impacts on habitat for this species, I consider that the risks and potential impacts on Growling Grass Frog can be minimised and acceptably managed. However, any significant residual impacts will need to be appropriately offset.

Golden Sun Moth

Surveys of the study area recorded the Golden Sun Moth, which is listed as vulnerable under both the EPBC Act and FFG Act. The EES identified a likely significant impact on this species, due to habitat clearance, and therefore proposed offsets would be provided. It was estimated that the project would result in an impact on 1.672 hectares of known occupied habitat, 9.434 hectares of higher quality potential habitat and 2.822 hectares of lower quality potential habitat. The IAC supported the conclusion that the project would result in a significant residual impact on the species and that offsets

would be required in accordance with the EPBC offset policy. I support this conclusion given the evidence provided through the EES.

A number of mitigation measures were provided in the EMF to help ensure impacts to the Golden Sun Moth are minimised where practicable:

- measures to avoid and minimise impacts on native vegetation through further refinement of design/construction footprint (e.g. BH01)
- preparation of the Threatened Species Management Plan which is proposed to include specific management actions for Gold Sun Moth (MD09); and
- preparation of an Offset Management Strategy for offsets under the EPBC Act for identified impacts to the Golden Sun Moth (MD08).

The IAC recommended that the project should be required to consider further opportunities to avoid impact on potential Golden Sun Moth habitat (including on non-native vegetation/habitat). It was highlighted that there is potential to reduce or change the project footprint associated with the Western Interchange (see Section 6.1) and the proponent should seek to further avoid impacts on occupied and high-quality potential habitat. To this end, the IAC recommended an additional mitigation measure adopting the words of BH01 but focusing on Golden Sun Moth habitat, which may or may not be native vegetation. I support this recommendation to help ensure avoidance and minimisation of impacts on Golden Sun Moth is appropriately prioritised in the more detailed refinement of design/construction footprint.

Given the uncertain timeframe for implementation and potential for recorded locations of Golden Sun Moth to vary from year to year, the IAC recommended that the Threatened Species Management Plan include a requirement to consider the need for further survey work for the species. I support this recommendation to help ensure potential impacts on Golden Sun Moth are appropriately characterised to inform the detailed design process as well as calculation of offset requirements. An offset management plan would also need for any offset sites proposed.

With implementation of the proposed mitigation measures, including provision of offsets for unavoidable significant residual impacts on the Golden Sun Moth, as well as the additional measures proposed through this assessment, I consider the potential impacts on this species can be mitigated to acceptable levels. Potential impact on habitat connectivity and alternative alignments on the Golden Sun Moth are also discussed further in Section 6.2.

Little Galaxias

Little Galaxias (*Galaxiella toourtkoourt*) is one of two taxa which were previously described as Dwarf Galaxias (*Galaxiella pusilla*), which is listed as vulnerable under the EPBC Act. The species is still considered an EPBC Act-listed species under its former name. EES Chapter 9 notes that while the Little Galaxias is not currently known to have a self-sustaining population within any of the creek crossings that intercept the proposed bypass, it may be dispersed into Yam Holes Creek and tributaries during flood events. The EES notes that in the absence of mitigation, construction and operation may impact on water quality and habitat for a potential future population of the species. Fragmentation of a future population of the species could also occur should culverts be used which do not permit easy movement of the species.

It is proposed that the Threatened Species Management Plan (mitigation measure MD09/BH12) will cover mitigation measures specifically for Little Galaxias. These mitigation measures are proposed to include the need for project construction to maintain habitat connectivity for Little Galaxias through crossings and strategic habitat creation, including at culvert entrances (BH23). The measures also specify that flow connectivity for Little Galaxias should be maintained/unimpeded along Yam Holes Creek at all times when water is present and/or during flooding events (BH27).

An assessment of the impacts of the project on Little Galaxias was undertaken under the Significant Impact Guidelines 1.1 and it was determined that the species is unlikely to be significantly impacted (EES Chapter 9). On the basis that there is no known population of the species in the vicinity of the project, and mitigation measures have been proposed to address impacts on any potential future population of the species in the area, I agree there is unlikely to be a significant impact on this species.

Painted Honeyeater

Painted Honeyeater is listed as vulnerable under the EPBC Act. EES Chapter 9 states that while the species was not recorded during project surveys, it may occur in patches of larger vegetation such as Camp Hill State Forest. However, it was considered that an important population is unlikely to be present in the vicinity of the project based on the low number of records from the Beaufort area.

An assessment of the impacts of the project on the Painted Honeyeater under the Significant Impact Guidelines 1.1 was undertaken and it was determined that the species is unlikely to be significantly impacted (EES Chapter 9). On the basis that there are few records of the species in the vicinity of the project, I agree that there is unlikely to be a significant impact on this species with implementation of the proposed mitigation measures.

Victorian Temperate Woodland Bird Community

The EES describes the FFG Act-listed Victorian Temperate Woodland Bird Community, defined by habitat supporting a suite of 24 specific bird species. The EES highlights the community is mainly associated with drier woodlands on the slopes and plains north of the Great Dividing Range and the community has declined significantly in Victoria.

The EES concluded that there is potential for a high level of impact on this listed bird community due to the project requiring removal of up to 32.8 ha of associated habitat. The EES also indicated there is potential for indirect impacts on this bird community from dust and weed invasion. I support the view of the IAC that together this represents a significant potential impact on this bird community. The primary mitigation measure proposed in the EMF to minimise and mitigate impacts was the preparation and implementation of a Threatened Species Management Plan by the construction contractor (MD09).

Given there are no specific requirements for offsets for impacted FFG fauna communities under current Victorian legislation or Native Vegetation Regulations, there is no way to ensure the impact on and loss of habitat for this specific faunal community will be mitigated. Other offsets to be provided for the Project, such as offsets for native vegetation removal (as discussed in the sections above) could provide some mitigation for the impact on this bird community. However, I support the recommendation of the IAC that, when selecting offset sites for biodiversity and native vegetation offsets that are required for the project, consideration needs to be given to selecting sites which also support this bird community. This will help ensure the vegetation offsets provided help mitigate the impacts of the project on the specific species of birds in this FFG Act-listed community. I recommend the scope of the Native Vegetation Offset Strategy (MD07) in the EMF is updated to incorporate this aspect of offsetting.

The IAC noted that more detailed measures to mitigate impacts on the Victorian Temperate Woodland Bird Community were included in Technical Appendix C – but were not included in the EMF mitigation measures. These measures included staging habitat removal, habitat improvement works and re-creating original habitat in revegetation works. I support the recommendation of the IAC that the Threatened Species Management Plan should adopt these measures.

A key opportunity for further compensating for impacts on the Victorian Temperate Woodland Bird Community, as highlighted by the IAC, is through ensuring revegetation works conducted by the project recreate the original habitat of the bird community. I note that revegetation works should aim to recreate and enhance habitat connectivity for this community where possible. In addition to considering such works as part of the Threatened Species Management Plan as noted above, I also recommend that the design management document to be prepared for the project (see Section 4.2) identifies potential focus areas for these revegetation works. Areas reserved for revegetation and habitat creation works should also be considered in the development of the Landscape Management Strategy and Landscape Design Plans, given these will be key documents guiding implementation of revegetation activities.

Brown Toadlet

The Brown Toadlet is listed as endangered under the FFG Act. The EES identified that habitat for the species has been mapped in the study area and the species has been recorded during previous surveys conducted in 2015. No Brown Toadlet were recorded during the EES surveys, however they are considered to be present in the study area. The adequacy of previous surveys for Brown Toadlet is discussed in the section below. Further Brown Toadlet surveys in autumn are recommended to complement the spring and summer surveys already undertaken.

EES Chapter 9 indicates that there is 1.680 ha of potential habitat for Brown Toadlet that is expected to be impacted by the project, as well as habitat fragmentation occurring along Yam Holes Creek. Indirect impacts may also occur from physical barriers to movement and increased risk of injury and mortality from the construction and operation of the project. Indirect impacts could also occur from changes in surface water hydrology resulting from the project.

The key mitigation measure proposed in the EMF for the Brown Toadlet is the preparation of the Threatened Species Management Plan (mitigation measure MD09/BH12), which the EMF states will include mitigation measures for the species. Table 9.21 of EES Chapter 9 lists several specific measures for the Brown Toadlet proposed to be included in the Plan. As discussed in Section 6.2 the EES also states that the landscape plan should include habitat creation for several species including Brown Toadlet, and the IAC recommended the description of the landscape plan in the EMF be updated to specifically refer to this species. I support these measures including the additional recommendations of the IAC.

It is expected that the Offset Strategy to be developed for the project would include offsets for impacts on potential habitat for Brown Toadlet. The assessment of offset requirements will need to take into account the results of the additional surveys recommended for the species at project design stage (see Section 6.2). As suggested by the IAC, the results of the surveys should also be used to inform the detailed design of the project. If offsets are required, an offset management plan for the offset site would also be needed.

In line with the conclusions of the IAC I consider potential impacts on Brown Toadlet will be mitigated to acceptable levels with implementation of the proposed mitigation measures, including provision of offsets for unavoidable impacts on habitat and the additional measures proposed by the IAC.

Brush-tailed Phascogale

The Brush-tailed Phascogale is listed as vulnerable under the FFG Act. The EES identifies that potential habitat for the species is present within the project area, where it intersects areas of mature native vegetation, such as within Camp Hill State Forest. Targeted surveys for the species were conducted for the EES and the species was recorded in the study area in both 2015 and 2021.

The assessment of fauna impacts within EES Chapter 9 indicates that the construction of the project will result in the loss of 15.598 ha of high quality potential arboreal mammal habitat, as well as 6.985 ha moderate quality potential arboreal mammal habitat, which has the potential for impacts on Brush-tailed Phascogale. The species was also identified as being most at risk of impacts associated with habitat fragmentation and changes to wildlife movement, as discussed further in Section 6.2 of my assessment. The EES also highlights the potential risk of injury and mortality for the species during the construction and operations phases, for example due to road kills.

A key mitigation measure proposed in the EMF for the Brush-tailed Phascogale is the preparation of the Threatened Species Management Plan (mitigation measure MD09/BH12), which the EMF states will include mitigation measures for the species. Table 9.21 of EES Chapter 9 lists several specific measures for the Brush-tailed Phascogale proposed to be included in the plan. Proposed mitigation measures for habitat connectivity (e.g. BH02) also include consideration of including rope bridges in the project design to aid fauna movement for species such as Brush-tailed Phascogales. My assessment of mitigation measures proposed for habitat connectivity is provided in Section 6.2.

It is expected that the Offset Strategy to be developed for the project would include offsets for impacts on potential habitat for Brush-tailed Phascogale. In line with the conclusions of the IAC I consider potential impacts on this species will be moderate, but can be mitigated to acceptable levels with implementation of the proposed mitigation measures. This includes provision of offsets for unavoidable impacts on habitat and the additional measures proposed by the IAC and this assessment.

Impacts on other threatened species and additional survey requirements

In addition to the impacts discussed above, the IAC considered the assessments of impacts on other native and threatened species conducted in the EES, and concluded that the Project will have a moderate residual impact on Brown Treecreeper and Powerful Owl and a low residual impact on other remaining threatened species.

Evidence provided to the hearing in the peer review by Mr Lane suggested that further Brown Toadlet surveys should be undertaken in autumn to complement the spring and summer surveys already undertaken. Mr Lane also recommended

further surveys prior to detailed design for the newly FFG-listed Little Eagle and Tussock Skink, given their high likelihood of occurrence in the vicinity of the project and lack of previous targeted surveys. The IAC supported these review findings and recommended that further surveys of Brown Toadlet, Little Eagle and Tussock Skink are required prior to the detailed design stage. The IAC further recommended inclusion of a new mitigation measure requiring development of a protocol for further seasonally appropriate targeted surveys 'to the satisfaction of DELWP' (now DEECA) and outlines proposed survey effort and timing. I support these recommendations to help ensure the presence and distribution of these species are adequately understood to help inform the process of detailed design and refinement of both the project footprint and mitigation measures to further avoid and minimise impacts on threatened fauna where practicable.

I note that RRV has added a requirement to conduct surveys of Brown Toadlet, Little Eagle and Tussock Skink to inform detailed design into the updated incorporated document. While the intention of these amendments was supported by the IAC, the IAC also considered that it is preferable to adopt the approach used for flora, with species listed in the EMF. I agree with this suggestion to allow more flexibility in updating species lists in the EMF without requiring a planning scheme amendment to update the conditions of the incorporated document itself.

The IAC also noted that not all of the detailed mitigation measures in the EES (Technical Appendix C) were provided as mitigation measure commitments in the EMF. To help ensure these are considered the IAC recommended the Threatened Species Management Plan section of the EMF should be updated to include cross-reference to the mitigation measures provided in Section 10.3 of Technical Appendix C. I support this recommendation to help ensure these measures are appropriately considered in the development of the Threatened Species Management Plan.

The adequacy of the surveys for other threatened species, and need for any additional surveys, was considered by the IAC considering submissions, including the peer review by Mr Lane. While Mr Lane was comfortable the surveys undertaken to date for other threatened species were adequate and appropriate for the EES, his review identified the need for further targeted surveys for several flora species, and recommended these are conducted prior to detailed design to help inform the final bypass design. Pre-construction and pre-clearance surveys were also recommended for some species.

The IAC considered that details of further surveys can be determined at a later stage via secondary consent from DELWP (now DEECA), rather than being listed in the incorporated document as proposed by RRV. I agree with the IAC that this approach is appropriate particularly given the uncertainties in the project delivery timeframes and potential for changes to the environment or knowledge base regarding listed species. The areas and target species to be assessed may also change due to refinements to the project footprint resulting from the detailed design process.

The IAC also concluded that for any threatened species located in or adjacent to the project footprint, management plans will be required. This would need to include any additional threatened species in the project area identified via surveys that were not previously identified in the EES studies. I support this view and note RRV has captured this in their proposed final changes to the EMF and incorporated document.

Assessment

In relation to potential impacts on MNES, it is my assessment that:

- The project is likely to have significant residual impacts on Golden Sun Moth due to the expected direct impacts on habitat. Offsets will be required in accordance with the EPBC offset policy. I support the recommendation of the IAC for additional surveys to be conducted to help ensure impacts on the species are appropriately characterised and inform the determination of more precise offset requirements. With implementation of the proposed mitigation measures, including provision of offsets and the additional measures proposed by this assessment, I consider the likely significant impacts on this species can be managed to acceptable levels.
- There is risk of unacceptable impacts on Seasonal Herbaceous Wetlands, particularly due to indirect impacts associated with potential changes to hydrology of the waterways and floodplains surrounding the Project. However, this assessment includes recommendations for mitigations and the final EMF, including a specific requirement for hydrological outcomes to be achieved for this ecological community, that helps avoid significant impact through the detailed design. Establishment of a targeted monitoring program will also determine the need for any contingency measures. I consider there are unlikely to be significant residual

impacts on this threatened ecological community, providing there is adoption of this outcomes and design-based approach to mitigating impacts for this ecological community, together with effective implementation of the other mitigation measures proposed.

- The project is unlikely to have significant residual impacts on River Swamp Wallaby-grass with implementation of the measures proposed including amendments recommended by the IAC and this assessment. In addition to the recommendations of the IAC, I have recommended that that the design management document to be prepared for the project (see Section 4.2) identifies priority areas for translocation, habitat creation and/or rehabilitation of the species to help ensure these areas are considered in the detailed design process. I have also recommended a monitoring and contingency program is established for the areas where these works are undertaken for both species to help ensure the success of the measures implemented.
- For Growling Grass Frog there is risk of unacceptable impacts due to project impacts on a large area of potential habitat, not adequately minimised or mitigated. However, I have recommended updated habitat mapping which should be used to inform further avoidance and minimisation of direct impacts on Growling Grass Frog habitat. Any habitat that cannot be avoided must be offset in accordance with state and federal offset requirements. I have also recommended the design management document identifies potential areas for strategic habitat creation and/or rehabilitation for the species, and a monitoring program is established. Therefore, with implementation of the additional mitigation measures recommended by the IAC and this assessment, I consider that the risks and potential impacts on Growling Grass Frog can be acceptably managed.
- The project is unlikely to have significant residual impacts on Ben Major Grevillea. I support the proposed mitigation measures for the species and have recommended that mitigation measure mitigation measure BH19 is updated to include targeted weed control to help minimise potential threats to the species.
- The project is unlikely to have significant impacts on any of the other EPBC Act-listed threatened species and communities assessed through the EES - I consider that residual impacts on these species can be acceptably avoided or minimised through the effective implementation of the proposed mitigation measures, with my amendments.

In relation to potential impacts on species and communities protected under the FFG Act, it is my assessment that:

- While the project is expected to impact a few individuals of FFG Act-listed flora species such as Matted Flax-lily and Yarra Gum, these impacts are not expected to result in significant impacts on local populations. I support the amendments to mitigation measures proposed by the IAC. Offset requirements for several FFG Act-listed flora species were also triggered based on Habitat Importance Models. With the implementation of required offsets and the other mitigation measures proposed (including amendments recommended by the IAC and this assessment) I consider these impacts acceptable.
- The project is likely to have significant impact on the Victorian Temperate Woodland Bird Community. I support the recommendations of the IAC for the project to provide more detailed measures to mitigate measures for this community in the Threatened Species Management Plan and consider selection of offset sites (for loss of native vegetation) which would also support this ecological community. I have also recommended that the design management document identifies potential focus areas for these revegetation works, to help ensure these areas are considered in the detailed design and planning of landscaping works. With implementation of these measure the impacts should be managed to acceptable levels.
- I agree with the IAC that, with implementation of the proposed mitigation measures, the Project will have a moderate residual impact on other fauna such as the Brown Treecreeper, Powerful Owl and Brush-tailed Phascogale and a low residual impact on remaining threatened species. Direct impacts on their habitat will need to be offset in accordance with the Native Vegetation Guidelines. With the implementation of required offsets and the other mitigation measures proposed (including amendments recommended by this assessment) I consider these impacts acceptable. Ensuring measures to minimise impacts on habitat connectivity will be essential to minimising impacts on the Brush-tailed Phascogale (see Section 6.2).
- As recommended by the IAC, further surveys of Brown Toadlet, Little Eagle and Tussock Skink are required at pre-detailed design stage, to further inform the detailed design and requirements for mitigation.

- The project is unlikely to have significant impacts on any of the other FFG Act-listed threatened species and communities assessed through the EES - I consider that residual impacts on these species can be acceptably avoided or minimised through the effective implementation of the proposed mitigation measures, with my amendments.

6.4. Surface Water, floodplains and wetlands

Impacts to surface water are addressed in Chapter 11 Catchment values and hydrology, Technical Appendix L of the EES, and Chapter 7 of the IAC Report. Impacts to wetland environments were also considered in Chapter 9 and Technical Report C of the EES, and in Chapter 5 of the IAC Report.

RRV proposed eight mitigation measures to manage surface water impacts, with the IAC recommending five amendments to these measures, as well as amendments to related aspects of the proposed incorporated document. The IAC also supported updates to the surface water mitigation measures proposed by RRV during the hearing.

Evaluation objective

To protect catchment values, surface water and ground water quality, stream flows and floodway capacity, and avoid impacts on protected beneficial uses.

Assessment context

Beaufort lies in the plains at the confluence of Ding Dong, Cemetery, Cumberland and Yam Holes Creeks. The region is characterised by hills, which surround the township. The area of investigation for the EES encompassed larger hills (90 to 300m above sea level), small hills (30 to 90m above sea level) as well as the plains and floodplains downstream, in and around Beaufort.

Yam Holes Creek is located south (and downstream) of Beaufort township, which has extensive floodplains. The proposed bypass crosses approximately 810m of floodplains. The existing conditions assessment for the EES noted that periodic flooding currently occurs in the vicinity of the proposed project along Main Lead Road, King Street, Back Raglan Road and Jackson Street.

The Options Assessment report prepared as part of the EES identified that the preferred alignment option (C2), would likely have the greatest surface water-related impacts due to a greater proportion of this bypass alignment being located along the floodplain.

Design measures proposed in the EES to protect downstream surface water values included 14 water quality treatment basins (primarily consisting of bioretention basins), 10 channel realignments, 12 culverts (for cross drainage and fauna passage), and two bridges. The EES stated the design measures will be developed during the detailed design phase and should meet the relevant *Urban Stormwater: Best Practice Environmental Management Guidelines* (EPA Victoria, 1999) performance criteria. The EES stated that with these measures, the impact on downstream water quality during project operation would be low.

The EES identified several wetlands within the study area, with nine of those categorised as 'high-value' due to their ecological characteristics, which meet the EPBC listing criteria of a critically endangered ecological community, Seasonal Herbaceous Wetlands (see further description of these wetlands in Section 6.3). The bypass' drainage system will drain either directly to the wetlands or into the streams feeding some of the wetlands. Two high-value wetlands were predicted to experience a minor to medium impact from the project, with changes to duration and extent of peak flood events in these areas.

The proposed functional design includes several features intended to minimise changes to the hydrology of the project area, but would inevitably alter floodplain conditions. Without mitigation, the project would intersect and directly inhibit flows of 16 watercourses (minor tributaries and creeks), including three designated waterways (Yam Holes Creek and two tributaries of Yam Holes Creek). The EES outlines some design-focused mitigation measures to minimise impacts on hydrology:

- construction of three crossings of the yam holes creek and its tributaries;

- 14 box culvert and bridge structures;
- 10 realignments of minor watercourses; and
- inclusion of bioretention swales;

Modelling conducted for the EES predicted that residual flood impacts from the project would be mainly concentrated around the Western Highway at the western interchange and the eastern crossing of Yam Holes Creek near Racecourse Road. The EES predicted the project would result in some changes to flooding across the project area, with changes largely to occur in locations of the proposed realignments of watercourses and drainage lines and in proximity to existing floodplain environments.

The EES predicts that following implementation of mitigations, three private properties located near the eastern crossing of Yam Holes Creek and some areas of public land will experience residual impacts (i.e. changes to flooding afflux and frequency on these properties).

The EES also predicts that no buildings would be impacted by changes to local flooding from the project, and the EES concluded that climate change would not significantly change the predicted impact on the velocity, duration and hazard of floods.

EMF mitigation measure SW01 proposed in the EES stated that at the detailed design stage more developed flooding and water quality models will be produced and these models will "demonstrate the performance of the design under present day and future climate [change] scenarios for hydrological, hydraulic and water quality standards set by the legislation and guidelines." Mitigation measure SW01 also states that the detailed design will incorporate fauna passage requirements in line with the Growling Grass Frog Crossing Design Standards (DELWP 2017) and that development of the detailed drainage design must be undertaken in consultation with GHCMA and consider current best practice design guidelines.

Discussion

Several submissions to the hearing were made regarding surface water drainage and flooding, with the key issues being:

- flooding and associated impacts along watercourses;
- continued protection of run off into farm dams;
- stormwater runoff from existing roads; and
- localised flooding associated with earlier Western Highway upgrades.

Flood modelling and hydraulic changes in the floodplain

The Beaufort region has a history of flooding challenges, both within the township and within private property in the study area. A submission from a private landholder raised concerns about the project exacerbating an existing drainage issue at the driveway of 11 Box Cutting Rise, Beaufort. It is understood these drainage issues may be associated with the 'old' Western Highway alignment (now Box Cutting Rise); the Pyrenees Shire Council has been investigating this as it is their responsibility to manage. Other submissions also raised concerns the project would give rise to drainage issues at their properties. The IAC's finding was that these existing drainage issues in the project area are not attributable to the proposed Project. I support the IAC's view that it is not the responsibility of RRV to resolve existing flooding issues. However, RRV does need to demonstrate that the project design implemented for the bypass will not end up contributing to or exacerbating these existing flooding issues.

Technical Appendix L of the EES describes the flood model that was adapted from a 2008 flooding study and expanded to examine the project's potential flooding impacts, as required in the scope set for this EES. This model predicted how runoff would move through the catchment under different flooding scenarios. The document states that the model outputs should be used with a degree of conservatism, due to the limited streamflow information used to inform and parametrise the model. The EES stated that this uncertainty is within acceptable parameters and the model provides an appropriate approximation of flooding behaviour within the study area.

While the EES includes modelling to help demonstrate that changes to flooding from the project can largely be mitigated through future design work, there remains uncertainty about the extent to which some outstanding impacts on localised flooding will be resolved, including to meet policy requirements of the GHCMA and the Pyrenees Shire. The EES proposes to resolve these non-compliant afflux predictions through further modelling and design work after the primary project approvals have been sought. This post-approval resolution of these afflux issues is described in mitigation measures SW01 to SW04, but the EES did not commit to degrees of acceptable, predicted changes to flooding behaviour or specifically how they will be mitigated.

Commitments are provided in the EMF that further modelling will be conducted later, to provide a refined understanding of hydrology and flooding to inform the detailed design (mitigation measure SW01). The IAC and GHCMA were broadly in agreement with this conclusion. I support the IAC's conclusion that the approach to modelling used for the EES was appropriate at the time and that further, detailed modelling will be essential to inform the detailed design and resolution of final mitigation measures for the project.

The GHCMA raised the matter of outstanding afflux in their submission to the IAC. They proposed changes to mitigation measure SW03 to state "wherever afflux criteria cannot be met on private land (not just the identified area that includes 4 lots at Racecourse Road, where the most significant impacts have been identified), further mitigation through detailed design or landholder agreement is required. This would [need to] provide clear reference to requirements for the entire project area that must still be achieved. Iterations of design work may reveal other areas where this risk (works that result in afflux and increased flood hazard on private land) is not mitigated." RRV supported GHCMA's proposed changes to mitigation measures and the incorporated document. RRV and the IAC recommend a simplified version of this wording, without the caveats referenced in GHCMA's submission.

RRV needs to either reduce afflux impacts to meet required criteria through a design-led response or gain landholder consent for any predicted changes to afflux on private land that are not aligned with current policy. SW01-SW04 are the primary mitigation measures proposed to reduce outstanding residual impacts on both flooding and surface water quality. These mitigations comprise 10 realignments of ephemeral watercourses, the development of bioretention basins for stormwater management and the inclusion of bridging and culvert structures to reinstate surface water passage through the project area. From the EES and IAC hearing however, it is unclear the extent to which each of these measures will be adopted (individually and/or in combination) to mitigate specific residual surface water impacts and how that would be balanced with other design considerations. This uncertainty has implications for not just likely afflux, but environmental outcomes in downstream watercourses and wetlands, and floodplains in and adjacent to the project footprint. This includes significant biodiversity values such as Seasonal Herbaceous Wetlands, Growling Grass Frog habitat and River Swamp Wallaby-grass habitat, which are protected under the EPBC Act. Potential impacts on these threatened species and communities are discussed further below and in Section 6.3 of my assessment.

I also note that the Beaufort area experienced a significant flood event in late 2022. As it occurred after the EES was prepared, it is unclear from the EES and IAC report how this recent event has affected Beaufort and whether the extent of flooding was consistent with the predictions of the flood model produced for the EES. Noting the significant impact flooding can have on communities, it is imperative that the community have certainty on how this project will affect them and their properties moving forward.

Mitigation measure SW01 states that the detailed design phase will include production of more developed flooding and water quality models to inform development of mitigation measures. I recommend that data from the 2022 flood event is used to inform this further modelling, to examine flooding and stormwater hydrology in the area in sufficient detail to enable development of appropriate detailed design and environmental mitigations.

Neither the EES or the IAC provide recommendations on the extent to which afflux needs to be mitigated through measures SW01-SW04. It is my assessment that the project needs to either improve or maintain existing hydrology and flooding conditions on public and private land surrounding the project footprint. Design and mitigation measures should be developed to fully address the risk posed by changed hydrology and flooding behaviour, and wherever necessary gain landholder consent for the predicted changes to afflux that are not aligned with current policy.

To ensure that these outcomes are met, I recommend that the additional flood modelling proposed in SW01-SW04 (along with any interdependent mitigation measures) be progressed earlier as part of preparation of the design management document. I have recommended this be required as part of the scope of the design management document through a

condition of the incorporated document, which needs to be prepared to the satisfaction of the Minister for Planning (see sections 4.2 and 5.1).

During the hearings, the proponent's expert witness (Mr Leslie) recommended to RRV that stormwater-related design measures should include expert ecological input to help ensure treatments for fauna crossings and sensitive vegetation areas are appropriate. In response, RRV's final changes to the EMF included reference to expert ecological input in mitigation measures SW01 to SW04. Given there are strong interdependencies between the design of stormwater/drainage measures and the impacts of the project on biodiversity values (see Sections 6.2 and 6.3), I also recommend ecological input is needed for the design measures, as part of the detailed design process, to help ensure acceptable residual impacts and environmental outcomes are achieved through the final design implemented.

Wadawurrung Traditional Owners Corporation (WTOAC) submitted that there are wider cultural values related to catchment values, which should also be addressed through the design and implementation of the project. I support the IAC's view that the need to do this has been identified in the mitigation measures, through referencing of the Cultural Values Assessment. However, my additional recommendations (see Section 6.7) also require the design management document to take account of the Cultural Values Assessment, during the preparation of further design guidance to inform the detailed design.

Wetland environments

The EES identified 19 seasonal wetlands through a combination of field observations, consideration of historical land modifications and application of DELWP's 'Current Wetland' spatial dataset (Figure 7). These seasonal wetlands identified in the EES rely on seasonal rainfall and flooding as a primary water source, rather than having a continuous connection to a watercourse.

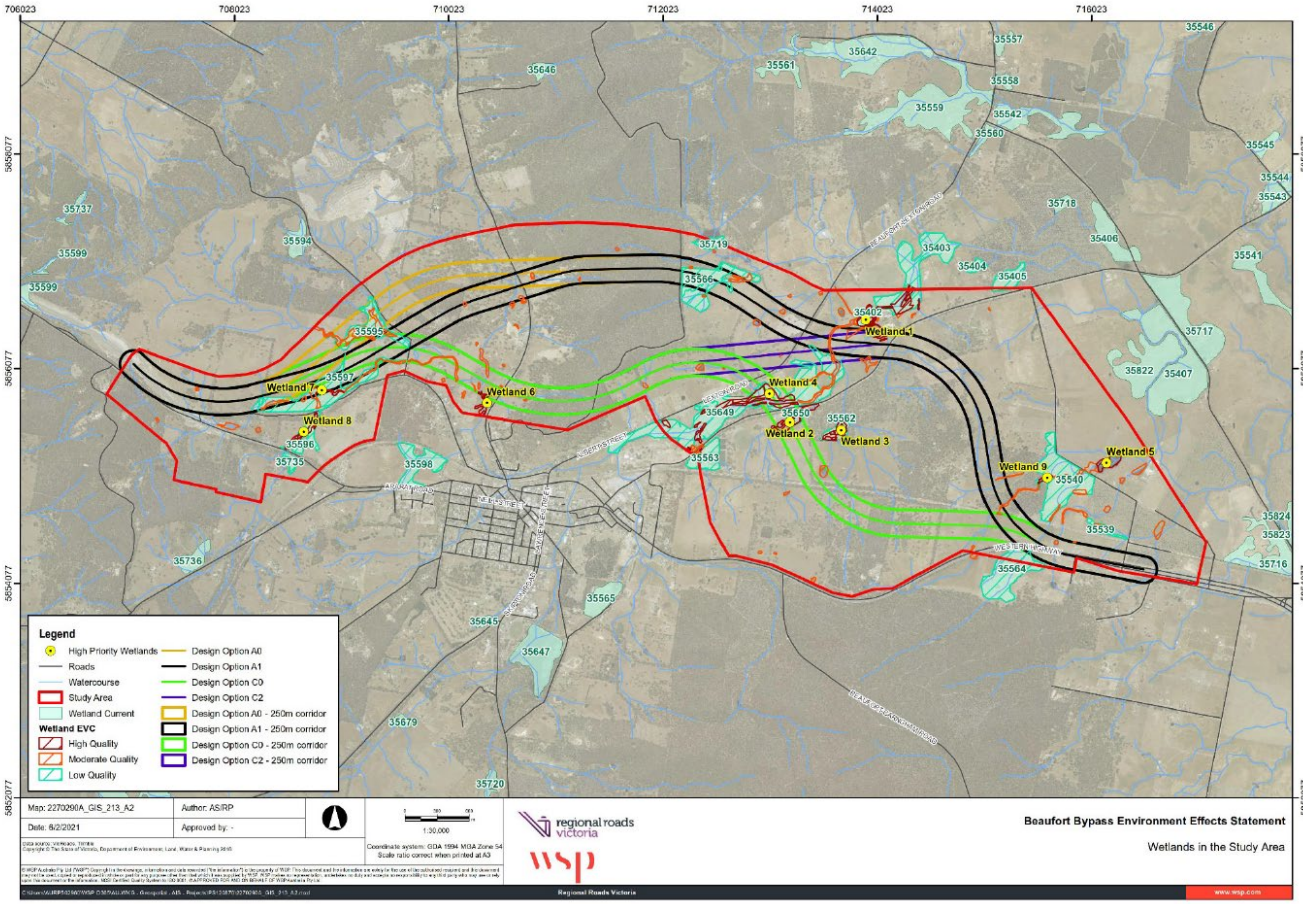

Figure 7: Wetlands identified in the study area (Source: Appendix C of the EES)

Characterisation of existing conditions for wetlands environments

The EES characterised wetlands using a risk-based approach; qualitative assessment of the wetlands relied upon expert opinion, derived from the interpretation of Water Observation from Space (WOfS)[8] and supplemented by some limited field observations. The wetlands were rated in order of priority for conservation (high, medium or low) (Figure 7). Field-based surveys and habitat assessments of wetlands were limited. Hence the EES assumed presence of wetland-dependent threatened species where wetland habitat was considered present.

The hydrology of each wetland described in the EES was determined by expert opinion in conjunction with the use of WOfS. The WOfS data product was also used to determine the wetting and drying conditions over time. Whilst WOfs can be useful, it has limitations. Mueller (2016)[9], the paper describing the methods and applications of the product, notes that it has variable reliability, which depends on landscape context and cloud cover. The paper notes that "the WOfS product may not be fit for applications that require information about the inundation characteristics of vegetated wetlands, small farm dams and rivers with significant riparian vegetation."

In some places the EES relied on WOfS to assess the health or wetland habitat-value, by providing commentary on the presence of surface water over time. In these instances, the analysis did not acknowledge the limitations of the WOfS dataset, nor provide sufficient justification to support the EES' determination of the wet/dry conditions over time. As a result, the EES may have underestimated the extent and/or quality of wetland habitat potentially impacted by the project, due to WOfS interpretations likely underrepresenting water present on the floodplains.

The EES notes this uncertainty (from using WOfS) can be addressed later through further hydrological assessments, to update the existing conditions for wetlands, which can then be used to inform the detailed design of the project. Along with the IAC, I agree that the approach to assessing wetlands and modelling used was sufficient for the EES, but there are important uncertainties that need to be addressed in the next phases of the project.

The EES and IAC noted that further work, including hydrological assessment, would be needed after the primary approval of the project is granted to improve the characterisation of wetland hydrology and inform the detailed design. It will also be important for refining/developing mitigations needed to avoid impacts on wetland environments downstream. I support the need for this further work to be conducted to help ensure wetlands are appropriately characterised and inform the detailed design of mitigations.

Potential impacts on wetland environments

The EES notes that two high priority wetlands will be indirectly affected by a change in hydrological conditions, namely extent of flooding and changes in flow velocity. Nine medium-to-low priority wetlands may also be affected indirectly by changes in water quality. Overall, the EES broadly summaries these hydrological changes as incremental and unlikely to have a significant effect on biodiversity values associated with each wetland.

DELWP's submission agrees with the finding of the EES that changes form the project to more extreme but less frequent floods (e.g. one in 100 year events) and consequences for environmental values of wetlands are likely to be minimal. However, DELWP's submission also highlights that the predicted changes in afflux and behaviour/extent of more frequent floods is likely to be of significance at some discrete locations. DELWP made particular mention of the likely impacts on flooding regimes in the vicinity of the proposed Yam Holes Creek bridges, which could lead to long term changes to the extent and floristics of wetlands. The EES indicates that the changes in flooding behaviour are expected to occur at a few locations, including Wetland 35402. DELWP's submission noted that this wetland meets the criteria for the EPBC Act critically endangered Seasonal Herbaceous Wetlands ecological community (see further discussion of this community in Section 6.3). DELWP raised concern that an unknown extent of these wetlands and their environmental values will experience a small change in flows, which may impact on significant biodiversity values.

Technical Appendix L of the EES stated that the project is likely to affect flooding behaviour and that outstanding afflux will be addressed "to the extent practicable", following further environmental assessment and design work. The IAC

[8] Water Observation from Space (WOfS) data product, derived from Landsat-3 satellite data and produced by Geoscience Australia. Geoscience Australia use information collected from Landsat satellite images and interprets reflected spectrums of light to define where water might occur across a landscape.

[9] Mueller, N., Lewis, A., Roberts, D., Ring, S., Melrose, R., Sixsmith, J., ... & Ip, A. (2016). Water observations from space: Mapping surface water from 25 years of Landsat imagery across Australia. *Remote Sensing of Environment*, *174*, 341-352.

accepted that design and engineering controls can be developed and implemented to ensure the project can maintain pre-existing conditions and hydrological regime, such that impacts on wetlands are minimised. The modelling that supported the functional design presented in the EES, demonstrates that it is possible to largely avoid or minimise changes in flooding conditions. However, the EES stated that there are some changes expected to flooding behaviour that depart from existing conditions, which are yet to be fully characterised and addressed. RRV contended in the EES and at the IAC hearing that these impacts to downstream wetlands can be further mitigated through the development of detailed design, which will be informed by further detailed hydrological modelling. This detailed modelling will need to provide a more complete picture of wetlands that may be affected, including the detailed hydrologic conditions experienced by the wetlands and floodplains surrounding the project.

Without further mitigation, the potential changes to hydrology and flooding behaviour downstream have the potential to impact wetlands that meet the criteria for the EPBC Act-listed Seasonal Herbaceous Wetlands (see Section 6.3 of my assessment). As set out above I have recommended that the project must at least maintain existing hydrology and surface water conditions in the area downstream and surrounding the project footprint. This should take into account the risk posed by changed hydrology and surface water conditions for wetland environments and associated biodiversity values.

The design-focused mitigation measures proposed in the EES to minimise impacts on hydrology and wetland environments include:

- construction of three crossings of the yam holes creek and its tributaries;
- 14 box culvert and bridge structures;
- 10 realignments of minor watercourses;
- inclusion of bioretention swales; and
- landscaping and strategic revegetation.

Sound refinement and application of these mitigation measures will be crucial for the project to successfully mitigate its impacts on biodiversity values within floodplains and downstream. Implementation of the mitigation measures will need to:

- carefully address and minimise the extent of native vegetation removal required;
- include floodplain habitat creation to successfully maintain habitat connectivity;
- incorporate watercourse realignment designs that support habitat for threatened species and communities; and
- maintain appropriate environmental wetland hydrology that ensures no net loss of biodiversity values in downstream environments as a result of the project.

This will require well-informed and considered design work, including multi-disciplinary, environmental input. The detailed design process will also require integrated consideration of the application of a range of mitigation measures needed to achieve all the necessary outcomes for different environmental matters/values, covered elsewhere in this assessment.

As noted above the IAC recommended preparation of a design management document to demonstrate the considered application of mitigation measures, as further discussed in Section 4 of this assessment. It my assessment that the project proponent will need to demonstrate within the design management document that the final design can be implemented without adversely affecting the hydrology and significant ecological values of surrounding and downstream wetland environments. Effective preparation of this document will involve further examination of some key environmental matters, including wetland hydrology, in order to guide a detailed design approach that balances a range of factors and outcomes as described throughout this assessment.

Water quality

Water quality impacts to farm dams and associated watercourses were raised as a concern in submissions by landholders. RRV proposes further work, including a spill risk assessment and the design of bioretention swales, to inform the implementation of their mitigation measures. The proposed mitigation measures (SW1 and SW2) include the design of bioretention swales and other stormwater management infrastructure, to maintain existing water quality in farm dams,

Yam Holes Creek and its tributaries. I support the IAC's finding that with implementation of the proposed measures, the project is not expected to adversely affect water quality of runoff entering farm dams and the broader catchment, although there will be short term impacts from construction that needs to be mitigated effectively.

The project's potential impacts on downstream surface water quality have an important interdependency with the potential biodiversity impacts of the project, as discussed above. This is particularly due to the presence of the EPBC-listed ecological community in wetlands downstream and in the direct vicinity of the construction footprint. My detailed assessment of potential impacts on biodiversity values associated with the project is provided in sections 6.2 and 6.3.

Climate change

Western Highway Conservation Group (WHCG) submitted that they were concerned that climate change impacts had not been considered as part of project design. I agree with the IAC that climate change impacts in relation to climate-induced flood events have been appropriately considered and addressed through the EES, consistent with the EES scoping requirements. It will be important that the more detailed modelling (regarding flooding and water quality) proposed to be undertaken as a part of SW01, also appropriately considers climate change. I note that SW01 does not explicitly reference the need to consider climate change scenarios, rather the need to consider climate change is implicit in the need to "consider current best practice design guidelines". For clarity I recommend that SW01 be updated to explicitly reflect the need to consider climate change scenarios in the modelling conducted.

Assessment

It is my assessment that with further work on design and mitigation measures, consistent with recommendations set out within this assessment, and implementation of the EES' proposed design and mitigation measures amended in accordance with the IAC recommendations and this assessment, the project's surface water impacts can be acceptably managed during both construction and operation.

It is also my assessment for surface water matters that:

- The project needs to at least maintain existing hydrology and flooding conditions on public and private land surrounding the project footprint. To achieve this, design and mitigation measures will need to be developed to fully address the risk posed by changed hydrology and flooding behaviour. This will require that the additional flood modelling proposed in SW01-SW04 (along with any interdependent mitigation measures) be progressed as part of preparation of the design management document, which I have recommended be prepared to inform the detailed design process. However, I acknowledge that following design and mitigation work, there may be some locations on private land where landholder consent can be obtained for residual changes to afflux that are not aligned with current policy.
- Data from the 2022 flood event needs to be used to inform this further modelling, to examine flooding and stormwater hydrology in the area in sufficient detail to enable development of appropriate design and mitigation of environmental effects for the project.
- Ecological input into the development of the surface water design measures is necessary, as part of the detailed design process, to help ensure acceptable residual environmental impacts are achieved for the final design implemented for the project.
- Further work, including further hydrological modelling, is needed after the primary planning approval of the project to improve the characterisation of wetland hydrology and inform the detailed design, as well as the development of mitigations. I have recommended that the design management document should provide a more detailed characterisation of the existing conditions for wetlands, informed by the further hydrological modelling.
- The project proponent should demonstrate within the design management document that the final design can be implemented without adversely affecting the hydrology and significant ecological values of downstream and surrounding wetland environments, including to avoid potential adverse impacts on EPBC Act-listed Seasonal Herbaceous Wetlands (discussed further in Section 6.3).

- To limit the adverse impacts on flooding and afflux for private and public land I have recommended that the project should at least maintain existing hydrology and surface water conditions in the area surrounding the project footprint.
- In relation to consideration of climate change in future phases of the project, I recommend that SW01 be updated to explicitly reflect the need to consider climate change scenarios in the further modelling conducted

6.5. Social Aspects

Social and community effects are addressed in Chapter 12 Social effects and Technical Appendix J of the EES and Chapter 8 of the IAC Report. RRV has proposed eight mitigation measures to manage social impacts, S01 – S08, with the IAC recommending three of these measures (S04, S05 and S07) be amended.

Evaluation objective

To minimise and manage adverse effects on the well-being of the local community, including potential impacts on cohesion and severance of community access to services, facilities and infrastructure.

Assessment context

The EES describes the Beaufort township as having a strong identity as a rural service centre as well as a highway rest stop for passing visitors who travel through the township. The Beaufort community is well-serviced with local and regional level services, with services and meeting places concentrated in the town centre. Facilities and community services include education and learning facilities, health services, and emergency services. Beaufort also has open space and recreational areas, and places for reflection and remembrance.

The residential population of the greater Beaufort area has increased from 3,833 in 2011 to 4,395 in 2015 – a 12.8% population growth in five years. Vulnerable populations in Beaufort include the ageing, low-income households, unemployed youth, and those requiring assistance with core activities. Beaufort has a higher proportion of middle-aged and elderly residents who may experience greater demand for accessible community services.

The EES and IAC identified that the Beaufort community has the potential to experience social effects from the project associated with:

- acquisition of private and public land, including disruption or alteration to household and property access and severance;
- access changes to community facilities and services;
- business disruption;
- influx of the construction workforce;
- loss of native vegetation and impacts on fauna and a culturally significant tree; and
- amenity impacts, including from noise, vibration and dust.

During project operation, amenity and safety within the Beaufort township is expected to improve due to the removal of through-traffic in town. In the Pyrenees Shire Council's submission to the EES, they set out the importance of RRV engaging with Council to develop transitional initiatives that are aligned with the Pyrenees Economic Development Strategy (February 2020), to assist in the town's social and economic recover, post-bypass. The EES reported that transitional initiatives include:

- public realm and amenity improvements; and
- identifying the critical population mass required to enhance the social and economic sustainability of Beaufort.

Mitigation measure S07 will require RRV to partner with Council during pre-construction stages to identify potential resourcing, capacity building and funding options.

RRV plans to partially acquire land from 47 private parcels, which will permanently impact 22 private landowners. Public land would also be acquired, including where there are direct impacts on Camp Hill State Forest and Camp Hill Recreation Reserve. One dwelling will be directly impacted and result in displacement of existing residents. All 22 private landholders may be impacted for up to two years by access changes during construction, and permanent access alterations will be made to three residential properties for access post construction - all legal ingress/egress to properties will be reinstated for the three properties. Alternative access would be provided to these landholders during the construction period.

The EES reported that the adverse impact on landowners and residents whose properties are subject to acquisition is expected to be high, and RRV is undertaking ongoing consultation with affected landowners to discuss the acquisition process.

Disruptions along existing access roads, including diversions, and increased traffic volumes on Beaufort's local road network and the surrounding road network, may impact school bus services or pick-up/drop-of points temporarily, increase local commute times and affect community access to services and facilities. Further information on changes to traffic and access due to the project are discussed in Section 6.1.

Business currently reliant on highway trade, such as service stations, would be impacted and the IAC heard that approximately 27 full time equivalent jobs would be lost.

Sense of contentment and social cohesion of the Beaufort community may be impacted due to Beaufort's transition from a highway town to a potential destination as well as impacts related to loss of employment, loss of native vegetation and a culturally significant tree, influx of construction workers, and changes to amenity.

The project will generate social benefits such as increased safety and amenity in the Beaufort township, but also create adverse effects such as the disruption to property access, displacement of residents, and loss of employment. The IAC considered these competing issues.

Noise and vibration impacts of the project are discussed in Section 6.9. Further social and community effects are discussed throughout this assessment.

Discussion

Adverse social effects generated by the project will mostly be experienced by the Beaufort community during the construction phase. These potential impacts include temporary traffic access changes, increased construction traffic, changes to amenity (air quality, noise and vibration) and removal of native vegetation and a culturally significant tree. These social effects may include reduced access to services and facilities, increased commute time, impacts to health and wellbeing, change in the town's social fabric, and loss of cultural connection or sense of place. Older residents (noting Beaufort has a higher proportion of middle-aged and elderly residents) are likely to be most impacted as they may experience greater demand for facilities and services, including public transport.

The IAC considered that differences in social impacts between project alignment alternatives was minimal, which I support.

Acquisition of private and public land

Impacts of acquisition on individual landholders will be significant. I acknowledge the concerns expressed by submitters about uncertain project timeframes, slow progression of the acquisition process and the difficulty in planning changes in land use, including site improvements and relocation. I understand that partial acquisition of properties will result in some

remnant parcels which will be difficult to access for rural purposes and may reduce the ability of landowners to enjoy use of their properties and/or reduce availability of productive land.

I acknowledge that acquisition of public land surrounding the Beaufort Trotting Track would occur, however the track is currently disused, and impacts would be temporary.

Compensation would be provided to affected landowners in accordance with the *Land Acquisition and Compensation Act 1986* (LAC Act) (S01), however the project is currently unfunded and RRV advised the IAC they are unable to acquire land prior to funding being available. I support IAC's finding that RRV consider early strategic purchase of land and that RRV liaise with affected landowners, providing advice on the LAC Act process in the interim.

Access changes to community facilities and services

Disruptions along existing access roads during construction, including diversions, may impact the school bus services or pick-up/drop-of points temporarily. The EES reported that traffic volumes would be likely to increase on Beaufort's local road network and surrounding road network due to construction vehicles accessing and departing construction sites. This may increase local commute times and affect the community's access to services and facilities. As a result, school students and other community members, particularly older residents with greater demand for accessible community services, may be significantly impacted.

Informal tracks and connections between the existing network in crown land on Camp Hill would be severed by the project. Pyrenees Shire Council submitted that cycling and pedestrian connectivity, including to Camp Hill, should be considered as part of the detailed design process. Enhancing cycling and pedestrian infrastructure within the town and providing improved connection to Camp Hill, a key recreational asset for the town, will make a positive contribution to liveability and wellbeing.

I support the IAC's recommendation to amend wording of S05 to consider comments of the Pyrenees Shire Council on issues of connectivity, including recreation, pedestrian and cycling networks, in preparation of Landscape Design Plans. Section 6.8 discusses the IAC's recommendations about the Landscape Design Plans and my response.

I support IAC's findings that changes to access can be managed to a reasonable and acceptable level with implementation of a construction and operation access strategy (S02) and that ongoing social impacts during operation will be within acceptable levels. Impacts on access for landholders are further discussed in Section 6.1.

Reduction of traffic along the main street during project operation will increase pedestrian access and safety, improving access to community facilities for residents. Operation of the bypass, and the expected reduction in heavy vehicle traffic through the township, will reduce travel time barriers to local access. I agree with IAC's findings that, once operational, net impacts of the bypass on Beaufort's social fabric and community amenity and wellbeing are likely to be positive.

Business disruption

I acknowledge that businesses reliant on passing highway trade, including service stations, would be adversely impacted and the IAC heard that the project would result in the loss of 27 full time equivalent positions. These individuals may experience significant impacts on their wellbeing due to the loss of employment, including from financial hardship. Changes to business viability and loss of jobs as a direct result of the project may also impact the social and cultural fabric of the town.

Mitigation measure S08 will require construction contractors to develop local procurement strategies to ensure economic benefits are realised during the construction phase. However, the IAC noted this is unlikely to directly benefit those who will lose their jobs. I recommend RRV prepare and implement employee assistance plans with and for each employee directly impacted by job losses following project construction, and in consultation with local employers. The plan would need to consider the employee's future employment plans, need for training and development, factors involved in being locally employed, and practical and reasonable implementation of the plan.

Refer to Section 6.6 for my assessment relating to impacts on business and local employment.

Influx of the construction workforce

I acknowledge that temporary influx of construction workers may impact the socio-demographic make-up and social fabric of the community. I support IAC's findings that, more generally, the project may impact on the community's sense of contentment and social cohesion but with implementation of relevant mitigation measures, potential impacts will be short-lived.

Social impacts of biodiversity loss

The removal of native vegetation and impacts on fauna and a culturally significant (memorial) tree at Camp Hill were of significant concern of the community. Although RRV has sought to minimise vegetation clearance, I acknowledge that impacts on biodiversity and the culturally significant tree at Camp Hill may reduce the sense of place or cultural connection that some Beaufort community members have with the town, and, as a result, adversely impact their wellbeing. The revegetation works proposed as part of the project are expected to mitigate this to some degree.

I support IAC's recommendation that the Community and Stakeholder Engagement Plan (S04) include community engagement regarding biodiversity impacts, mitigation measures and opportunities for community involvement in rehabilitation/reinstatement. I recommend the scope of the Plan is updated accordingly in the final EMF. Community engagement regarding biodiversity is further discussed in Sections 6.2 and 6.3

Amenity impacts

I acknowledge that changes to amenity will occur during construction for up to two years and have the potential to generate significant impacts on wellbeing of the Beaufort community, particularly the older population and those experiencing health issues. Key changes in amenity will result from increase in dust, noise, traffic and access.

The various mitigation measures discussed elsewhere in this assessment intended to minimise amenity impacts and reduce the risks to wellbeing will be important to mitigate social effects. The IAC's recommendations regarding amenity impacts and my responses are discussed further in Sections 6.1, 6.8, 6.9 and 6.10.

I support IAC's conclusion that during operation of the bypass, amenity within the town centre is expected to be significantly improved compared to pre-project conditions due to the reduction of through-traffic, including reduced noise and vibration, improved air quality, a more accessible town centre, and increased pedestrian safety.

Transitional initiatives

Pyrenees Shire Council submitted they are financially constrained and do not have the capacity to independently fund, develop and implement strategies to respond to the bypass and require support. In response to Council's submission, RRV proposed to:

- amend mitigation measure S07 to provide for the identification of a governance structure (to identify finer detail of support and implementation actions), include a paragraph on RRV and Council agreeing on how transitional initiatives are to be implemented, and update references to the Pyrenees Economic Development Strategy (February 2020) to also include any successors; and
- amend the incorporated document Clause 5.1.1 to require the EMF include a process for identifying and implementing initiatives to support Council to reposition Beaufort from a highway town to a bypassed town to assist its economic and social recovery post construction.

I agree with IAC that these proposed changes are appropriate.

Community engagement

Ongoing engagement with the local community, Council and relevant agencies is required to inform detailed design and manage and monitor project impacts.

The IAC recommended community building and strategic work be undertaken to support the transition from the town to a destination place, including opportunities for townscape improvements. I note RRV intend to support Council with implementation of relevant transitional initiatives (S07).

The IAC supported RRV's Final proposed changes to the EMF for the proposed Community and Stakeholder Engagement Plan (S04) to set out processes and measures to inform community and special interest groups of construction timeframes and progress. The IAC also supported RRV's proposal to amend the Community and Stakeholder Engagement Plan to continue engaging with the community regarding biodiversity issues.

I support the proposed amendments and further to this, recommend the scope of the Community and Stakeholder Engagement Plan (S04) in the final EMF also include a process for considering feedback from community members and special interest groups during detailed design and construction, including consideration of planned public events in the township, to inform the timing of project works to further reduce impacts.

I agree with the IAC there is a desire in the community to bring something new to the town to help revitalise the town post-bypass. I support IAC's recommendation that mitigation measure S07 be amended to provide for development of a governance structure by RRV in partnership with Council that allows for community representation or input.

Assessment

It is my assessment that:

- The project will cause social effects, some of which will be significant, including for individuals directly affected by location of the bypass, through displacement and land acquisition to implement the project. For other community members, there will be an element of change - positive and negative - and a period of disruption during the construction period. With implementation of the mitigation measures proposed by the IAC and this assessment, I consider that the social effects of the project can be acceptably managed.
- I support the recommendations of the IAC and have made the following recommendations to further minimise the social impacts of the project:
    - RRV prepare and implement employee assistance plans with and for each employee directly impacted by job losses following project construction, and in consultation with local employers.
    - Amend the scope of the Community and Stakeholder Engagement Plan (S04) in the final EMF to also include a process for considering feedback from community members and special interest groups during detailed design and construction, including consideration of planned public events in the township, to inform the timing of project works to further reduce impacts.
- The project will have community benefits due to its contribution to the town's amenity, resulting from the reduction of through-traffic in the town centre, including reduced noise and vibration, improved air quality and increased pedestrian safety.

6.6. Land Use and Economics

Land use and economic effects are addressed in Chapter 13 Land use and economics, Technical Appendices G and I of the EES, and Chapter 9 of the IAC Report. RRV proposed six mitigation measures to manage land use and economic impacts, with IAC recommending amendments to three of these measures (MD21, LU01, RE03 and RE05) as well as to the incorporated document.

Evaluation objective

To minimise and manage adverse effects on local business (including agriculture) and existing or planned land uses.

Assessment context

The project bypasses Beaufort township on its northern side, where the predominant land use is broadacre farming, interspersed with native forested woodland. Other existing land uses include rural grazing land, low-density residential areas, commercial developments, open space and recreation areas (including Camp Hill Recreation Reserve and the disused Beaufort Trotting Track).

Both freehold (private) and Crown land (public) is located within Beaufort, with most land being private land used for agriculture. Crown land is used for a variety of purposes including apiary activities, recreation, prospecting, and local access roads.

Approximately 153 ha of land will be permanently acquired for this project, consisting of plantations, land used for grazing, rural residential blocks and State Forest land uses. Up to 51 parcels (47 private (147 ha) and four public (6.5 ha)) would be impacted. Approximately 102 ha of this land is used for agricultural purposes. Acquisition of private land will permanently impact 22 private landowners, severing large agricultural landholdings and impacting land used for irrigation, forestry operations, and rural residential blocks. Land will be lost to one landholder currently irrigating with recycled wastewater sourced from the Beaufort Waste Water Treatment Plant. Approximately 7 ha of blue-gum plantations will be impacted, one dwelling would need to be removed, and permanent access changes from dwellings and the local road network would need to be made. A total of 16 subminimal lots (less than one hectare) will be created within the Pyrenees Planning Scheme Restructure Overlay area.

Acquisition of public land will impact apiary activities in the Camp Hill State Forest, the currently disused Beaufort Trotting Track and will sever Camp Hill Recreation Reserve from the Camp Hill State Forest, impacting recreation and existing fire management access, through removal of informal tracks and pedestrian connections. The EES reported that project design will ensure local access to fire management tracks on either side of the alignment and that a standard maintenance road will be constructed where the freeway borders the forest, linking into the existing track network.

The EES stated that most Beaufort township residents (State Suburb Code area) are employed in the tertiary (or services) sector (72.3%) with the largest industry sectors being ‘health care and social assistance’, ‘public administration and safety’ and ‘retail trade’. The secondary sector (manufacturing and construction) accounts for 14.7% of jobs and primary sector (‘agriculture, forestry and fishing’ and mining) for 7.8% of jobs. Over half of businesses located within the wider Beaufort area (Statistical Area Level 2) are within the ‘agriculture, forestry and fishing’ sector (51%), followed by ‘construction’ (12%).

The EES stated that highway dependent trade accounts for $10.4 million/annum of the $31.6 million/annum revenue for the Beaufort township, with the sales sector most dependent on highway trade being the ‘service station/fuel’ sector (contributing to 49% of Beaufort’s sales revenue). The EES reported that under a scenario where 50% of highway trade is forgone, a total of $5.2 million/annum in revenue from highway trade would be lost due to the bypass. This is mostly from the impact to service stations/fuel and food and drink catering. As a result, it is estimated 27 full time equivalent positions (i.e., 4.4% of FTE employment for Beaufort) would be lost.

Demand for accommodation by construction workers may create a supply shortage, and limit availability to the tourism sector.

The Beaufort community will experience land use and economic effects associated with:

- acquisition and severance of private and public land access changes to agricultural and recreational land;
- transition of Beaufort from a highway town to a bypass town or tourist destination;
- business disruption; and

- influx of the construction workforce.

Discussion

Land acquisition and severance

I acknowledge that acquisition and severance of private and public land will significantly impact local agricultural operations, businesses, public land use, and recreation. My assessment of effects of severance on agriculture and businesses is discussed below. The impacts of land severance on access for landholders are discussed in Section 6.1.

I note that prospecting leases and exploration licenses within Camp Hill State Forest will be unaffected, but that one apiary buffer zone will be encroached upon. I acknowledge that loss and severance of public land will negatively impact on recreation in the Camp Hill State Forest and apiary activities due to freeway noise impacting on amenity and reducing availability of land for recreation. I note that proposed realignment of the existing fire track at Camp Hill State Forest will maintain access for fire management vehicles.

I acknowledge that permanent access changes to properties will occur, including to households and the local road network, and that RRV proposes a construction and operational access strategy to address this (RE04). I support the IAC's finding that the proposed strategy is satisfactory, with access arrangements to be resolved during the Project's detailed design phase. Further information on access can be found in Section 6.1.

The EES reported that land use impacts due to land acquisition and severance will be low due to the mitigations proposed, including compensation in line with the *Land Acquisition and Compensation Act 1986* (RE03). I agree with IAC that these impacts can, in part, be addressed through the LAC Act process, and that in the context of a wider net community benefit associated with the Project, these impacts are acceptable.

See 'Planning Policy implications' below for additional recommendations to consolidate small lots resulting from project land acquisition. See Section 6.5 for my assessment of the social impacts from land acquisition and severance.

Agriculture

The EES stated the project will impact agricultural land due to permanent acquisition, and adjacent agricultural land due to bisection or severance of lots into smaller separated lots. RRV stated that agricultural activities could continue adjacent to the project as agricultural land is not considered sensitive to road-based activities, and that changes to the surface water regime would not have a significant land use impact.

I acknowledge that the productive capacity of land used for rural or agricultural purposes, adjacent to the project, will be impacted by land acquisition during project construction and operation, including through: creation of isolated sections of land; reduced access to water; loss of productive land, dams and stock shelter areas; duplication of facilities; and less efficient movement of stock and vehicles.

I also acknowledge that 7ha of blue-gum plantations will be acquired with this loss being compensated under the *Land Acquisition and Compensation Act 1986* (RE03).

I support IAC's findings that impacts on productive land are not widespread and are limited to low to moderate quality agricultural land on the northern edge of the township (i.e., rural properties in the immediate alignment that are to be partially acquired), and that mitigation measures for maintaining access and confining the extent of land acquisition will assist in reducing these impacts to an acceptable level. I agree with the IAC that the C2 alignment minimises impacts on rural land use, and that such land use impacts from a project of this nature are unavoidable.

Infrastructure

Council sought a Post-construction Asset Handover Plan, to which RRV responded with the proposal to amend the Operations and Maintenance Plan (MD21) to include a description of any assets to be handed over to the Pyrenees Shire Council (including landscaping), to be prepared in conjunction with Council.

Central Highlands Water (CHW) sought greater acknowledgement and regard for impact on the Beaufort Truck Main, Beaufort Waste Water Treatment Plant and associated irrigation areas adjacent to Racecourse Road within the EMF and incorporated document. RRV proposed the following changes in response to this request:

- amend mitigation measure LU01 to consult with CHW to determine impact on its assets and manage impacts, minimise infrastructure disruption and arrangements for alternative disposal prior to decommissioning affected assets and irrigation areas; and
- insert in the Incorporated a new Clause 5.1.12 and 5.1.13 (Central Highland Water's Beaufort Trunk Water Main (BTWM) and Beaufort Waste Water Treatment Plant).

I support IAC's finding that RRV's proposed changes in response to Council and CHW's submission are appropriate.

IAC found that the project would not have a significant impact on existing infrastructure and can be managed through the proposed mitigation measures. I agree with this finding.

Planning policy implications

I support the IAC's finding that the analysis of planning policy and provisions of the Pyrenees Planning Scheme was thorough and complete.

The IAC found that the proposal is broadly consistent with the Planning Policy Framework and that the C2 alignment does not inhibit anticipated residential and rural residential or commercial growth of Beaufort township.

Council acknowledged that creation of remnant lots conflicted with planning policy and identified options to manage the smaller 'child lots' consistent with the planning scheme's Restructure Overlay (RO27), which encourages small lot consolidation in the area to the north of Beaufort. In response, RRV proposed final changes to amend mitigation measure RE05 (initiatives to support Beaufort to transition successfully) to include 'any planning projects to update the Pyrenees planning scheme controls as necessitated by the final land acquisition footprint'. IAC supported this approach and recommended that RE03 be amended to consider the impacts of land fragmentation. I support these IAC recommendations.

IAC noted that some lots cannot be readily accessed or used for rural activity and that land use conflicts could occur for more intensive land uses of small remnant areas, particularly if adjoined by Crown land. I support the IAC's recommendation that RRV review the final extent of the PAO to ensure parcels within the Farming Zone that cannot be consolidated into adjoining freehold lots or accessed are included within the PAO.

I support the IAC's findings that the project is broadly consistent with the Planning Policy Framework and will not impact strategic growth of Beaufort, and that any amendments to policy should be undertaken as part of a strategic approach.

Business disruption

Similar bypassed towns were provided as examples in the EES to indicate that impacts are centred on sectors geared to highway trade, and that, with proactive economic development initiatives and adaptive management by individual businesses, they can prosper post-bypass.

I acknowledge that impacts on highway-related business, revenue and employment within Beaufort will be significant once the project is operational. However, I agree with IAC that improved amenity and safety within the township due to

reduced volumes of traffic from the town centre will provide for a more attractive town for visitation and investment. Implementation of economic development initiatives, including transitioning Beaufort from a highway town to a destination town, will ensure impacts to revenue and employment will be temporary.

As discussed in Section 6.5, I recommend that RRV prepare and implement employee assistance plans with and for each employee directly impacted by job losses following project construction, and in consultation with local employers. The employee assistance plan would need to consider for the employee's future employment plans, need for training and development, factors involved in being locally employed, and practical and reasonable implementation of the plan.

Transitional initiatives to support the Council are discussed in Section 6.5.

Influx of construction workers

The EES reported the potential impact from the construction workforce on the accommodation sector as low, due to accommodation being available in Ballarat and Ararat, highlighting the benefits to the local commercial accommodation sector, retail and construction industry. I note the Business Disruption Plan (RE01) will include a plan for managing accommodation for the construction workforce to minimise adverse local economic impacts such as lost revenue from tourism. While there will be disruption to Beaufort businesses and accommodation suppliers during construction, there will also be opportunities. With the implementation of the proposed mitigation measures, I consider these impacts can be acceptable.

Assessment

It is my assessment that:

- The project will have significant impacts on Beaufort's land uses to the north of the township with some adverse impact to the local economy due to the loss of productive land within the footprint of the bypass, however, the project is broadly consistent with the Planning Policy Framework. With implementation of the mitigation measures proposed by the IAC and this assessment, I consider the land use and economic effects of the project can be acceptably managed.
- I support the recommendations of the IAC in relation to land use and economic mitigation measures and related changes to clauses in the incorporated document.
- The project will support the economic growth of the township and region in the long term.

6.7. Aboriginal Cultural Heritage

Impacts to Aboriginal cultural heritage are addressed in Chapter 10 Cultural heritage, Technical Appendix A of the EES, and Chapter 6 of the IAC Report. RRV has proposed five mitigation measures to manage impacts to Aboriginal cultural heritage (AH01-AH05), with IAC recommending four of these measures, and five related measures, be amended.

Evaluation objective

To avoid and minimise adverse effects on Aboriginal and historic cultural heritage values, and to identify best practice mitigation measures.

Assessment context

The project is located on the Country of the Wadawaurrung People. The Wadawurrung People are represented by the Wadawurrung Traditional Owners Aboriginal Corporation (WTOAC), who are the Registered Aboriginal Party for the

project area. The Paleert Tjaara Dja: Wadawurrung Country Plan articulates Wadawaurrung People's aspirations for caring for Country.

The EES reported that the preferred alignment has the least area of Aboriginal cultural heritage sensitivity compared with the other alignments. Nonetheless approximately 29.1 hectares of the project area (or 10 per cent of the project area) has Aboriginal cultural heritage sensitivity, comprising landforms such as the southern slope of Camp Hill, unnamed hills and valleys to the west and east and low rises near Yam Holes Creek. While previous impacts from mining and farming would have resulted in loss and destruction of many Aboriginal cultural heritage sites, the potential for impact on sensitive, undisturbed landforms in the project area is considered to be high.

The results of a desktop and a standard assessment (ground surface survey) were documented in the EES, and two Aboriginal places were identified to be intersected by the preferred alignment. These are a previously registered low-density artefact distribution (LDAD) and a Scarred Tree (unidentified species that has been cut down mid scar) that would be directly impacted. It is understood the LDAD site was removed under conditions of a Cultural Heritage Management Plan (CHMP) for construction of the Western Highway Stage 1: Beaufort to Fiery Creek, but unrecorded artefacts associated with the place may remain in the vicinity. It was recommended that the Scarred tree be relocated in consultation with the WTOAC, to a suitable location for cultural education and interpretation purposes (AH04).

The EES reported that a complex assessment (subsurface testing) would be required by the CHMP and is planned to be undertaken post the EES process. RRV contended that Aboriginal cultural heritage impacts can be appropriately managed through a Cultural Heritage Management Plan (CHMP) to be approved by the WTOAC under the Aboriginal Heritage Act.

The IAC heard that since the EES was published, a Cultural Values Assessment (CVA) was undertaken for the project through a partnership between the Department of Transport and the WTOAC in August 2021 (Tabled Document 58). The CVA is a record of Wadawurrung living cultural values and contains 19 recommendations across eight cultural themes to inform project design and development.

Discussion

The IAC found, based on the information available, that the project largely avoids impacts on known sites of Aboriginal cultural heritage significance. However, in the absence of a complex assessment, there remains potential for the project to impact on sites or artefacts that may be located in undisturbed, sensitive landforms.

I support the IAC's finding that the CHMP is the appropriate mechanism to manage any unexpected finds during construction. In addition, I expect that the process of completing the CHMP will provide a sound basis for determining how any Aboriginal sites or artefacts uncovered by the complex assessment should be managed.

While the IAC acknowledged that the draft CHMP is an important mitigation measure and approval step, "it does not deal with the more intrinsic or intangible cultural values or the opportunities to inform design of Project structures, landscaping or cutting treatments for example" (IAC report, pg 87). Hence, I consider the CVA a key document and its recommendations should be embedded across the project.

I note that WTOAC were pleased with RRV's engagement process and the mitigation measures being proposed (Tabled document 56). I agree with the IAC that early engagement with WTOAC provides a strong basis for the project to reduce impacts and enhance cultural values.

The IAC understood the WTOAC to be seeking an approach that "focuses on respecting and healing Country, rather than exaggerating or compounding harm" and identified opportunities that exist for restoration and repair (IAC report, pg 86). The WTOAC made several recommendations in their submission (Tabled Document 58), which included:

- the desire for an ongoing engagement role in the next phases of the project; and

- consideration of flora and fauna values (including non-threatened species that may be totemic or indicators of healthy Country, pests and weeds), surface water values, landscapes and intangible cultural heritage.

I encourage MRPV to endeavour to maximise opportunities to enhance cultural values through the detailed design process and the CVA provides a basis to do so. To this end, I support the changes proposed by RRV during the public hearing and the additional recommendations made by the IAC to better embed the CVA into the EMF and its supporting plans. I have also considered further amendments to ensure that the CVA recommendations are appropriately considered across the aspects of the projects, as described further below.

RRV proposed that "have regard to the cultural values assessment" be added as a responsibility of MRPV's in the table of "Role and responsibilities for environmental management" (Table 17.3 of the EMF). I support this addition; however, I recommend the use of more specific and direct language consistent with the other roles and responsibilities listed in the table. MRPV's responsibilities should be to "enable the integration of the Beaufort Bypass Cultural Values Assessment recommendations into project design and delivery" and also to "engage meaningfully with the WTOAC". MRPV's role goes beyond just "liaise with stakeholders" (as stated in Table 17.3) but rather, will require considered and planned engagement throughout the detailed design process. MRPV will play an important role in ensuring that WTOAC's input is understood by the design and construction contractors and effectively integrated into the project development and delivery.

RRV proposed changes to the introductory text in section 17.6.3 of the EMF to recognise the CVA. The IAC supported this inclusion. I support this inclusion and I also recommend that reference is made in this section to the design contractor (not just the construction contractor) as the design phase offers greatest opportunity to enhance cultural values.

The WTOAC sought that" culturally attuned approaches be used to consider risks to animals and vegetation species that are important as totemic or indicators of healthy Country but not necessarily threatened" (IAC report, pg 86). In response, RRV identified that this would be addressed in the proposed Threatened Species Management Plan (see Section 6.1) and the IAC supported this response. I recommend that the EMF make clear that the Threatened Species Management Plan is to be prepared in consultation with the WTOAC to ensure that cultural values such as totemic species, are addressed.

In response to RRV's Day 1 changes, WTOAC identified a preference for native vegetation offsets 'located within the Pyrenees Shire Council and the Corangamite CMA (excluding Colac Otway and Corangamite Shire areas), or in Wadawurrung Country within the Glenelg Hopkins CMA and Corangamite CMA areas'. In response to WTOAC, RRV proposed that Table 17.5 in the EMF in relation to the Native Vegetation Offset Strategy be amended to consider the recommendations of WTOAC 'if offsets are not practical within the relevant geographic area'. The IAC supported RRV's response and recommended that changes to the EMF be made to encourage offsets in Wadawurrung Country, where practical. However, I recommend the offset strategy be prepared in consultation with the WTOAC to identify suitable offset locations within Wadawurrung Country to ensure offset locations are as closely aligned with WTOAC preferences as practical.

The IAC also noted the relationship of the CVA with the landscape strategy and Landscape design plans. While Table 17.6 of the EMF envisages that the WTOAC would provide input to the Landscape design plans (MD16), the Landscape Strategy should be equally informed by consultation with the WTOAC. To this end, I recommend that Clause 5.1.10 of the incorporated document should be amended to make clear that the Landscape Strategy "be prepared in consultation with the WTOAC" and "give regard to the Beaufort Bypass Cultural Values Assessment, August 2021".

Lastly, I note that a key mechanism to embed the CVA into the design phase will be through the design management document, recommended by the IAC which I support. My findings on the design management document and integration of cultural heritage inputs with other expert input to inform detailed design is provided in Section 4.1.

Assessment

It is my assessment that:

- The project largely avoids impacts on known sites of Aboriginal cultural heritage significance. There remains potential for Aboriginal sites and artefacts within undisturbed sensitive landforms in the project area. The CHMP is the appropriate mechanism to manage and mitigate impacts on Aboriginal cultural heritage sites and artefacts.
- RRV has established a good basis for meaningful engagement with the WTOAC by engaging early and preparing a cultural values assessment.
- The CVA and ongoing dialogue with the WTOAC is important to ensuring that the project can appropriately respond to living cultural values and that there is a robust approach taken into detailed design, construction and post construction, focused on respecting and healing Country.
- The IAC found that the recommendations of the CVA were not captured in the exhibited EES.
- RRV proposed changes during the hearing to better respond to the CVA. I support the IAC's findings that the CVA recommendations need to be further embedded into the EMF. To give effect to this, I support the IAC's recommendations and I also recommend:
    - Providing a clearer statement on MRPVs responsibilities in relation to the CVA in Table 17.3 of the EMF;
    - Clarifying in Section 17.6.3 of the EMF that the design contactor is also bound to the CVA (not just the construction contractor) given the design phase offers the greatest opportunity for enhancing cultural values;
    - Clarifying in Section 17.5.2 of the EMF that the Threatened Species Management Plan and the Native Vegetation Offset Strategy, to be prepared in consultation with the WTOAC; and
    - Amendment to Clause 5.1.10 of the incorporated document to require that the Landscape Strategy be prepared in consultation with the WTOAC and give regard to the Beaufort Bypass Cultural Values Assessment, August 2021.
- I note that a key mechanism to embed the CVA into the design of the project and enhance cultural values is through the design management document, discussed in Section 4.1 of my assessment.

6.8. Landscape and visual impact

Landscape and visual amenity impacts are addressed in the EES in Chapter 15 and Technical Appendix F (the Landscape and Visual Impact Assessment), as well as in section 11 of the IAC report. The EES proposed four mitigation measures (LV01-LV04) to mitigate impacts on landscape and visual amenity. Some of these measures have been the subject of recommendations by the IAC.

Evaluation objective

To minimise adverse effects on visual and landscape values as far as practicable, during construction and operation.

Assessment context

The project passes through a rural area north of Beaufort township with some bushland areas and scattered dwellings. The EES Technical Appendix F identified 63 dwellings within 500 metres of the project area, with five of these dwellings located within 100 metres and nine within 250 metres of the project area.

As outlined in the IAC report, the most significant landscape and visual impacts identified by the EES included:

- impacts on nearby dwellings (especially within the 500 metres of the project);

- areas of fill and noise walls (especially to the north of the township where there are a number of residential dwellings and a wide valley);
- areas of significant visual cut along the southern face of Camp Hill, directly north of the township;
- large scale Bypass interchanges, with the Beaufort-Lexton Road interchange forming a new landscape edge or intrusion to the northeast of the township, and
- impacts on sensitive and public sites, particularly Camp Hill State Forest and Snowgums Bushland Reserve.

In addition to the above, the EES acknowledges that there will be changes to night-time character of the rural landscape due to road lighting at the three interchanges along the project.

The EES acknowledged that there is opportunity for design mitigation of the project to reduce visual impacts such as through earth mounding, vegetation and well-designed noise walls, bridges and other large-scale visible elements. However, as the project design is at an early stage of development (see Section 4.1), detailed site-specific mitigation measures were not described. The EES mitigation measures focused on development of various strategies and plans to further develop and refine specific design and mitigation responses to landscape and visual impacts. The key documents proposed to be developed are the Landscape Management Strategy (as outlined in LV01) and Landscape Design Plans (as outlined in LV03).

During the hearing, RRV proposed some updates to the Final EMF in response to issues raised in the hearing regarding landscape and visual amenity impacts. The IAC has commented on several of these amendments and made further recommendations.

Discussion

Landscape character and views:

The IAC found that the impacts of the project on landscape character and views will be significant and long term and such impacts are inevitable with a project of this scale and within this landscape setting. I agree with this finding given that the extensive cut and fill required for the project, as well as the presence of the final infrastructure, will result in significant changes to the existing rural landscape in the vicinity of the project. The impacts will be particularly significant where the road will be raised (around Packhams Lane), for the large scale interchanges and bridges, where there are noise walls planned, and for the large cutting planned on the southern slopes of Camp Hill. While some impacts are unavoidable, landscaping and screening treatments will be important to minimise impacts on landscape character and views. It is expected that the land bridge treatment recommended by the IAC would significantly reduce the visual impact of cuttings through Camp Hill. The land bridge is further discussed in Section 6.1.

Mitigation measure LV01, as proposed in the EES, specifies that a Landscape Management Strategy must be developed and implemented for the project. The IAC noted that a Landscape Management Strategy was not included in the tables of environmental management plans and documentation in section 17.5 of the exhibited EES. The IAC therefore recommended that the role and detail of the Landscape Management Strategy and responsibility for its preparation should be detailed in EMF Tables 17.5 and 17.6. I support this recommendation to help provide clarity on the objectives and content of the Strategy in the EMF, as well as the responsibility for its preparation and approval.

The IAC further recommended the incorporated document be amended to introduce a requirement to prepare the Landscape Strategy. I note that the draft incorporated document exhibited with the EES already included a requirement to prepare a ‘Landscape Strategy’ to the satisfaction of the Minister for Planning (Clause 5.1.10). The proposed amendment to this clause by the IAC was to include a requirement for the Strategy to be prepared in consultation with the Pyrenees Shire Council. I support this change given the Council requested involvement in development of the Strategy and to help ensure their knowledge of the local area and community values is incorporated. I also recommend the name of the document be updated in the incorporated document to ‘Landscape Management Strategy’ for consistency with the EMF. The requirements for approval of the Landscape Management Strategy should also be updated in the EMF to be consistent with the incorporated document (EMF currently states it be prepared “to the satisfaction of MRPV“).

It will be important for the Landscape Management Strategy to be in place early so that it can inform the detailed design and preparation of Landscape Design Plans in consultation with relevant stakeholders. I recommend that the final EMF specifies that the Landscape Management Strategy is prepared and approved prior to the Landscape Design Plans, so that the outcomes of the Strategy development (including responding to stakeholder feedback) can inform the subsequent development of the Landscape Design Plans for specific sites. Further consultation with stakeholders can then be conducted to refine the Landscape Design Plans.

The IAC recommended that mitigation measures LV01 and LV03 be amended to provide for expert ecological input into the Landscape Management Strategy and Landscape Design Plans. I support this recommendation given the potential for the landscaping and revegetation works to provide significant benefits for local biodiversity if undertaken in a manner that considers the potential to recreate and/or restore vegetation communities endemic to the local area and provide habitat for wildlife, including threatened species.

To further assist in mitigating biodiversity impacts of the project, the IAC recommended mitigation measures LV01 and LV03 be amended or a new mitigation measure be included to ensure landscape planting recreates habitat for species/communities, e.g., Victoria Temperate Woodland Bird Community woodland birds. The IAC also recommended that the Landscape Design Plans should include consideration of opportunities to rehabilitate existing native vegetation habitat within the Project area. I support these measures to help maximise the biodiversity benefits of the revegetation activities to be conducted by the project. Close coordination with the development of other management plans such as the Threatened Species Management Plan and Native Vegetation Offset Strategy will be required in the development of these measures. My assessment of the biodiversity impacts of the project and associated mitigation measures is further discussed in sections 6.2 and 6.3.

The IAC further recommended that LV01 be amended to specify that opportunities for early delivery of landscaping works should be explored. While I support this to help ensure landscape impacts are minimised, I consider that mitigation measures LV01-LV03 should be further strengthened to specify that the CEMP, Landscape Design Strategy and Landscape Design Plans need to provide for early and progressive implementation of rehabilitation and associated vegetation reinstatement works wherever practicable during construction, to help minimise the time required for the landscaping works to reduce the impacts on visual amenity for affected parties and help ensure biodiversity and cultural benefits of landscaping works are realised as early as possible. The schedules for progressive delivery of reinstatement works during construction should also be detailed in the Landscape Management Strategy.

It is also important to acknowledge that the cultural values associated with the landscape and views. As identified by the IAC, the landscaping and revegetation works conducted will need to be tailored to respond to the opportunities identified by the WTOAC to retain landscape views from the carriageway to landscape features to the east. To help address this the IAC recommended mitigation measure LV03 be amended to refer to the Beaufort Bypass Cultural Values Assessment. I support this recommendation to help ensure the results of the cultural values assessment are considered in the development of Landscape Design Plans. I also note the EMF includes a requirement for the Landscape Management Strategy to be produced ‘in consultation with the Registered Aboriginal Party’ (LV01). As per my recommendations in Section 6.5, I recommend the incorporated document is updated to also include this requirement. My assessment of cultural heritage impacts of the project and associated mitigation measures are discussed further in Section 6.5.

Visual amenity impacts on nearby residents

The key issue considered by the IAC is the extent of visual impact and loss of landscape visual amenity associated with the project for adjacent residents. As outlined in the EES, there are a number of rural residences located at various distances from the project footprint that are likely to be affected by visual amenity impacts from the presence of project infrastructure, which was raised as a concern in numerous public submissions. Key features of the project that will remain permanently visible will include the noise walls, project bridges, elevated sections and interchanges, as well as large cuttings such as at Camp Hill. Submitters also raised concerns regarding the potential loss of privacy from passing vehicles on the bypass from elevated sections.

The EES stated that the dwellings with the most significant potential visual amenity impacts are expected to be those on the east side of Packhams Lane and adjacent to the cutting on southern Camp Hill. The IAC also considered that the visual impact on the rural landscape and Camp Hill for Beaufort-Lexton Road residents will be significant and long lasting. Due to the nature and scale of the project, significant impacts on some residents in these areas would not be able to be avoided if the project were to proceed. However, carefully targeted design and mitigation measures including landscaping (e.g. earth mounds) and vegetation screening works will be able to reduce visual amenity impacts over time, particularly as screening vegetation becomes well established.

I note that mitigation measure LV01 includes the scope and consultation requirements for the Landscape Management Strategy but does not include any requirement for community consultation. I recommend that the Strategy is prepared in consultation with local residents and landowners that would be affected by visual amenity impacts of the project, to help ensure their preferences and concerns are considered. Further consultation with affected residents should also be conducted during the preparation of the Landscape Design Plans to allow for feedback on the specific design and mitigation responses proposed to address impacts on views impacted for their residences. To help verify that appropriate consultation has been conducted, the Landscape Management Strategy and Landscape Design Plans should be required to include a summary of consultation carried out in preparing the documents as well as responses to issues raised.

Given the relatively long timescale that is expected between the completion of the EES and the start of construction (see Section 4), it is also important to consider that sensitive receivers may have changed since the EES studies were conducted. Depending on the timing of preparation of documentation, further investigations may be required as part of the Landscape Management Strategy and Landscape Design Plans to identify any new residences or other receivers that should be engaged. I recommend that LV01 and LV03 are updated in the final EMF to include this consideration.

As discussed above it is expected that the land bridge treatment recommended by the IAC could significantly reduce the visual impact of cuttings through Camp Hill. To help ensure the potential benefits of this are maximised, I recommend that the landscape and visual amenity mitigation measures for the proposed land bridge treatment are investigated and documented in the Landscape Management Strategy to be developed for the project. The land bridge treatment is further discussed in Section 6.2.

Assessment

It is my assessment that:

- With the implementation of mitigation measures, including the amendments proposed by the IAC and my assessment, the residual impacts on landscape and visual amenity associated with the project can be managed to acceptable levels.
- I acknowledge that due to the nature and scale of the project some significant residual adverse effects on visual amenity will occur for some rural residents, particularly around Packhams Lane and adjacent to the cutting on southern Camp Hill.
- Impacts on the landscape character will also occur from the project, however these will be reduced over time as the vegetation in rehabilitated areas becomes established and matures.
- The Landscape Management Strategy and the Landscape Design Plans that will follow will be critical to ensuring mitigation of landscape and visual impacts is considered during the detailed design process.
- I support the amendments recommended by the IAC in relation to landscape and visual amenity and have recommended the following key additional amendments to further strengthen the mitigation of landscape and visual impacts:
    - The name of the ‘Landscape Strategy’ document be updated in the incorporated document to ‘Landscape Management Strategy’ for consistency with the EMF.
    - The requirements for approval of the Landscape Management Strategy should be updated in the EMF to be consistent with the incorporated document.

- The final EMF should specify that the Landscape Management Strategy is prepared and approved prior to the Landscape Design Plans.
- The schedules for progressive delivery of reinstatement works during construction should be detailed in the Landscape Design Strategy.
- Mitigation measures LV01-LV03 should be further strengthened to specify that the CEMP, Landscape Design Strategy and Landscape Design Plans need to provide for early and progressive implementation of rehabilitation and associated vegetation reinstatement works wherever practicable during construction.
- The incorporated document should be updated to include a requirement for the Landscape Management Strategy to be produced in consultation with the WTOAC, consistent with what is stated in the EMF.
- The Landscape Management Strategy and Landscape Design Plans should be informed by consultation with affected residents and landowners, and the associated mitigation measures (LV01 and LV03) should be updated to reflect this. These documents should also consider the need to identify any newly established residences and/or other receivers that need to be consulted in addition to those identified in the EES.
- LV01 should be amended to state that landscape and visual amenity mitigation measures for the proposed land bridge treatment are to be investigated and documented in the Landscape Management Strategy.

- Consultation with affected residents and other stakeholders including the WTOAC will be a key element in the finalisation of design and management measures to help minimise landscape and visual amenity impacts during both construction and operations.

6.9. Noise and Vibration

Noise and vibration impacts are addressed in the EES in Chapter 14 and Technical Appendix H (the Noise and Vibration Impact Assessment), as well as in section 10 of the IAC report. In the exhibited EES, RRV proposed three mitigation measures to help minimise and manage noise and vibration impacts. For noise, mitigation measure NV01 was proposed for the construction phase, and NV03 for the operations phase. Mitigation measures NV02 addresses vibration impacts in both phases.

During the inquiry process, the RRV proposed updates to the mitigation measures in response to issues arising. The IAC made recommendations about RRV's proposed mitigation measures in its report.

Evaluation objectives

To minimise adverse air quality, noise or vibration effects on the amenity of residents and local communities, as far as practicable during construction and operation.

Assessment context

Construction noise

Project construction has the potential to increase noise levels at nearby scattered rural residences that are considered to be 'sensitive receptors'. Project Objective Noise Limits (PONL) were calculated using baseline noise data in Technical Appendix H consistent with current noise policies and guidelines. Construction noise was then modelled based on noise emissions from typical construction scenarios (i.e. bulk earthwork, vegetation clearing, bridge works (with driven piles) and paving). The modelling predicted that, without mitigation, the noise from construction activities would exceed the PONL at some sensitive receptors within 200m of the alignment. RRV proposed that the construction contractor prepare a Construction Noise and Vibration Management Plan (NV01) in accordance with relevant guidelines and the key relevant mitigation measures outlined in the EMF. With implementation of the proposed mitigation measures, the EES considered

that residual impacts from noise on sensitive receptors would be low to medium. The EES assessment noted that noise impacts would be temporary as the construction works moved along the bypass route, and would last for the duration of construction in each section.

Operations noise

For the operations phase, the primary source of noise associated with the project would be from traffic using the bypass. Noise modelling documented in Technical Appendix H identified that, in the absence of mitigation, the PONL would be exceeded at 27 sensitive receptors (all nearby residences). As documented in the EMF, RRV proposed mitigation measures in NV03 that included:

- alternative 'low noise' road surface (7 mm spray seal); and
- 2-m high noise barriers at strategic locations.

With implementation of these measures, the EES predicted that PONL would be met for most of the nearby residences however noise levels would exceed PONL at 11 existing residences. For those 11 residences, targeted 'off-reservation treatments' (ORTs) were proposed to assist in achieving compliance with PONL inside residences. ORTs proposed for individual residential buildings include:

- fresh air ventilation treatments;
- upgraded windows/doors;
- upgraded window and door seals; and
- targeted sealing of wall vents.

The EES acknowledges that these treatments will not reduce noise impacts in outdoor areas associated with residences.

Technical Appendix H also considered the potential for traffic noise to cause sleep disturbance with and without mitigation. Engine brake noise is the main traffic noise source potentially resulting in sleep disturbance. The EES concluded that residents in up to 22 residences could be impacted by sleep disturbance. For the 11 residences where ORTs are proposed to be installed, these impacts will be reduced.

Operation of the project is expected to reduce traffic noise thereby improving amenity at residences in Beaufort township, as less traffic will pass through the township. The EES stated that during operations noise modelling indicates that the in-town noise levels are predicted to decrease by 3 to 6 dB from the 'Predicted (2018)' traffic noise levels.

Vibration

The EES notes that key potential sources of vibration from project construction are driven piling works and vibratory compaction of ground surfaces. Impacts are expected to be low to negligible for most sensitive receptors – as most sensitive receptors are located greater than 100m from the project alignment. However, for receptors that are closer to the alignment (e.g. House ID 57 located within 25m of the alignment) impacts prior to mitigation were assessed as medium.

Proposed measures to minimise and monitor vibration impacts specified in the EMF (NV02) included:

- dilapidation surveys;
- vibration monitoring;
- alternative methods and/or equipment; and
- specific consultation with residents/asset owners.

With implementation of the proposed mitigation measures, the EES predicts residual impacts from vibration will be low during construction, and states that these impacts will generally be short term in nature. The EES also states that is not expected that there will be any vibration impacts to sensitive receptors due to the operation of the road, based on the modelling conducted.

Discussion

Noise

Traffic noise impacts will be most significant for 22 existing residences located near the alignment, with the PONL not expected to be met for 11 of these during operations. The IAC considered that operational noise levels at these residences should reasonably be able to be mitigated to an acceptable level with the measures proposed in the EES, including application of ORTs for residences where PONLs are expected to be exceeded. Of the 22 residences identified in the EES as potentially impacted by noise overnight, I note that two dwellings occur within 100m and one of these is within 25m of the alignment (House ID 57). Noise monitoring at these dwellings, as proposed in mitigation measure NV01, will be critical to assess the efficacy of design and mitigation measures during both construction and operations, and determine if any further mitigation is required.

The IAC recommended amendment of mitigation measure NV01 to include RRV's proposed changes to refer to relevant noise standards. The IAC also recommended amendments to NV03 to 'ensure operational monitoring should be for a minimum of 6 months after the bypass opens', as well as to 'implement any practicable measures to reduce sleep disturbance'. I support these recommendations of the IAC to help strengthen these measures. Further to the IAC's recommendations, I recommend that NV03 is amended to explicitly state the PONL to be achieved during operations for eligible sensitive receptors – to assist in making this clear and transparent for the community and other stakeholders.

I note that all 22 residences located close to the proposed alignment were identified as being potentially affected by sleep disturbance, with 11 of these proposed to receive ORTs. To help ensure potential health impacts associated with sleep disturbance are minimised, I recommend that that mitigation measures NV01 and NV03 be amended to include the following measures:

- Inclusion of noise target levels to be achieved during the night-time period specifically for bedrooms and living areas within potentially affected residences, with ORTs to be implemented in eligible residences where these noise target levels are not expected to be met;
- In circumstances where ORTs are proposed, the Independent Environmental Auditor must review the project design solutions to confirm that the internal PONL could not be achieved by the adoption of reasonable and feasible detailed design measures;
- ORTs to be implemented in consultation with the owner of the relevant building; and
- Remedial action must be taken as soon as practicable in the event that the measured traffic noise levels demonstrate that the internal and/or external PONL are not met for eligible residences.

As flagged in the IAC Report, although not directly reflected in the IAC's recommendations, there is an opportunity to improve outcomes for residents by commencing early engagement and implementation of ORTs to ensure the maximum benefits in terms of noise reduction during project construction. I recommend that the ORTs are implemented for dwellings with potentially significant noise impacts as soon as possible after project funding is secured, to help ensure treatments are in place early in construction.

Vibration

As discussed above, impacts associated with vibration were assessed to be low for sensitive receptors during construction. Mitigation measure NV02 is proposed to cover the management and monitoring of vibration during construction. No management or monitoring measures were proposed for vibration during operations.

To help strengthen the mitigation measures for vibration impacts associated with construction, I support the IAC's recommendation to amend mitigation measure NV02 to include RRV's proposed changes to refer to a relevant standard or guideline for protection from the effects of vibration.

I note that the EES Technical Appendix H Noise and Vibration Impact Assessment specifically states "House ID 57 is located 25 m away from the alignment and is expected to have active monitoring during vibration intensive works", however the requirement for monitoring during construction at this location is not specifically reflected in the mitigation measures in the EMF. Monitoring during operations to assess traffic-induced vibration impacts at sensitive receptors is also not specifically proposed in the EMF. To further strengthen mitigation of vibration impacts, I recommend to revise the dot point "vibration monitoring" in NV02 to specify that vibration monitoring is to be conducted to characterise vibration impacts during construction and for a minimum of 6 months after the bypass opens at residences with greatest potential for impacts (including House ID 57), to confirm relevant standards for exposure to vibration are met, and identify the need for any further mitigation. The Construction Noise and Vibration Management Plan proposed in NV01 should identify contingency measures to be implemented if standards for vibration exposure are not met.

Additionally I note that NV02 refers to "alternative methods and/or equipment" as a measure for addressing construction vibration, however it is unclear what this means. I recommend this dot point in NV02 is updated to specify that construction contractors are to select construction techniques and equipment with lower vibration emissions where practicable.

Project timeframes and application of the GED

During the hearing, the IAC also requested further information from RRV as to how the EMF will address the General Environmental Duty (GED) and evolving state of knowledge under the EP Act. As outlined in the IAC Report, there could be a long delay between the completion of the EES process and commencement of project construction. I support the evidence provided in the hearing by Mr Ryan that, in order to appropriately address the requirements of the GED (in particular the need to minimise risk of harm to human health or the environment so far as 'reasonably practicable'), the noise and vibration measures outlined in the current EMF should be treated as minimum requirements for the Project. In line with the IAC, I also support Mr Ryan's recommendation that the project management regime for noise should be updated to account for any changes in future stages of the Project such as, but not limited to:

- Changes during detailed design of the chosen alignment;
- Revised road traffic volumes for future project operation years (e.g, 10 years after opening);
- Changes in material choices for mitigations (e.g., noise barriers and road surface finishes); and
- Acceptance of 'best practice' assessments for contemporary major infrastructure projects (e.g, sleep disturbance and construction assessment methodologies).

Updating the management regime for noise (including both in the EMF and associated management plans) to account for the above aspects will help to ensure the mitigation measures are appropriate for the updated project design and reflect updated best practice for mitigation of noise and vibration. Depending on the timing of construction - the update of the management regime may require consideration of any changes to land uses in the area surrounding the project footprint, for example whether any new residences have been established near the alignment which will require noise mitigation. I recommend that the detailed design of the proposed mitigations such as noise walls consider any changes to locations of sensitive receptors since preparation of the EES.

To help ensure the GED is appropriately applied during construction, I further recommend that the scope of the Construction Noise and Vibration Management Plan in NV01 be amended to include a process to ensure the risk of harm from construction noise and vibration is minimised so as far as reasonably practicable at all times. In particular this should outline a clear and transparent process to assess and justify the need for any unavoidable work outside normal working hours that meets EPA guidance requirements and is independently verified by the Independent Environmental Auditor. The process should also ensure that the community is consulted in a timely and appropriate manner.

The implementation of consultation activities, including a process for managing complaints from affected residences, will be important for adaptively managing impacts during project construction and operation. I note that, as outlined in the EMF, the Community and Stakeholder Engagement Plan to be developed for the project by MRPV will aim to provide means for community enquiries and complaints throughout the construction and operation of the bypass. The EMF also notes the construction contractor will be required to implement a complaints management process consistent with AS/NZS 10002: 2014 Guidelines for Complaint Management in Organisations.

Assessment

It is my assessment for noise and vibration that:

- With the implementation of mitigation measures, including the amendments proposed by the IAC and this assessment, the residual impacts on amenity associated with noise and vibration form the project can be managed to acceptable levels.
- Consistent with the IAC, I consider the expected increases in noise are reasonable and acceptable because they can be managed effectively though applying a mix of on and off-reservation treatments.
- I acknowledge that due to the nature and scale of the project, and the proximity of rural residences nearby, some noise impacts on sensitive receptors will not be able to be avoided during both construction and operations. In particular, it is acknowledged that noise impacts outside of buildings will not be able to be mitigated by the off-reservation treatments proposed and will remain for numerous residences.
- I consider the on-reservation treatments such as the proposed noise walls will appropriately minimise residual impacts where practicable.
- Vibration impacts from the project are expected to be low, however measures will need to be implemented to appropriately minimise emissions and monitor impacts during both construction and operations, particularly for residences located close to the project footprint.
- I support the recommendations of the IAC regarding noise and vibration. I have also made recommendations to strengthen the mitigation measures proposed for both construction and operations including:
    - Amend NV03 to explicitly state the PONL to be achieved during operations for eligible sensitive receptors.
    - Where ORTs are required, these should be implemented as soon as possible after project funding is secured, to help ensure treatments are in place early in construction.
    - Amend NV02 to clarify that construction contractors are to select construction techniques and equipment with lower vibration emissions where practicable.
    - Amend NV02 to specify that vibration monitoring is to be conducted to characterise vibration impacts during construction and for a minimum of 6 months after the bypass opens at residences with greatest potential for impacts (including House ID 57), to confirm relevant standards for exposure to vibration are met, and identify the need for any further mitigation.
    - Amend the scope of the Construction Noise and Vibration Management Plan in NV01 to include a process to ensure the risk of harm from construction noise and vibration is minimised so as far as reasonably practicable at all times. In particular this should outline a clear and transparent process to assess and justify the need for any unavoidable work outside normal working hours that meets EPA guidance requirements and is independently verified by the Independent Environmental Auditor.
    - Amend the scope of the Construction Noise and Vibration Management Plan proposed in NV01 to include identification of contingency measures to be implemented if standards for vibration exposure are not met.
- To help ensure potential health impacts associated with sleep disturbance are minimised, I also recommend that that mitigation measures NV01 and NV03 be amended to include the following measures:

- Inclusion of noise target levels to be achieved during the night-time period specifically for bedrooms and living areas within potentially affected residences, with ORTs to be implemented in eligible residences where these noise target levels are not expected to be met.
- In circumstances where ORTs are proposed, the Independent Environmental Auditor must review the project design solutions to confirm that the internal PONL could not be achieved by the adoption of reasonable and feasible detailed design measures.
- ORTs to be implemented in consultation with the owner of the relevant building; and
- Remedial action must be taken as soon as practicable if the measured traffic noise levels demonstrate that the internal and/or external PONL are not met for eligible residences.

- Community consultation during detailed design, construction and operations will play a key role in helping ensure concerns of local residents and landholders are considered and addressed where appropriate.

My assessment of noise impacts on fauna is provided in Section 6.2.

6.10. Other effects

As noted in my published reasons for requiring an EES and the EES scoping requirements, the EES was to focus on potentially significant effects of the project including those related to transport, biodiversity, surface water, social and land use values, noise, visual amenity as well as Aboriginal cultural heritage values. The EES, submissions and IAC carefully examined additional potential effects associated with these aspects, which are considered in sections 6.1 to 6.9 of this assessment. Other less significant effects also examined in the EES and public hearing process were air quality, groundwater, historic heritage as well as soils, contamination and geology.

Table 2 outlines the IAC's findings in regard to these other effects and discusses the overall significance of effects against the proposed environmental control regime. Generally, I support the findings of the EES and IAC in relation to these effects. It is my assessment that these effects are relatively low, localised and, for construction impacts, temporary, and they can be effectively managed through well-established practices including the recommended mitigation measures that would be given statutory weight through conditions on approvals and statutory environmental management plans.

Table 2: Other social and environmental effects.

IAC findings	Assessment
Air quality	
The EES concluded that that the key residual air quality impact expected during construction was that a small number of sensitive receptors adjacent to the bypass would experience periodic but short-term increases in dust levels. For operation, the EES concluded air quality impacts of the bypass are expected to be negligible, and air quality within the Beaufort township would be improved as the majority of through traffic will have been diverted to the bypass. A submitter raised concerns with dust impacting their tank water and Council queried whether first flush diverters should be provided by the project. Dr Wallis, the expert presenting air quality evidence on behalf of RRV, indicated that dust impacts would be low and that first flush diverters should be installed by anyone who has a rainwater tank regardless of the project, and that RRV would not take responsibility for installing them.	I accept the IAC's findings that nuisance dust during construction will be temporary and can be appropriately managed through the proposed mitigation measures, and that impacts of air emissions during operation are likely to be negligible. Along with the IAC, I support the proposed RRV amendments to mitigation measure AQ01 to include a requirement for education of nearby residents on benefits of installing first flush diverters on rain tanks, and to clarify that portable dust monitoring stations need to provide real time monitoring.

IAC findings	Assessment
Several submissions were concerned with air pollution, vehicle emissions and odour. Dr Wallis indicated the Environmental Reference Standard air quality objectives would be met in all cases, even in fluctuating weather and on hot days. IAC is satisfied that appropriate consideration has been given to the implications of the EP Act and that proposed controls will assist to meet the GED. RRV proposed changes to mitigation measure AQ01 to include a requirement for education of nearby residents on benefits of installing first flush diverters on rain tanks, and to clarify that portable dust monitoring stations need to provide 'real time' monitoring. The IAC found that nuisance dust during construction will be short-lived and easily managed by proposed controls, and that impacts of air emissions resulting from the project operations are likely to be negligible	
Groundwater	
Key issues considered in the EES included the potential for the project to impact on groundwater levels and quality, including potential for impacts on beneficial uses such as for groundwater users and Groundwater Dependent Ecosystems. Preliminary testing conducted for the EES identified it is not expected that groundwater will be intersected at the depths of the proposed excavations and road cuttings. The poor quality of groundwater in the area also indicates it is not a not a significant water resource for local water users. During the EES process some modifications were made to the reference [functional] design (incorporating bridge spans and culverts across the Yam Holes Creek floodplain) to help reduce risk of compression of the shallow and unconsolidated aquifers. Standard controls were also proposed in the EMF for managing groundwater during construction, including preparation of a Groundwater Management and Monitoring Plan. The EES concluded that with implementation of proposed design and mitigation measures the project is expected to have low to negligible impacts on groundwater and associated values. The IAC found that groundwater issues were appropriately assessed in the EES and potential groundwater impacts can be managed acceptably through appropriate design and construction practices. The IAC considered that the mitigation measures proposed are consistent with standard practice for major road projects and are appropriate to ensure potential groundwater impacts are managed to an acceptable level.	I accept the IAC's findings and agree that the project's potential effects on groundwater can be acceptably managed through the proposed mitigation measures.
Historic heritage	
The EES identified one historic heritage place on the Victorian Heritage Inventory (VHI), the Nil Desperandum Mine Feature	I agree with the findings of the IAC regarding historic heritage. I recommend a mitigation measure

IAC findings	Assessment
(H7523-0071), and one site of local historic significance, 'Camp Hill Shallow Workings, South', within the C2 corridor. The Nil Desperandum Mine Feature was identified in the EES as having low archaeological potential, and low historic and scientific significance. Camp Hill Shallow Workings, South was identified as having very low archaeological potential and no historic and scientific significance. The project may require removal of the VHI site depending on detailed design and will require removal of the site of local significance. There were no submissions regarding impact on historic heritage sites. The IAC was satisfied with the adequacy of the Historic Heritage Impact Assessment and considered that the consent process under the Heritage Act 2017 would address management of the VHI site. The IAC was also satisfied with the EMF commitment to include contingency plans in the CEMP to address any unexpected finds of historic heritage during construction. The IAC found complete avoidance of known historic heritage sites is not required for consistency with relevant legislation and policy, and that the proposed EMF mitigation measures for historic heritage are appropriate.	is added to the final EMF specifying that site inductions should cover the procedure in the case of chance finds of historic heritage sites and/or artefacts. I also recommend that the final EMF specify that any historic heritage sites close to disturbance areas should be marked as no-go zones. With the implementation of mitigation measures proposed by RRV and my recommendations, I consider that effects on historic heritage values can be managed to acceptable levels with the required heritage consents.
Soils, contamination and geology Key issues considered in the EES included the potential for the project to cause soil contamination, the potential to encounter acid sulfate soils (ASS or PASS), impacts from use of fill material, ground instability effects and potential for erosion and sedimentation of watercourses. The IAC found that geotechnical issues can be managed to achieve acceptable environmental outcomes through applying appropriate design and construction practice. The IAC considered that the EMF mitigation measures proposed in relation to soils, contamination and geology are reasonable and practical. Key relevant plans to be prepared include the CEMP, Spoil Management Plan and Acid Sulfate Soil Management Plan. Two minor amendments to the mitigation measures in the EMF were recommended by the IAC to clarify the scope of the geotechnical investigations required and better address contingencies for encountering contaminated, unsuitable or acid sulfate soils during construction.	I accept the IAC's findings and agree that the project's potential effects on soils, contamination and geology can be acceptably managed through the proposed mitigation measures. I support the minor amendments recommended by the IAC to the relevant mitigation measures.

7. Conclusion

The Beaufort Bypass project aims to achieve road network performance benefits, in particular time savings for western highway trips compared to driving through Beaufort and improved road safety, especially for pedestrians and cyclists due to improved traffic conditions in the town centre. VicRoads (now RRV) initiated the project to establish an alignment for a bypass that connects the newly duplicated Western Highway either side of Beaufort and was required to develop an EES to support that, given the potential for a range of significant impacts to consider.

Despite there being no funding or definitive timeframe for delivery or construction of the bypass project, there is an imperative to resolve the location of the alignment and progress with primary planning approval informed by the EES. The local community needs this uncertainty resolved and importantly the location of the alignment will influence strategic planning for the town. Compulsory acquisition of land for the establishment of the bypass will also need to occur. Through the EES process, the proponent has examined the potential impacts and project issues, many of which are interrelated, and used these considerations to identify a preferred alignment and the area of land to be affected by the project. The involvement of the community throughout the EES process has helped to understand the issues and enabled RRV to work towards establishing certainty about the bypass project and the alignment.

RRV's EES provides a sound rationale for their preferred alignment C2, selected through the investigations and consultation documented in the EES. Based on this preferred alignment, the EES used a 'functional design' of the bypass, to examine impacts in more detail and demonstrate whether the project could achieve the desired objectives. While the bypass design was progressed to a point where the impacts and proposed mitigation measures could be sufficiently examined to inform a transparent assessment of likely effects, there were however, some aspects of RRV's functional design and impact assessments that were not fully resolved. To address these gaps and issues, the IAC recommended a design management document be required to provide guidance for detailed design and clarity in approvals on necessary outcomes. The IAC envisaged the design management document would include: key design objectives and considerations; a process for design development and finalisation that includes expert inputs (e.g. ecological, cultural heritage, soil, landscape etc.); and identification of the relevant management documents and mitigation measures and inputs to be integrated into the design.

My assessment supports the IAC's view that a design management document is needed and recommends that the document be prepared to my satisfaction, required through a condition of the incorporated document as part of the proposed planning approval. The design management document will be an essential means by which environmental outcomes, mitigation measures and management approaches identified through the EES process are confirmed and integrated into the final design and delivery of the project. The uncertainty regarding funding and a timeframe for project delivery contributes to the importance of the design management document.

As outlined in Section 6 of this assessment, there is residual uncertainty about some surface water, biodiversity, visual and landscape impacts and mitigation measures proposed in the EES. There are aspects of the design and the associated environmental management regime that need further development and refinement to address the residual uncertainties, and achieve both balanced outcomes and acceptable environmental impacts. This is particularly the case for biodiversity and surface water. Further development of the design to address required outcomes for such values will entail further hydrological modelling, to improve the characterisation of wetland hydrology, as well as the further development of mitigations as part of the design process. Further development of habitat connectivity measures is also required (including for the land bridge to re-connect habitat in the Camp Hill State Forest) to ensure the acceptability of the project's impacts on biodiversity values

My assessment provides recommendations to resolve and document some the further analysis and specification of these issues and environmental management approaches. Throughout my assessment I have recommended additional measures be included in the design management document as well as some specific environmental outcomes that the project must achieve for certain project effects to be considered acceptable.

The EES and IAC highlighted that implementation of the project will result in some significant adverse impacts on environmental values particularly due to clearing of native vegetation and fauna habitat and impacts on surface water

hydrology, downstream environments (including associated biodiversity values) and landscape and visual amenity due to the establishment of sizable new infrastructure. There will also be significant land use and access impacts associated with construction for landowners that are directly affected by the project footprint. Noise impacts will also occur from traffic during the operations phase, which will need to be carefully mitigated. However, I consider that the further design work recommended in this assessment, together with an environmental management framework (EMF) and mitigation measures, incorporating amendments set out by the IAC and this assessment, can enable the adverse effects of construction and operation to be minimised and managed to acceptable levels.

Overall, it is my assessment that, while the project will result in significant adverse effects particularly associated with construction, the environmental effects can be acceptably managed, provided there is effective implementation of the recommendations of this assessment.

The Victorian EES process served as the accredited process for the purposes of examining the significant impacts of this 'controlled action' on MNES under the EPBC Act. My assessment is to inform the Australian Government Minister for the Environment and Water's decision on whether and under what conditions to approve the project.

On balance, I consider the residual impacts on MNES can be acceptable with implementation of the appropriate environmental management and offsetting, as outlined in this assessment. I support amendments to mitigation measures as recommended by the IAC and have provided further recommendations in my assessment to assist in achieving acceptable outcomes for MNES, in particular for Growling Grass Frog and Seasonal Herbaceous Wetlands. The project is likely to have a significant residual impact on Golden Sun Moth due to direct impacts on habitat. While residual impacts on MNES may be able to be further reduced during the detailed design process, unavoidable significant impacts will need to be offset in accordance with the EPBC Act Environmental Offsets Policy. The project is unlikely to have significant impacts on any of the other EPBC Act-listed threatened species and communities assessed through the EES should this assessment be adhered to.

The primary approval to be informed by the EES is a planning scheme amendment covering the preferred bypass alignment C2, enabling the application of a public acquisition overlay and introduction of an incorporated document into the planning scheme. I am satisfied in principle the proposed PSA and incorporated document, with changes addressed in this assessment, can establish an appropriate mechanism to facilitate planning controls for the construction and operation of the projects. However, I note that formal decision-making on the PSA and EMF still needs to occur.

I am satisfied that the environmental effects of the project have been sufficiently identified and considered to a level appropriate to inform the next decisions on the project. My assessment includes specific recommendations to inform the proponent and statutory decision-makers, responsible for approval decisions under Victorian and Commonwealth law. Decision-makers need to consider this assessment before deciding whether and how the project should proceed. As a matter of good practice, I also expect decision-makers to write to me to advise how my assessment was considered and applied.

7.1. Summary of Recommendations

Table 3 summarises my responses to the IAC's key recommendations as provided in the executive summary of the IAC report. In relation to the IAC recommendation number 2 below, my assessment of IAC's recommended changes to the EMF are summarised in Appendix A.

My additional recommendations regarding each environmental aspect are summarised in Table 4.

Table 3: Response to IAC's key recommendations

IAC key recommendations		Minister's response
1	The C2 alignment is the optimum of the four alignment options and should progress to planning approval stage subject to modifications to the Environmental Management Framework and draft Pyrenees Planning Scheme Amendment C50pryn as set out in the following recommendations.	Supported, subject to recommended additional changes to the EMF and PSA outlined in Section 5, Table 4 and Appendix A.
2.	Environmental Management Framework Amend the Environmental Management Framework as indicated in Appendix F in Report No. 2.	Supported, subject to recommended additional changes to the EMF outlined in Table 4 and Appendix A.
3.	Draft Planning Scheme Amendment Amend draft Pyrenees Planning Scheme Amendment C50pryn subject to the following: a) Amend the Beaufort Bypass Project Incorporated Document as shown in Appendix G in Report No. 2. b) Review the PAO mapping extent to include portions of freehold land in the Farming Zone that cannot be readily or practically consolidated into adjoining freehold land parcels or accessed and used consistent with the purpose of the zone.	Supported, subject to recommended additional changes to the PSA outlined in Section 5, Table 4 and Appendix A.

Table 4: Minister for Planning's additional primary recommendations

Primary Recommendations	Section of this assessment
Resolving mitigation and environmental management	
The recommended 'design management document' is to be used to provide direction and prioritisation of environmental mitigations or management measures in discrete areas of the project and ultimately demonstrate that the environmental impacts can be managed to acceptable levels and ensure appropriate outcomes. This needs to include further analysis and design work that builds on existing knowledge and should address the recommendations in this assessment to address the uncertainties. Once developed and approved, the design management document should be used to guide the future detailed design process to ensure the final design addresses the requirements and outcomes set out in this Assessment.	4.2
Ensure the final EMF specifies the need to consult with relevant stakeholders in the preparation of the design management document. At a minimum this should include consultation with the public (including public interest groups such as Western Highway Conservation group), public authorities including DEECA (NEP and FFR), DTP Planning, EPA, GHCMA, the local council, First Peoples - State Relations as well as the WTOAC.	4.2

Primary Recommendations	Section of this assessment
Ensure the scope of the design management document outlined in the final EMF specifies the need to identify the key reporting outputs of the detailed design process, including review and approval requirements of these outputs.	4.2
Planning controls	
Amend the incorporated document to require an offset statement prior to any native vegetation removal (including for preparatory works).	5.1
Review the wording of clause 5.2 in relation to preparatory works in consultation with my department. It is currently too open ended.	5.1
Ensure the design management document is required to be prepared via a condition of the incorporated document. The condition of the incorporated document is to specify that the design management document is prepared to the satisfaction of the Minister for Planning and should outline the key elements required as part of the scope of the design management document consistent with this assessment, including those listed in Section 4.2.	5.1 and 4.2
Amend the incorporated document to include a requirement that the land bridge at Camp Hill be constructed as part of the package of habitat connectivity measures to be implemented for the project.	6.2
Amend Clause 5.1.10 of the incorporated document to clarify that the Landscape Management Strategy be prepared in consultation with the WTOAC and give regard to the *Beaufort Bypass Cultural Values Assessment, August 2021.*	6.7
Amend the name of the 'Landscape Strategy' document in the incorporated document to 'Landscape Management Strategy' for consistency with the EMF.	6.8
Amend Clause 5.1.10 of the incorporated document to require that the Landscape Strategy is to be prepared in consultation with the WTOAC and give regard to the Beaufort Bypass Cultural Values Assessment, August 2021.	6.8
Environmental management framework	
Ensure the final EMF includes the requirements for the design management document (as outlined in Section 4.2 of this Assessment).	5.2
Ensure the final EMF specifies that the CEMP to be developed for the project needs to address the following for each aspect to be monitored: • Monitoring objectives; • Monitoring indicators (noting these should be specific, measurable, attainable, relevant, time-based indicators in line with best practice); • Monitoring requirements (including methods, parameters, locations and frequency); • Responsibilities for analysis of monitoring data (including analysis of trends over multiple monitoring rounds); • Thresholds for action including specific contingency actions/investigations to be taken when thresholds are reached;	5.2

Primary Recommendations	Section of this assessment
• Requirements for internal reporting of monitoring results – including to ensure integration between monitoring programs (e.g. water monitoring will inform biodiversity monitoring); and • Requirements for external reporting of monitoring results.	
In addition to the requirement for auditing of compliance with the EMF and associated management plans, amend the scope of audits in the final EMF to include evaluation of: • Compliance with legislative requirements including the Incorporated Document and conditions of approval; • Responses to non-compliances, incidents and complaints received; • Effectiveness and implementation of mitigation measures and monitoring programs; and • Continuous improvement of environmental performance and sustainability.	5.2
Amend the final EMF to specify that reporting to MRPV/government on monitoring results and compliance against the relevant environmental management requirements is conducted at least monthly (e.g. via a concise monthly environmental report) to help ensure the contractor is held accountable to respond rapidly to any outcomes of the monitoring program that may require corrective actions, and provide regular updates on progress of responding to any non-compliances, incidents and/or complaints received.	5.2
Update the requirements for approval of the Landscape Management Strategy in the EMF to be consistent with the incorporated document (EMF currently states it be prepared “to the satisfaction of MRPV“).	6.8
Sustainability	
Prepare the proposed Sustainability Management Plan during the detailed design phase, to help ensure sustainability opportunities are embedded into the project design.	5.3
Document the sustainability aspects of the design process in the design management document to be developed for the project.	5.3
Mitigation measure MD20 of the EMF be listed as a commitment in section 17.6.10 of the EMF and MD20 be updated to state that the Sustainability Management Plan is to include consideration of the following aspects of sustainability for the design, construction and operational phases: • Measures to reduce scope 1 and scope 2 greenhouse gas emissions, including the need to develop targets and implement appropriate greenhouse gas monitoring and reporting methods; • Measures to promote selection of construction materials with lower embodied emissions; • Waste management measures, including details of how the waste hierarchy is to be applied to maximise reuse and recycling of construction materials; • Measures to minimise water use during construction and maximise reuse/recycling of water; • Requirements for sustainable approaches to water treatment where practicable e.g. use of wetland water treatment systems; • Internal and external sustainability reporting requirements; and	5.3

Primary Recommendations	Section of this assessment
• Incentives for innovation and continuous improvement during the design and construction phase.	
Given some strategy and policy documents referred to in the EMF are outdated (e.g. the VicRoads Sustainability and Climate Change Strategy 2015–2020), the Sustainability Management Plan should consider any updated RRV/MRPV strategy and policy documents available at the time of preparation.	5.3
MRPV to consider applying a requirement for the project to achieve a specific minimum sustainability rating.	5.3
Traffic and transport	
Amend mitigation measure T02 to note that the review of speed zones includes specific consideration of the need to reduce speed limits on Beaufort-Lexton Road, given that this has been raised as a concern in submissions.	6.1
Amend mitigation measure LV03 to specifically refer to the need to consider potential headlight glare when planning screening of adjacent roads and dwellings using plants and/or landforms.	6.1
Amend the reference to “DELWP” in relation to the approval of the Access Management Strategy (MD06) in the EMF to refer specifically to the DEECA Regional Director Grampians Region (or delegate).	6.1
Amend the scope of the Access Management Strategy (MD06) in the EMF to include review of opportunities to improve and provide full local access to side roads and other local access points which are currently restricted to left in-left out arrangements along the ‘old’ Western Highway.	6.1
Biodiversity and habitats – general	
Ensure the design management document includes assessment and identification of priority areas where further avoidance of native vegetation should be considered beyond that which was proposed in the EES. This should include consideration of avoiding and minimising impacts on large trees and scattered trees.	6.2
Outline in the final EMF the scope of the Tree and Timber Re-use and Repurposing Strategy (included in the final day incorporated document), including requirements for consultation (with environmental and community groups), review and approval. This should also entail consultation with DEECA Grampians region about establishing the numbers/targets for tree reuse and hollow replacement, as well as the need to publicly report progress against the targets (e.g. on the project website).	6.2
Strengthen the commitment to replace tree hollows via the Tree and Timber Re-use and Repurposing Strategy to require the number and type of artificial hollows to be commensurate with the number and type to be removed, as determined by a qualified zoologist. The agreed location and specification of artificial hollows should be developed as a project GIS layer and incorporated into site maps prior to the commencement of works.	6.2
Amend the scope of the design management document to encompass the design and development of the other habitat connectivity measures, including crossing structures (mitigation measure BH02), and address the areas where strategic revegetation is required (mitigation measures LV03 and BH29) to mitigate impacts on habitat connectivity.	6.2

Primary Recommendations	Section of this assessment
Ensure the final EMF outlines the scope of the proposed Wildlife Management Plan and requirements for consultation and approval during its preparation (e.g. through updating Tables 17.5 and 17.6 of the current EMF). This should include a requirement for the Wildlife Management Plan needing to be prepared in consultation with, and to the satisfaction of DEECA Grampians Region.	6.2
Ensure the final EMF includes specific measures to minimise potential increases in fox populations, as highlighted by the DELWP submission.	6.2
As part of a multi-disciplinary exercise to determine construction requirements, identify if any additional or refined areas (beyond those in the EES) should be included in the no go zones. This is to be undertaken as a component of the design management document, to be prepared for the project (see Section 4.2). This should in turn inform the detailed design process, and should be conducted prior to any vegetation removal including for preparatory works.	6.2
The site inductions required by mitigation measures BH06 should specifically refer to the need to cover restrictions on no-go zones, as well as the need for regular inspections by environmental personnel to confirm no-go zones are being appropriately maintained.	6.2
Ensure potential areas for habitat creation and rehabilitation works for each target species are identified in the design management document to be prepared for the Project (see Section 4.2). Amend the final EMF to specify that implementation of the habitat creation/rehabilitation measures on-ground is overseen by an appropriately qualified and experienced ecologist, to help ensure the works conducted appropriately consider the specific habitat needs of the target species in the context of the local ecological setting.	6.2
Ensure the Landscape Design Plans to be prepared as per mitigation measure LV03 include targets for the use of seeds collected from the local area in revegetation activities and that these targets are developed in consultation with the DEECA Grampians Region.	6.2
Ensure the design management document includes the consideration and assessment of potential opportunities for strategic revegetation to strengthen habitat corridors. This should also be considered in the planning of revegetation works as part of the Landscape Management Strategy.	6.2
Ensure that, in addition to providing guidance on the detailed design approach for the land bridge (as recommended by the IAC), the design management document also provides guidance on the design process for other key measures to mitigate loss of habitat connectivity such as the rope bridges that will be important for the Brush-tailed Phascogale.	6.2
Threatened species and communities	
Prepare updated mapping of Seasonal Herbaceous Wetlands to inform detailed design and assist in confirming the extent of potential direct and indirect impacts on this MNES. This work and its outcomes should be provided in the design management document to be prepared for the project (see Section 4.2) so that it can be used to inform the detailed design of the project and the mitigation measures. Appropriate ecological expertise should be utilised for the mapping, as well as consultation with DCCEEW. The mapping process will also need to consider the outcomes of the further flood modelling to be conducted as per EMF mitigation measure SW01.	6.3
Ensure the project at least maintains the hydrology (and water quality) of Seasonal Herbaceous Wetlands and therefore does not indirectly impact this ecological community. To achieve this, RRV should progress the remaining work on modelling, design and mitigation required, through the	6.3

Primary Recommendations	Section of this assessment
development of the design management document, which should include characterising the full extent of seasonal herbaceous wetlands and demonstrating that the final project design and operation can at least maintain the hydrology and conditions of the downstream wetland environments for this critically endangered ecological community.	
Ensure the final EMF includes the requirement to at least maintain the hydrology and wetting conditions of the wetlands and to avoid indirect impacts on the Seasonal Herbaceous wetlands in the area surrounding the project footprint. The specific requirements included in the final EMF should be informed by input from a suitably qualified floodplain ecologist and should detail the geographic area and timeframes over which this this requirement will need to be implemented. The requirements should be informed by the further mapping of the ecological community (see recommendation above) and additional hydrological modelling proposed to be conducted for the project and detailed design.	6.3
Ensure that the scope of the design management document (see Section 4.2) include demonstration that design and engineering controls will be able to at least maintain the hydrology and downstream environmental conditions for each area of Seasonal Herbaceous Wetlands potentially affected. This should be accompanied by the development and implementation of a monitoring program for this ecological community, including provisions for implementation of contingency measures as appropriate. The details of the monitoring program should be incorporated into the Threatened Species Management Plan to be developed for the project (MD09). The monitoring program should be developed in consultation with DCCEEW as well as the DEECA Grampians region, and should include measurable indicators for monitoring and thresholds for further intervention/mitigation via an adaptive management process.	6.3
Ensure the design management document to be prepared for the project (see Section 4.2) identifies potential areas for translocation and/or restoration of River Swamp Wallaby-grass.	6.3
As part of the translocation and/or restoration plan I recommend a monitoring program is implemented for rehabilitated areas of River Swamp Wallaby-grass to help verify success/outcomes. The monitoring program would need to continue until vegetation in rehabilitated areas is well established, which is likely to require monitoring for several years into the operational phase of the project.	6.3
Conduct targeted weed control where Ben Major Grevillea occurs in close proximity to the project footprint along the fire track. This weed control measure should be incorporated as part of mitigation measure BH19.	6.3
Prepare updated mapping of potential habitat for Growling Grass Frog as part of the development of the Design Management Document, based on the updated wetland mapping recommended above. This updated habitat mapping should then be used to inform further avoidance and minimisation of direct impacts on Growling Grass Frog habitat.	6.3
Ensure the design management document identifies potential areas for strategic habitat creation and/or restoration for Growling Grass Frog to ensure habitat connectivity is maintained in north-south and east-west directions. The areas to be reserved for these works should be identified by appropriate ecological experts and be commensurate with the area and quality of habitat affected by the project. The extent of the area to be subject to strategic habitat creation and/or restoration, and specific targets and timeframes for works to be conducted, be agreed with relevant stakeholders, in particular, DEECA Grampians Region and DCCEEW.	6.3

Primary Recommendations	Section of this assessment
Develop and implement a monitoring program for Growling Grass Frog to verify the success of habitat creation and/or restoration works. The monitoring program needs to continue until vegetation in rehabilitated areas is well established, which is likely to require monitoring for several years into the operational phase of the project. The requirements for the monitoring program should be developed to the satisfaction of DEECA Grampians Region and in consultation with DCCEEW, and be documented in the Threatened Species Management Plan.	6.3
While there is a commitment in the EMF for Growling Grass Frog crossing points to be designed to the *Growling Grass Frog Crossing Design Standards* (DELWP 2017), ensure the design of these crossing points are refined cognisant of current best practice, in consultation with an appropriate ecological experts and DEECA Grampians Region. Updated standards and requirements for the crossing points should be included in the design management document, to inform the detailed design of the project.	6.3
Update the scope of the Native Vegetation Offset Strategy (MD07) in the EMF to incorporate a requirement that when selecting offset sites for biodiversity offsets that are required for the project (e.g. for native vegetation loss), consideration is given to selecting offset sites which also support the Victorian Temperate Woodland Bird Community.	6.3
Ensure the design management document to be prepared for the project (see Section 4.2) identifies potential areas for revegetation works should aim to recreate and enhance habitat connectivity for the Victorian Temperate Woodland Bird Community.	6.3
Surface water, floodplains and wetlands	
Use data from the 2022 flood event to inform the further flooding and water quality modelling conducted as part of mitigation measure SW01, to examine flooding and stormwater hydrology in the area in sufficient detail to enable the development of appropriate design and mitigation of environmental effects for the project.	6.4
The project must either improve or maintain existing hydrology and flooding conditions on public and private land. To achieve this, develop design and mitigation measures to fully address the risk posed by changed hydrology and flooding behaviour, and wherever necessary gain landholder consent for the predicted changes to afflux that are not aligned with current policy.	6.4
Progress the additional flood modelling and design work proposed in SW01-SW04 (along with any interdependent mitigation measures) earlier as part of the design management document. This work is to be required as part of the scope specified for the design management document that I have recommended be outlined in a condition of the incorporated document.	6.4
Ensure there is ecological input into the development of the stormwater/ drainage design measures, as part of the detailed design process, to help ensure acceptable residual impacts and environmental outcomes are achieved through the final design implemented for the project.	6.4
Amend mitigation measure SW01 to explicitly reflect the need to consider climate change scenarios in the flooding and water quality modelling conducted.	6.4
Social	
RRV prepare and implement employee assistance plans with and for each employee directly impacted by job losses following project construction, and in consultation with local employers.	6.5

Primary Recommendations	Section of this assessment
Amend the scope of the Community and Stakeholder Engagement Plan (S04) in the final EMF to also include a process for considering feedback from community members and special interest groups during detailed design and construction, including consideration of planned public events in the township, to inform the timing of project works to further reduce impacts.	6.5
Aboriginal cultural heritage	
Update the table of "Role and responsibilities for environmental management" (Table 17.3 of the EMF) in the final EMF to specify that MRPV's responsibilities are to "enable the integration of the Beaufort Bypass Cultural Values Assessment recommendations into project design and delivery" and also to "engage meaningfully with the WTOAC". This should include considered and planned engagement throughout the detailed design process.	6.7
In regard to the RRV proposed changes to the introductory text in section 17.6.3 of the EMF to recognise the CVA, ensure that reference is made in this section to the design contractor (not just the construction contractor) as the design phase offers greatest opportunity to enhance cultural values.	6.7
Prepare the Threatened Species Management Plan in consultation with the WTOAC to ensure that cultural values such as totemic species, are addressed. The requirement for this should be specified in the final EMF.	6.7
Prepare the offset strategy in consultation with the WTOAC to identify suitable offset locations within Wadawurrung Country to ensure offset locations are as closely aligned with WTOAC preferences as practical. The requirement for this should be specified in the final EMF as well as the incorporated document.	6.7
Landscape and visual amenity	
Amend the final EMF to specify that the Landscape Management Strategy is prepared and approved prior to the Landscape Design Plans, so that the outcomes of the Strategy development (including responding to stakeholder feedback) can inform the subsequent development of the Landscape Design Plans for specific sites.	6.8
Amend mitigation measures LV01-LV03 to specify that the CEMP, Landscape Design Strategy and Landscape Design Plans need to provide for early and progressive implementation of rehabilitation and associated vegetation reinstatement works wherever practicable during construction, to help minimise the time required for the landscaping works to reduce the impacts on visual amenity for affected parties and help ensure biodiversity and cultural benefits of landscaping works are realised as early as possible. The schedules for progressive delivery of reinstatement works during construction should also be detailed in the Landscape Management Strategy.	6.8
Prepare the Landscape Management Strategy in consultation with local residents and landowners that would be affected by visual amenity impacts of the project, to help ensure their preferences and concerns are considered. Further consultation with affected residents should also be conducted during the preparation of the Landscape Design Plans to allow for feedback on the specific design and mitigation responses proposed to address impacts on views impacted for their residences. To help verify that appropriate consultation has been conducted, the Landscape Management Strategy and Landscape Design Plans should be required to include a summary of consultation carried out in preparing the documents as well as responses to issues raised. The EMF should be amended accordingly.	6.8

Primary Recommendations	Section of this assessment
Depending on the timing of preparation of documentation, conduct further investigations as part of the Landscape Management Strategy and Landscape Design Plans to identify any new residences or other receivers that should be engaged. Amend mitigation measures LV01 and LV03 in the final EMF to include this consideration.	6.8
Investigate and document the landscape and visual amenity mitigation measures for the proposed land bridge treatment in the Landscape Management Strategy to be developed for the project.	6.8
Noise and vibration	
Amend NV03 to explicitly state the PONL to be achieved during operations for eligible sensitive receptors – to assist in making this clear and transparent for the community and other stakeholders.	6.9
Mitigation measures NV01 and NV03 be amended to include the following measures: • Inclusion of noise target levels to be achieved during the night-time period specifically for bedrooms and living areas within potentially affected residences, with ORTs to be implemented in eligible residences where these noise target levels are not expected to be met; • In circumstances where ORTs are proposed, the Independent Environmental Auditor must review the project design solutions to confirm that the internal PONL could not be achieved by the adoption of reasonable and feasible detailed design measures; • ORTs to be implemented in consultation with the owner of the relevant building; and • Remedial action must be taken as soon as practicable in the event that the measured traffic noise levels demonstrate that the internal and/or external PONL are not met for eligible residences.	6.9
Implement ORTs for dwellings with potentially significant noise impacts as soon as possible after project funding is secured, to help ensure treatments are in place early in construction.	6.9
Revise the dot point “vibration monitoring“ in NV02 to specify that vibration monitoring is to be conducted to characterise vibration impacts during construction and for a minimum of 6 months after the bypass opens at residences with greatest potential for impacts (including House ID 57), to confirm relevant standards for exposure to vibration are met, and identify the need for any further mitigation.	6.9
Amend the scope of the Construction Noise and Vibration Management Plan proposed in NV01 to include identification of contingency measures to be implemented if standards for vibration exposure are not met.	6.9
Amend the reference to “alternative methods and/or equipment“ in NV02 to specify that construction contractors are to select construction techniques and equipment with lower vibration emissions where practicable.	6.9
Ensure the detailed design of the proposed mitigations such as noise walls consider any changes to locations of sensitive receptors since preparation of the EES.	6.9

Primary Recommendations	Section of this assessment
Historic heritage	
Specify in the final EMF that site inductions need to cover the procedure to be implemented in the case of chance finds of historic heritage sites and/or artefacts.	6.10
Specify in the final EMF a requirement to mark historic heritage sites close to disturbance areas as no-go zones.	6.10

HON SONYA KILKENNY
Minister for Planning

Date: 8 November 2023

Appendix A – Responses to IAC recommendations

The IAC made recommendations regarding the exhibited EMF and RRV's proposed final changes to the EMF which was tabled in closing submissions at the IAC hearing. These recommendations are presented in Appendix F of the IAC report.

I commend the proponent for the changes it proactively adopted in response to matters raised by submitters. I generally support the IAC's recommendations on the EMF and the specific mitigation measures contained within the EMF, except where qualified below in the 'Minister's response' column.

No	RRV's final proposed changes	IAC recommendations	Minister's response
Environmental management			
1	Amend Table 17.3 to add to the list of MRPV responsibilities: • *have regard to the recommendations of the Beaufort Bypass Cultural Values Assessment.*	Amend Table 17.3 to require MRPV to have regard to the CVA consistent with RRV's Final changes	Supported, with additional recommendation to add to the list of MRPV responsibilities in Table 17.3 to "enable the integration of the Beaufort Bypass Cultural Values Assessment recommendations into project design and delivery" and also to "engage meaningfully with the WTOAC".
2	Yarra Gum added to list of species to be covered in the Threatened Species Management Plan	Add Yarra Gum to list of species to be covered in the Threatened Species Management Plan (MD09 and BH12)	Supported.
3	Add the following mitigation measures to the Threatened Species Management Plan in relation to the Yarra Gum: • avoid or minimize impacts on the Yarra Gum tree within the construction footprint and the tree, wherever possible • pre-clearing survey for threatened flora • if any Yarra Gum removals cannot be avoided, collect seed from trees to be removed to propagate to use in restoration and landscaping works post construction • No-go Zone identification/mapping, fencing and signage to retained individuals including the Tree Protection Zone	Amend the description of Threatened Species Management Plan (MD09) consistent with RRV's proposed changes. *Note: This change should be reviewed to determine if it is limited to the description in Table 17.5 or should also be captured in Table 17.8*	Supported.

No	RRV's final proposed changes	IAC recommendations	Minister's response
	• dust controls • weed and disease controls		
4	Amend the Native Vegetation Offset Strategy (MD07) to require: • *a further search of the DELWP Native Vegetation Credit Register* • *send an additional Request for Information to DELWP accredited offset brokers to determine if there are any unregistered sites and/or landholders with all or some of the three required specific units* • *undertake an analysis of landholdings with combined species units to determine where potential offset sites may occur for further investigation if the steps above are unsuccessful* Ensure where offsets are not practical within the relevant geographic area then other locations can be considered: • *consider as practicable the recommendations of the Wadawurrung Traditional Owners Aboriginal Corporation.*	Amend the Native Vegetation Offset Strategy (MD07) as proposed in RRV's Final changes with a further change that considers offset sites which may offset impacts to the Victorian Temperate Woodland Bird Community	Supported.
5	Amend the description of the Community and Stakeholder Engagement Plan (MD12) to read as follows: *A Community and Stakeholder Engagement Plan will be developed and implemented by the construction contractor to set out the specific actions, requirements and processes to engage with the community and other stakeholders (such as local businesses and special interest groups). It will be prepared in line with relevant guidelines and the Victorian Auditor General Office: Better Practice Guide: Public Participation in Government Decision Making.* *The Community and Stakeholder Engagement Plan will set out processes and measures to provide the community and special interest groups with information on project design, proposed*	Amend the description of the Community and Stakeholder Engagement Plan (MD12) as proposed in RRV's Final changes with the addition of further changes (or an additional mitigation measure) to continue engagement with the community regarding impacts to biodiversity and mitigation measures and opportunities for involvement in rehabilitation/ reinstatement	Supported, with additional recommendations that: • The Community and Stakeholder Engagement Plan be amended to specify that local seed collectors should be included as a stakeholder. • The Community and Stakeholder Engagement Plan also include a process for considering feedback from community members and special interest groups during detailed design and construction, including consideration of planned public events in the township, to inform the timing of project works to further reduce impacts.

No	RRV's final proposed changes	IAC recommendations	Minister's response
	construction timeframes and staging and progress/performance prior to and during the life of the project. *This will include sufficient prior notice to the community, key stakeholders and other potentially affected stakeholders of construction activities (including any staged works, early works, main works, or out of hours works), significant milestones, changed traffic conditions, interruptions to utility services, changed access and parking conditions, and periods of predicted high noise and vibration activities.*		
6	Include in the description of the CHMP (MD10) the following words: *A Cultural Values Assessment has been completed in partnership with the Wadawurrung Traditional Owners Aboriginal Corporation. The Assessment offers recommendations as to:* • *Wadawurrung design, planning and Language engagements during the design and construction phases* • *design, planning, revegetation and wildlife management recommendations aligned to Paleert Tjaara Dja: Wadawurrung Healthy Country Plan (2020)*	Amend the description of the Cultural Heritage Management Plan (MD10) as proposed in RRV's Final changes	Supported.
7	Correct spelling of Grevillea in Threatened Species Management Plan (MD09)	Correct the spelling of grevillea in the description of the Threatened Species Management Plan (MD09)	Supported.
8	Amend the description of the Native Vegetation Offset Strategy (MD07) to ensure where offsets are not practical within the relevant geographic area then other locations can be considered: • *consider as practicable the recommendations of the Wadawurrung Traditional Owners Aboriginal Corporation.*	Amend the description of the Native Vegetation Offset Strategy (MD07) consistent with RRV's Final changes with a further additional change to provide for an additional requirement to consider offset sites which support the Victorian Temperate Woodland Bird Community	Supported, with additional recommendation that RRV prepare the offset strategy in consultation with the WTOAC to identify suitable offset locations within Wadawurrung Country to ensure offset locations are as closely aligned with WTOAC preferences as practical. The requirement for this should be specified in the final EMF as well as the incorporated document.

No	RRV's final proposed changes	IAC recommendations	Minister's response
9	Where applicable, MRPV standards will be referenced in the CEMP	Amend the description of the Construction Environment Management Plan (MD04) to refer to applicable Major Road Projects Victoria standards	Supported.
10	Update requirement for the Operations and Maintenance Plan (MD21) to include a reference that: *The Operations and Management Plan is to include a description of any assets to be handed over to the Pyrenees Shire Council (including landscaping) to be prepared in conjunction with the council.*	Amend the description of the Operations and Maintenance Plan (MD21) consistent with RRV's Final changes	Supported.
11		<u>Additional IAC recommendation:</u> Amend the Construction Environment Management Plan to: • reference the identify the Paleert Tjaara Dja: Wadawurrung Country Plan and the associated video as references for contractors • refer to relevant mitigation measures • include detail about the Beaufort Bypass Cultural Values Assessment and its recommendations	Supported.
12		• Include a requirement to prepare a design management document that provides overarching guidance to the detailed design stage including: - key design objectives and considerations - a process for design development and finalisation that includes expert ecological, cultural heritage, soil and geology, landscape, dust and acoustic specialist inputs	Supported with additional recommendations as outlined in Table 4 of my assessment.

No	RRV's final proposed changes	IAC recommendations	Minister's response

		- identification of the relevant Management Documents and mitigation measures and inputs to be integrated into the detailed design process
		- identification of the approach to the following design considerations:
		  - minimising the impact on native vegetation associated with the Project including for alternative property access
		  - the alignment of the western tie-in treatment to avoid impacts on existing native vegetation patches and minimise intrusion into the golden sun moth confirmed and high quality potential habitat areas
		  - provide a land bridge linking the bisected Camp Hill areas
		  - opportunities to reduce to one lane the eastern tie in on ramp from the 'old' Western Highway
		  - appropriate design of the slope for the Camp Hill area, balancing any erosion risks with the desire to reduce land take and native vegetation impacts
		  - the potential staging of early works to implement habitat, fauna crossing, landscaping and amenity outcomes
		  - the Beaufort Bypass Cultural Values Assessment actions.
		• Amend Table 17.5 under 'Design and construction contractor' to insert the design management document and description.
		• Amend Table 17.6 to identify the design management document to be prepared by the	

No	RRV's final proposed changes	IAC recommendations	Minister's response
		Construction contractor and for review and approval of Major Road Projects Victoria (MRPV). • Amend all other Tables to refer to the design management document as relevant	
Traffic and transport			
13	Amend exhibited mitigation measure T02 to add a third bullet point: "*Consideration of speed zones of RRV controlled roads*"	Amend mitigation measure T02 consistent with RRV's Final changes and with a further change which requires: • an assessment of any native vegetation required to be cleared for providing new access (which has not previously been assessed) • a statement outlining how the removal of such vegetation has been avoided and minimised • include any such native vegetation in the Native Vegetation Management Plan. Amend the Access Management Strategy (MD06) in the same way	Supported, with additional recommendation to amend mitigation measure T02 to note that the review of speed zones includes specific consideration of the need to reduce speed limits on Beaufort-Lexton Road, given that this has been raised as a concern in submissions.
Biodiversity and habitats			
14	Update EMF to include specific mitigation measures to minimise impacts on the Ben Major Grevillea were stated in Section 10.3.2 of Technical Appendix C (Flora and Fauna Impact Statement) and should be included as a new mitigation measure	Include a new mitigation measure to minimise impacts on the Ben Major grevillea, including through the management of dust associated with the construction of the fire track in Camp Hill using Section 10.3.2 of Technical Appendix C as a starting point	Supported, with additional recommendation to amend mitigation measure BH19 to specify that targeted weed control be conducted where Ben Major Grevillea occurs in close proximity to the project footprint along the fire track.
15	Update EMF consistent with DELWP submission to identify - implementation details of the Tree Re-use Program, specifically how cleared trees will be reused and the number and type of	Provide implementation details of the Tree Re-use program and consistent with Section 10.4.1.2 of Technical Appendix C	Supported, with additional recommendations to: • Outline in the final EMF the scope of the Tree and Timber Re-use and Repurposing Strategy (included in the final day incorporated document), including requirements for consultation (with

No	RRV's final proposed changes	IAC recommendations	Minister's response
	replacement logs and hollows to be installed to compensate for the loss of hollows, as described in Section 10.4.1.2 of Appendix C		environmental and community groups), review and approval. This should also entail consultation with DEECA Grampians region about establishing the numbers/targets for tree reuse and hollow replacement, as well as the need to publicly report progress against the targets (e.g. on the project website). • Strengthen the commitment to replace tree hollows via the Tree and Timber Re-use and Repurposing Strategy to require the number and type of artificial hollows to be commensurate with the number and type to be removed, as determined by a qualified zoologist. The agreed location and specification of artificial hollows should be developed as a project GIS layer and incorporated into site maps prior to the commencement of works.
16	Update EMF consistent with DELWP submission to include a requirement for clearing to be undertaken in accordance with the project's Protected Flora Permit	Provide a requirement for clearing to be undertaken in accordance with the Project's Protected Flora Permit	Supported.
17	Update EMF consistent with DELWP submission to identify the party responsible for obtaining a permit to take flora listed as protected under the FFG Act and a permit under the Wildlife Act 1975 to remove, salvage, capture, or relocate fauna as required by the project mitigation measures, and specific reference to these permit requirements in the ERA	Amend the EMF consistent with the changes sought by DELWP relating to permit responsibilities under the FFG and Wildlife Acts	Supported.
18	Update EMF consistent with DELWP submission for targeted surveys pre-construction for a range of threatened flora and fauna species, not just those identified by DELWP	Require further surveys be undertaken for little eagle, tussock skink and brown toadlet prior to detailed design. *Note: A protocol be developed to resolve the species and timings (refer item 29)*	Supported, with additional recommendations that: • The assessment of offset requirements takes into account the results of the additional surveys recommended for Brown Toadlet. • The results of the surveys be used to inform the detailed design of the project.
19	Update EMF consistent with DELWP submission for habitat restoration to be identified around culverts for Growling Grass Frog and River Swamp Wallaby-grass to Agree	Provide for habitat restoration around culverts for growling grass frog and river swamp wallaby-grass	Supported.

No	RRV's final proposed changes	IAC recommendations	Minister's response
20	Add the following text to BH17: *In the event that additional threatened flora species listed under the FFG act and/or EPBC Act are detected during the pre-construction surveys, which cannot be avoided, these must be included in the translocation and/or restoration plan*	Amend mitigation measure BH17 consistent with RRV's changes	Supported.
21	Update EMF consistent with DELWP submission to provide for a mitigation measure specific to blackberry	Include a new mitigation measure for Blackberry	Supported.
22	Update EMF consistent with DELWP submission to include a mitigation measure that the design of wildlife crossing infrastructure needs to consider predation of wildlife	Amend an existing mitigation measure or include a new mitigation measure for wildlife crossing infrastructure to consider predation of wildlife	Supported.
23	Update EMF to respond to DELWP submission: *Wetland loss and degradation as a result of change in a water regime, dredging, draining, filling and grazing is partially addressed in EMF and risk register, however filling, dredging, or grazing impacts need to be addressed. Appendix C recommends revegetating drainage swales, channel realignments and other water infrastructure with wetland plants to recreate habitat for waterbirds and fish, which could help mitigate the impact of filling and altering watering regimes of wetlands*	Amend an existing mitigation measure or include a new mitigation measure that considers: • the impacts on wetland loss and degradation from filling, dredging, or grazing impacts • revegetating drainage swales, channel realignments and other water infrastructure with wetland plants to recreate habitat for waterbirds and fish	Supported.
24	Update EMF to respond to DELWP submission: *The spread of Phytophthora cinnamomi from infected sites into parks and reserves, including roadsides, under the control of a state or local government authority: Mitigation measures are not stated in EMF; however, the risk register has identified that general controls for managing the spread of diseases including Chytrid and Phytophthora will be detailed in CEMP*	Amend an existing mitigation measure or include a new mitigation measure to manage the spread of Phytophthora cinnamomi	Supported.

No	RRV's final proposed changes	IAC recommendations	Minister's response
25	Update EMF to respond to DELWP submission: *Use of Phytophthora-infected gravel in construction of roads, bridges and reservoirs: The mitigation of risks of Phytopthera should be addressed*	Amend an existing mitigation measure or include a new mitigation measure to manage the risks of Phytopthera	Supported.
26	Update EMF to respond to DELWP submission to add Yarra Gum to list of species to be covered in the Threatened Species Management Plan in BH12	Amend mitigation measure BH12 to: • include Yarra Gum as a species to be covered in the Threatened Species Management Plan • include the golden sun moth as a species to be covered in the Threatened Species Management Plan • include a cross-reference to mitigation measures provided in EES Section 10.3 of Technical Appendix C	Supported.
27	Amend exhibited mitigation measure BH01: *Detailed refinement of design/construction footprint (for example the tie ins and intersections) to avoid and minimise vegetation to be removed and further development of no-go zones, defined in EES Chapter 9: Biodiversity and habitat. Incentives to contractors to further minimise vegetation and habitat loss.*	Amend mitigation measure BH01 consistent with RRV's Final changes with a further amendment to avoid native vegetation and known and potential habitat loss for native fauna species (including golden sun moth which can favour non-native vegetation)	Supported, with additional recommendation that BH01 is updated to specify that the further development of no-go zones be conducted as part of a multi-disciplinary exercise to determine construction requirements and identify if any additional or refined areas (beyond those in the EES) should be included in the no-go zones. This should be undertaken as a component of the design management document, to be prepared for the project. This should in turn inform the detailed design process and should be conducted prior to any vegetation removal including for preparatory works.
28		Additional IAC recommendation: Amend mitigation measure BH02 to include: • a requirement for an ongoing monitoring program of crossing structures and their effectiveness (usage by	Supported.

No	RRV's final proposed changes	IAC recommendations	Minister's response
		targeted species as well as potential use by predators) and adaptive management measures. • cross-reference the crossing structure design guidelines in Section 10.4.2.4 of EES Technical Appendix C Flora and Fauna Impact Assessment • the involvement of a qualified ecologist	
29		<u>Additional IAC recommendation:</u> Include a new mitigation measure which provides for a protocol for the development of further seasonally appropriate targeted surveys to the satisfaction of DELWP and outlines proposed survey effort and timing (pre-detailed design or pre-construction), and considers as a minimum: • Pre-detailed design: basalt sun-orchid, dwarf boronia, emerald-lip orchid, purple blow-grass, rough wattle, small milkwort, spiney rice-flower, spiral sun-orchid, Yarra gum • Pre-construction: candy spider-orchid, golden cowslips, swamp everlasting and swamp fireweed	Supported, with additional recommendation that the reference of DELWP be amended to DEECA Regional Director Grampians Region (or delegate).
30		<u>Additional IAC recommendation:</u> Amend mitigation measure BH06 to require a hollow replacement strategy with a minimum replacement ratio of 1: 1	Supported, with additional recommendation that: • The commitment to replace tree hollows be strengthened to require the number and type of artificial hollows to be commensurate with the number and type to be removed, as determined by a qualified zoologist; the agreed location and specification of artificial hollows should be developed as a project GIS layer and incorporated into site maps prior to the commencement of works.

No	RRV's final proposed changes	IAC recommendations	Minister's response
31		Additional IAC recommendation: Amend mitigation measure BH29 to • include specific reference to habitat creation for species including: brolga, brown toadlet, brush-tailed phascogale, growling grass frog, and golden sun moth • cross-reference Section 10.4.1.2 of EES Technical Appendix C Flora and Fauna Impact Assessment, including specific reference to revegetation using local provenance species as provided in sections 10.3.8, 10.4.1.2 and 10.4.2	Supported.
32		Additional IAC recommendation: Insert a new mitigation measure to require a feature survey and an arborist assessment to assess all trees above 10 centimetres diameter at breast height (not just large trees in patches and scattered trees) in close proximity (15 metre buffer) to the construction footprint	Supported.
33		Additional IAC recommendation: Insert a new mitigation measure to require the Threatened Species Management Plan for golden sun moth to include consideration of the need for further survey work (audit of previous surveys or detailed surveys) of known and potential habitat to inform final detailed design and offset requirements. Consider the potential for indirect impacts on golden sun moth habitat from haulage and construction vehicles and feasibility of avoiding use of transport routes (such as Racecourse Road) for haulage or construction vehicles	Supported.

No	RRV's final proposed changes	IAC recommendations	Minister's response
34		Additional IAC recommendation: Insert a new mitigation measure to ensure the Threatened Species Management Plan for the Victorian Temperate Woodland Bird Community captures mitigation measures outlined in Section 10.3.11 of EES Technical Appendix C Flora and Fauna Impact Assessment	Supported.
35		Additional IAC recommendation: Insert a new mitigation measure to consider implementing any proven practicable measures to reduce risk of invasion by noisy miners	Supported, with additional recommendation that the final EMF also includes specific measures to minimise potential increases in fox populations.
36		Additional IAC recommendation: Insert a new mitigation measure to consider opportunities to provide strategic revegetation to strengthen habitat corridors outside the PAO and SCO and within the broader study area	Supported in principle, with additional recommendations that: • The design management document includes the consideration and assessment of potential opportunities for strategic revegetation. • The new mitigation measure be considered in the planning of revegetation works as part of the Landscape Management Strategy.
Aboriginal cultural heritage			
37	Amend the first sentence of the paragraph below the list of standards at 17.6.3 as follows: *All impacts on Aboriginal cultural heritage will be managed appropriately by MRPV and the construction contractor within the framework of the Cultural Heritage Management Plan, once approved by the Wadawurrung Traditional Owners Aboriginal Corporation and the Beaufort Bypass Cultural Values Assessment.*	Amend the introductory content to Section 17.6.3 as proposed by RRV's Final changes	Supported.

No	RRV's final proposed changes	IAC recommendations	Minister's response
38	Amend exhibited mitigation measure AH01 to read: *During detailed design consider the Beaufort Bypass Cultural Values Assessment dated 11 August 2021 in consultation with the Registered Aboriginal Party, to ensure that the design will be optimised to, where possible, avoid harm to Aboriginal cultural heritage (tangible and intangible).*	Amend mitigation measure AH01 as proposed by RRV's Final changes with an additional provision that identifies the opportunity for detailed design to implement *Beaufort Bypass Cultural Values Assessment* recommendations and opportunities to enhance cultural values	Supported.
39	Reference to Cultural Values Assessment in AH01, AH03, AH04 and AH05	Amend mitigation measures AH01, AH03, AH04 and AH05 and LV03 to refer to the Beaufort Bypass Cultural Values Assessment	Supported.
Catchment values and hydrology			
40	Agree to GHCMA proposed wording change to mitigation measure SW03: *state that wherever afflux criteria cannot be met on private land: provide for further mitigation through detailed design or landholder agreement.*	Amend mitigation measure SW03 to identify that wherever afflux criteria cannot be met on private land*: "provide for further mitigation through detailed design or landholder agreement"*.	Supported noting that as per the recommendations of my assessment the project needs to either improve or maintain existing hydrology and flooding conditions on public and private land surrounding the project footprint. Design and mitigation measures should be developed to fully address the risk posed by changed hydrology and flooding behaviour, and wherever necessary gain landholder consent for the predicted changes to afflux that are not aligned with current policy.
41	Include specific reference within mitigation measures SW01, SW02, SW03, SW04 to include the following words at the end of each description: *Design management measures to be implemented in conjunction with relevant expert ecological input*.	Amend mitigation measures SW01, SW02, SW03, SW04 consistent with RRV's Final changes	Supported.
Social			
42	Amend exhibited mitigation measure S05 (LV03) to conclude with the following additional words:	Amend mitigation measure S05/LV03 consistent with RRV's Final changes	Supported.

No	RRV's final proposed changes	IAC recommendations	Minister's response
	The preparation of Landscape design plans should consider comments of the Pyrenees Shire Council on issues of connectivity including recreation, pedestrian and cyclist networks.		
Land use and economics			
43	Amend mitigation measure LU01: *Continue consultation with Central Highlands Water to determine the impact to Central Highland Water's utility assets and manage any impact.* *Implementation of approved plans must be undertaken so as to minimise disruption to waste water treatment and disposal associated with the BWWTP, including by ensuring that alternative waste disposal arrangements are in place prior to decommissioning any affected assets or irrigation areas.* *All works will be generally in accordance with the approved plans to achieve an appropriate balance between waste water treatment outcomes and disturbance and clearing of existing land and native vegetation as described in BH01*	Amend mitigation measure LU01 consistent with RRV's Final changes	Supported.
44	Amend mitigation measures S07 and RE05 as follows (changes underlined): *During pre-construction stages, RRV in partnership with Council will identify a governance structure, potential resourcing, capacity building and funding options to support Council with implementation of transitional initiatives to reposition Beaufort from a highway town to a bypassed town to assist its economic and social recovery post bypass. Transitional initiatives identified for Beaufort will be aligned with the Pyrenees Economic Development Strategy – February 2020 or its successor and include, but not limited to:*	Amend mitigation measures S07 and RE05 consistent with RRV's Final changes with the addition that the governance structure provide for community representation or input	Supported.

No	RRV's final proposed changes	IAC recommendations	Minister's response
	• *attracting new and diverse businesses and employment opportunities to Beaufort* • *planning and design projects to be implemented in support of new and existing business and employment opportunities and population growth within the township* • *identifying the critical population mass required to enhance the social and economic sustainability of Beaufort* • *branding and promotion including appropriate signage* • *public realm and amenity improvements* • *identify infrastructure improvements that support tourism, investment and the liveability of Beaufort* • *any planning projects to update the Pyrenees planning scheme controls as necessitated by the final land acquisition footprint*. *Once transitional initiatives have been identified, RRV and Council will agree on how identified transitional initiatives are to be implemented during the preconstruction, construction and post-construction phases of the project.*		
45		Additional IAC recommendation: Amend mitigation measure RE03 to amend the first dot point to add: "*and reduce land fragmentation*."	Supported.
Air quality			
46	• Add reference to first flush diverters under AQ01 under the second bullet point: *education or instalment of first flush divertors on proximate dwellings*. • After the term "*portable dust monitoring stations*" in AQ01, add the words: "(*real time*)"	Amend mitigation measure AQ01 consistent with RRV's Final changes	Supported.

No	RRV's final proposed changes	IAC recommendations	Minister's response
Noise and vibration			
47	Amend mitigation measure NV01 to add: *consider as relevant the NSW Construction Noise and Vibration Strategy or other relevant policy documents available at the time of construction*	Amend NV01 consistent with RRV's Final changes	Supported, noting the additional recommendations for noise outlined in Table 4 of my assessment.
48	Amend NV02 to reference an appropriate standard, such as DIN 4150	Amend NV02 consistent with RRV's Final changes	Supported, with additional recommendations to: • Revise the dot point "vibration monitoring" in NV02 to specify that vibration monitoring is to be conducted to characterise vibration impacts during construction and for a minimum of 6 months after the bypass opens at residences with greatest potential for impacts (including House ID 57), to confirm relevant standards for exposure to vibration are met, and identify the need for any further mitigation. • Amend the reference to "alternative methods and/or equipment" in NV02 to specify that construction contractors are to select construction techniques and equipment with lower vibration emissions where practicable.
49	Amend NV03 to: • reference the VicRoads Traffic Noise Reduction Policy and Policy Interpretation documents • refer to the design in reference to 10-years after project opening • require measurement of operational traffic noise impacts 6-months after opening to confirm compliance with the respective PONL's (external or internal) so that residual impacts can be rectified • contractor carrying out additional baseline monitoring, if required.	Amend NV03 consistent with RRV's Final changes with the following additional dot points: • ensure operational monitoring should be for a minimum of 6 months after the bypass opens • implement any practicable measures to reduce sleep disturbance.	Supported, with additional recommendation to amend NV03 to explicitly state the PONL to be achieved during operations for eligible sensitive receptors – to assist in making this clear and transparent for the community and other stakeholders. Also note the additional recommendations for noise outlined in Table 4 of my assessment.

No	RRV's final proposed changes	IAC recommendations	Minister's response
Landscape and visual amenity			
50	Update EMF to include DELWP's changes that: *Landscape planting should recreate habitat for species/communities, e.g., Victoria Temperate Woodland Bird Community woodland birds*	Amend mitigation measures LV01 and LV03 or include a new mitigation measure to ensure landscape planting recreates habitat for species/communities, e.g., Victoria Temperate Woodland Bird Community woodland birds.	Supported.
51	Amend exhibited mitigation measure LV03 to add the following final sentence: *Landscape plans should be prepared in conjunction with ecological expertise as appropriate and seek to achieve revegetation and habitat creation in accordance with BH29*	Amend mitigation measure LV03 consistent with RRV's Final changes	Supported, with additional recommendations to: • Amend mitigation measure LV03 to specifically refer to the need to consider potential headlight glare when planning screening of adjacent roads and dwellings using plants and/or landforms. • Ensure the Landscape Design Plans to be prepared as per mitigation measure LV03 include targets for the use of seeds collected from the local area in revegetation activities and that these targets are developed in consultation with the DEECA Grampians Region. • Depending on the timing of preparation of documentation, conduct further investigations to identify any new residences or other receivers that should be engaged.
52	Include additional bullet in LV03 to refer to the Cultural Values Assessment	Amend mitigation measure LV03 to refer to the *Beaufort Bypass Cultural Values Assessment*	Supported.
53	Amend LV01 to include an additional bullet point: *The identification of any opportunities for early delivery of landscaping having regard to the staging of the Project, the management of visual impacts and the maintenance of habitat connectivity.*	Amend LV01 consistent with RRV's proposed changes and with the following additional provisions: • the Landscape Management Strategy to be prepared in conjunction with ecological expertise as appropriate • consider opportunities for the rehabilitation of existing native vegetation habitat within the Project area	Supported, with additional recommendation that: • Mitigation measure LV01 be amended to state that landscape and visual amenity mitigation measures for the proposed land bridge treatment are to be investigated and documented in the Landscape Management Strategy. • Depending on the timing of preparation of documentation, conduct further investigations to identify any new residences or other receivers that should be engaged.

No	RRV's final proposed changes	IAC recommendations	Minister's response
		• Identify the role and detail of the Landscape Management Strategy and responsibility for its preparation	
Soils, contamination and geology			
54		Additional IAC recommendation: Amend mitigation measure SG02 to require further geotechnical investigations: • need for intrusive soil assessment and analysis relating to relevant contaminants of potential concern as per Section 10.2 of Technical Appendix K • extent and location of soils unsuitable for reuse in construction to inform earthworks design and to either treat or contain such soils within zoned embankments • need to inform the appropriate design of the slope for the Camp Hill area, balancing any erosion risks with the desire to reduce land take and vegetation impacts • confirm the duration and extent of ground settlement	Supported.
55		Additional IAC recommendation: Amend mitigation measure SG04 to include a requirement for the Spoil Management Plan to include contingencies for unexpectedly encountering contaminated, unsuitable or acid sulfate soils during construction	Supported.

No	RRV's final proposed changes	IAC recommendations	Minister's response
General			
56	Correct reference to Registered Aboriginal Party to Wadawurrung Traditional Owners Aboriginal Corporation	Replace references to Registered Aboriginal Party with Wadawurrung Traditional Owners Aboriginal Corporation where appropriate	Supported.