Planning Panels Victoria

Western Outer Ring Main Gas Pipeline

Inquiry and Panel Report

Environment Effects Act 1978

Pipelines Act 2005

8 December 2021

VICTORIA State Government

Environment Effects Act 1978

Inquiry report pursuant to section 9(1)

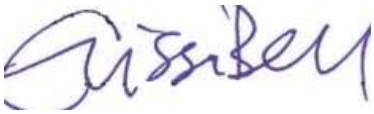
Pipelines Act 1978

Panel report pursuant to sections 40 and 47

Western Outer Ring Main Gas Pipeline

8 December 2021

Michael Kirsch, Chair



Elissa Bell, Deputy Chair

Sandra Brizga, Member

Planning Panels Victoria

Contents

Planning Panels Victoria

Planning Panels Victoria

Planning Panels Victoria

List of Tables

Planning Panels Victoria

List of Figures

Planning Panels Victoria

Glossary and abbreviations

AASS	actual acid sulfate soils
AEMO	Australian Energy Market Operator
AER	Australian Energy Regulator
AoC	area of consequence
BCS	Biodiversity Conservation Strategy
CEMP	Construction Environmental Management Plan
CHMP	Cultural Heritage Management Plan
CNVMP	Construction Noise and Vibration Management Plan
D	document number
DAWE	Department of Agriculture, Water and the Environment
dB	decibels
DEA	diesel energy alternator
DELWP	Department of Environment, Land, Water and Planning
DoT	Department of Transport
DSS	development services scheme
EES	Environment Effects Statement
EE Act	Environmental Effects Act 1978
EIIA	Extractive Industry Investigation Area
EMF	Environmental Management Framework
EMM	Environmental Management Measure
EPA	Environment Protection Authority
EPBC Act	Environment Protection and Biodiversity Conservation Act 1999
ERS	Environment Reference Standard
EVC	Ecological Vegetation Class
FFG Act	Flora and Fauna Guarantee Act 1988
GDE	Groundwater Dependent Ecosystem
GED	General Environmental Duty
GHG	greenhouse gas
HDD	horizontal directional drilling

Inquiry	Western Outer Ring Main Gas Pipeline Inquiry and Panel
KP	kilometre point
mbgl	metres below ground level
MCA	multi-criteria analysis
mg/L	milligrams per litre
ML	measurement Length
MLV	mainline valve
MNES	Matters of National Environmental Significance
MSA	Melbourne Strategic Assessment
NO_2	Nitrogen dioxide
NV Guidelines	Guidelines for the removal, destruction or lopping of native vegetation
OEMP	Operations Environmental Management Plan
OMR/E6	Outer Metropolitan Ring/E6 Transport Corridor
PAO	Public Acquisition Overlay
PASS	potential acid sulfate soils
PFAS	Per- and poly-fluoroalkyl substances
PIG	pipeline inspection gauge
PM_{25}	particulate matter with a diameter of 2.5 micrometres or less
PPV	Planning Panels Victoria
PPWCMA	Port Phillip and Westernport Catchment Management Authority
Proponent	APA VTS Australia (Operations) Pty Ltd
PSP	Precinct Structure Plan
RAP	Registered Aboriginal Party
RFI	Request for Further Information
ROW	right of way
S	submission number
Scoping Requirements Report	Final Scoping Requirements for the Western Outer Ring Main Gas Pipeline Environmental Effects Statement, August 2020
SDSMP	Sodic and Dispersive Soils Management Plan
SEPP	State Environment Protection Policy
SMS	Safety Management Study

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SSMP	Sodic Soil Management Plan
TEC	Threatened Ecological Community
the Project	Western Outer Ring Main Gas Pipeline Project
TIA	Traffic Impact Assessment
TMP	Traffic Management Plan
TN	Technical Note
UGB	Urban Growth Boundary
UGZ	Urban Growth Zone
VFF	Victorian Farmers Federation
VNIE	Victorian Northern Interconnect Expansion
VPA	Victorian Planning Authority
VTS	Victorian Transmission System
WWCHAC	Woi-wurrung Cultural Heritage Aboriginal Corporation

Executive summary and recommendations

The Western Outer Ring Main Gas Pipeline Project (the Project) involves a new underground natural gas pipeline connection to link the existing Plumpton Regulating Station and the Wollert Compressor Station. This connection will link the eastern and western sections of the Victorian Transmission System (VTS) with a new high-pressure pipeline, bypassing the need for gas travelling to or from the west to travel through the low-pressure Melbourne network.

The Project has three key components:

- a new, fully buried 51 kilometre pipeline
- three mainline valves
- an upgrade to the existing Wollert Compressor Station.

The pipeline route passes through the Melton, Hume, Mitchell and Whittlesea local government areas and traverses various Precinct Structure Plan areas within the Urban Growth Boundary. Approximately 16 kilometres of the route would be co-located with existing APA gas pipeline easements and approximately 27 kilometres would be located within or immediately adjacent to the Outer Metropolitan Ring/E6 Public Acquisition Overlay (OMR/E6 PAO).

The route crosses the Melbourne Strategic Assessment program area in a number of locations, including two Conservation Areas designated under the Biodiversity Conservation Strategy for Melbourne's Growth Corridors. The route crosses 23 designated waterways, including the Jacksons, Deep and Merri Creeks.

The rationale for the Project is that it would:

- improve Victoria's gas network capacity and performance, allowing greater volumes of gas to be efficiently transferred and stored
- provide efficiencies in the operation and management of the VTS.

The Project has been identified in various Commonwealth and State energy planning documents as a means of addressing anticipated natural gas supply shortages in the immediate future.

The key approvals required for the Project include:

- a pipeline licence under the *Pipelines Act 2005*
- two Cultural Heritage Management Plans (CHMP) under the *Aboriginal Heritage Act 2006*
- approval for a controlled action under the *Environment Protection and Biodiversity Conservation Act 1999.*

The Environment Effects Statement (EES) attracted 26 submissions, many of which raised issues and concerns that were resolved in discussions between submitters and the Proponent, before and during the Hearing.

The remaining key issues were focussed on:

- the Project rationale, particularly in the context of greenhouse gas emissions and climate change
- addressing the requirements of the new *Environment Protection Act 2017*
- various biodiversity and habitat impacts associated with specific sections of the route alignment and construction methodology
- the impacts of waterway crossings, particularly the use of trenched crossings
- the proposed 'coordination deed' between the Proponent and the Department of Transport (DoT)

- the adequacy of Aboriginal cultural heritage investigations and consultation with Traditional Owners
- the potential impacts on various land uses, including future urban development, transport infrastructure, extractive industry and agriculture.

Submissions also raised site and area specific issues.

The Inquiry accepts the Project rationale that the Project will facilitate a safe and reliable energy supply in Victoria over the short to medium term. While the Inquiry acknowledges concerns about greenhouse gas emissions and climate change, it is satisfied the Project is consistent with Commonwealth and State energy and climate change policies.

The Proponent refined the exhibited Environmental Management Framework (EMF) in response to submissions and evidence, particularly the Environment Protection Authority submission in relation to the new *Environment Protection Act 2017*. Subject to some further recommended changes, the Inquiry is satisfied that the EMF is acceptable and will address the relevant environmental effects and issues raised by submitters.

The Project will have significant impacts associated with native vegetation clearance and matters of national environmental significance, and the Inquiry has recommended that some sites be further investigated. However, the Inquiry is generally satisfied these impacts will be acceptable because:

- offsets will be provided in accordance with relevant State and Commonwealth policies
- the Project will provide broader community benefits associated with energy security.

The EES proposed 'open trench' construction of the pipeline crossing of Jacksons Creek, largely because of risks associated with 'horizontal directional drilling'. The Inquiry is concerned about the potential environmental effects of using open trenching at this site. It believes the construction methodology and/or siting of the crossing require further investigation and analysis before the treatment of this crossing is finalised. The Inquiry has recommended an additional Environmental Management Measure to address this.

The Inquiry supports the need for the 'co-ordination deed' that is being negotiated between the Proponent and DoT and recommends that it be executed before construction commences.

The Inquiry notes the Victorian Planning Authority's (VPA) concerns about the possible impacts of the pipeline on future underground infrastructure along Gunns Gully Road and its request for a blanket two metre pipeline depth in the area. Although the Inquiry does not support this approach, it welcomes the Proponent's offer to vary the pipeline depth to accommodate any additional underground infrastructure the VPA or other agencies identify by March 2022. The Inquiry has included a recommendation to reflect this.

The Inquiry notes that the preparation of the two CHMPs required under the *Aboriginal Heritage Act 2006* provides the process to consult with and address the concerns of the Traditional Owners. The Inquiry was not provided with any evidence or submissions that indicated Aboriginal cultural heritage issues could not be resolved through that process.

The Inquiry considered various site and area specific submissions in relation to potential land use impacts. It concludes that land use impacts can be acceptably managed.

Having considered the submissions and evidence, the EES documentation and other material provided as part of the process, the Inquiry concludes the Project's environmental effects can be

managed to an acceptable level. The Inquiry is satisfied the Project has merit and should proceed, subject to adopting and applying its recommendations.

Recommendations

The Inquiry recommends the Project be approved, subject to applying the relevant mitigation measures, including the following 'final day' documents and the changes to those and other documents recommended below:

- Construction Environment Management Plan, Introduction (D168)
- Construction Environment Management Plan, Appendix H (Environmental Management Measures) (D159)
- Construction Environment Management Plan, Appendix G (Environmental Line List) (D95)
- Updates to the Victorian Transmission System – Operations Environment Management Plan (D169).

Construction Environment Management Plan

1 **Amend Section 9.2.1 to replace the second dot point with:**
   - ***Flora and fauna management plan(s) for approval by DELWP (prior to construction commencing) including:***
     - ***Fauna management plan, including kangaroo management measures (required by EMM B9)***
     - ***Species specific management plans for platypus (required by EMM B22), growling grass frog (required by EMM B21), golden sun moth (required by EMM B19), and striped legless lizard (required by EMM B20)***
     - ***Threatened species handling and relocation protocol (required by EMM B9).***

2 **Amend Table 4.2 'Applicable policies and guidelines' to include '*EPA Publication 1739 – Urban Stormwater Management Guidance*' in the list of EPA Publications.**

3 **Amend Table 2.3 'Pipeline construction sequence' and Section 2.7 – 'Rehabilitation' to replace '*Catchment Management Authority requirements*' with '*Melbourne Water requirements*'.**

4 **Change '*sodic soil management measures*' to '*sodic and dispersive soil management measures*' in Section 3.4.2.**

5 **Change '*Sodic Soils Management Plan for acceptance by DELWP as an EMP under the Pipelines Act prior to commencement or works.*' to '*Sodic and Dispersive Soils Management Plan for acceptance by DELWP as an EMP under the Pipelines Act prior to commencement of works*' in Section 9.2.1.**

6 **Change '*Sodic Soils Management Plan*' to '*Sodic and Dispersive Soils Management Plan*' in Section 9.2.2.**

7 **Change '*Ground Movement Management Plan (including sodic soils)*' to '*Ground Movement Management Plan (including sodic and dispersive soils)*' in Appendix F – Management Plans.**

Environmental Management Measures

8 Amend EMM AQ1 to add the following introductory requirement at the beginning:

Periodically review sensitive receptor locations to identify any new receptors, having particular regard to new residential development.

9 Amend EMM B1 to add at the beginning:

Investigate and implement further opportunities to avoid the loss of native vegetation, particularly FFG and EPBC Act-listed communities, through detailed design and construction planning, including consideration of:

- ***the possible extension of the proposed trenchless construction at Craigieburn Road and St Johns Road***
- ***relocating temporary access tracks***
- ***additional trenchless construction to avoid Property 12/LP92520***
- ***additional trenchless construction to avoid native vegetation in Conservation Areas 34a and 28b.***

10 Amend EMM B2 to include the following dot point under the first sentence:

- ***To the reasonable extent practicable, ensure vehicles and plant traversing between land parcels are managed to avoid the risk of additional spread of weeds between land parcels.***

11 Amend EMM B4 to include the following after the second dot point:

- ***Undertake a site survey during summer (dry conditions) to confirm the location of refuge pools in Merri Creek in the vicinity of the Project area. The survey area should extend 150 metres from the edge of the Project area.***

12 Amend EMM B8 to replace the second paragraph with:

Stockpiled topsoil from weed-infested sites may be reused at the same location where the soil is sourced from if the site supports golden sun moth and where larvae may be present.

13 Amend EMM B15 to replace the second sentence with:

Prepare a Site Restoration Plan(s) for revegetation of native vegetation within the construction corridor (including the whole of the construction corridor in Property 1/PS733045). The plan(s) shall be prepared in consultation with each landholder and in accordance with any agreement made as part of easement negotiations.

14 Amend EMM B15 to add after the second paragraph:

The Site Restoration Plan is to include any specific monitoring requirements and contingency measures for addressing potential rehabilitation issues such as weed invasion and sodic and dispersive soils, as they arise.

15 Amend EMM B20 to add the following dot points:

- ***Details of the location of striped legless lizard habitat***
- ***Any deviation of proposed salvage and relocation measures required in the event tussock skink or other species are also captured.***

16 Amend EMM B21 to reinstate the exhibited version.

17 Amend EMM B22 to delete the second paragraph and the following two dot points.

18 Amend EMM B22 to include the following additional dot points under 'Measures to be implemented within Jacksons Creek to facilitate passage for Platypus through the works area are:'

- ***The construction works at Jacksons Creek waterway/banks must be timed to avoid the peak juvenile nesting period between September and the beginning of March***
- ***A pre-construction survey must be undertaken by a Platypus specialist for the presence of burrows within the construction corridor at Jacksons Creek***
- ***Excavations should proceed carefully using a non-toothed excavator bucket (e.g. mud or batter bucket) in order to allow any individuals present to escape***

19 Replace EMM B24 with:

Provide State Offsets

Before any native vegetation is removed, evidence that the required offset (generally in accordance with in the WORM EES Offset Strategy, 30 September 2021) for the Project has been secured must be provided to the satisfaction of DELWP. This evidence is to be a credit extract(s) allocated to the Proponent from the Native Vegetation Credit Register.

At the conclusion of the Project, offset requirements can be reconciled with agreement by DELWP.

Provide Commonwealth Offsets

Before any native vegetation is removed, evidence that the required offset (generally in accordance with the WORM EES Offset Strategy, 30 September 2021) for the Project has been secured must be provided to the satisfaction of DAWE.

Implement the DAWE approved Offset Management Plan required by clause 9.2.1 of this CEMP.

20 Amend EMM C1 to include the following 'Assessment' requirement:

- ***Complete further testing to categorise soils in the vicinity of the railways for onsite re-use or offsite disposal.***

21 Amend EMM C3 by inserting the additional dot point requirement:

- ***Complete further acid sulfate soil assessment prior to dewatering at the following locations:***
  - ***Tame Street Drain and floodplain***
  - ***Kalkallo retarding basin***

22 Include a new 'Cultural heritage' EMM:

Investigate the significance and treatment of the drystone wall that would be intersected by the pipeline at 170-200 Donovans Lane, Beveridge.

23 Include the following new 'Ground movement' EMM:

<u>Impacts on the Merri Creek Site of Geological and Geomorphological Significance (VRO Site 35)</u>

Determine appropriate protection and restoration measures for the geological and geomorphological values of the site based on the advice of an appropriately qualified geomorphologist.

Ensure that disturbance to the natural geomorphology of Merri Creek is minimised during construction to the extent practicable, including disturbance from construction of the pipeline crossing as well as the construction and use of the temporary access crossing, through implementation of appropriate measures in:

- ***the detailed design of the Merri Creek crossing***
- ***the construction management plan for the Merri Creek crossing.***

Ensure that rehabilitation of the construction corridor at this site restores the natural geomorphology of the site to the extent reasonably practicable.

24 Amend EMM GM2 to change the third dot point to '*the potential presence of sodic and dispersive soils*'

25 Amend EMM GM7 as follows:

- **Change the first two sentences to:**

  Develop and implement a Sodic and Dispersive Soils Management Plan (SDSMP). The SDSMP is to be prepared by one or more suitably qualified professionals with relevant expertise, including soil science and geotechnical expertise, prior to the commencement of construction and must include:

  - **Change paragraph 2 '*details of completed soil investigations*' to '*review of completed soil investigations and site walkover by a suitably qualified soil scientist/geologist*'.**
  - **Change paragraph 3 '*The management of drainage at all stages of construction*' to '*The management of drainage and dewatering at all stages of construction*'**
  - **Insert a requirement that the '*Sodic and Dispersive Soils Management Plan must be prepared to the satisfaction of Melbourne Water and DELWP*'.**

26 Include the following new 'Groundwater' EMM:

<u>Managing unexpected groundwater encountered during construction</u>

The following actions are required when unexpected groundwater is encountered during construction:

- ***Cease construction at the unexpected groundwater location and in the near vicinity.***
- ***Review contamination risks in relation to the unexpected groundwater and undertake testing to determine appropriate management and disposal options.***
- ***Undertake assessments for the presence of actual acid sulfate soils and potential acid sulfate soils in formations where such soils could potentially occur, including the Kalkallo retarding basin and other areas with Quaternary floodplain and swamp deposits.***
- ***Identify any groundwater bores that are likely to be affected by dewatering and liaise with the affected bore owners to make appropriate arrangements as required in EMM GW2.***
- ***Assess and manage ground movement risks related to construction dewatering in accordance with EMMs GM2 and GM3.***
- ***Review the construction methodology and change if appropriate.***
- ***Undertake other measures as necessary to meet the requirements of other relevant EMMs, including the groundwater EMMs GW1 and GW3 and the contamination EMMs C2, C3 and C4.***

27 Amend EMM NV2 to replace the last dash point with:

- ***Assessment of the residual noise levels, in the context of criteria listed in NV10, once all reasonable and practicable noise mitigation controls have been implemented, at affected noise-sensitive receivers and nearby natural areas, in accordance with the Noise Protocol and Environmental Reference Standard respectively.***

28 Amend EMM NV10 to replace the first two sentences with:

Minimise the risk of harm from noise emissions from construction noise in accordance with the CNVMP by utilising the mitigation measures, where reasonably practicable, listed in EMM NV1. Ensure the following noise levels are not exceeded as far as reasonably practicable:

29 Amend EMM S6 to replace the third dot point with:

- ***The approach for communicating and engaging with vulnerable groups, including community groups, culturally and linguistically diverse groups, and residents who do not speak English. The approach should outline circumstances under which translation services will be provided.***

30 Amend EMM S6 to include the following dot point:

- ***Liaise with municipal Councils, where appropriate, to gain insight into the most appropriate consultation methods for specific communities or community groups.***

31 Change the first dot point in EMM SA6 to:

- ***Consultation with the Department of Transport as early as practicable to identify works that have the potential for a high impact on the road network and measures to manage such impacts.***

32 Include a new 'Surface water' EMM:

<u>Further assessment of the Jacksons Creek crossing</u>

Undertake further assessment of constructing a trenchless crossing of Jacksons Creek at the proposed location or at a nearby location where the geology may be more suitable. This assessment must be undertaken by a suitably qualified professional with expertise in relation to the construction of trenchless waterway crossings. This assessment should be completed to the satisfaction of DELWP and Melbourne Water, and include consultation with the RAP.

In the event that there is no feasible alternative to open trenching, further analysis of likely impacts and suitable mitigation options for a trenched crossing must be undertaken, addressing the following matters:

- ***Assessment of impacts and risks to Jacksons Creek function and values, including stream geomorphology, hydraulic habitat (e.g. pools and riffles), groundwater, surface water quality, riparian zone biodiversity, and aquatic biodiversity. Mitigation measures to manage these risks. Rehabilitation measures to ensure restoration of stream functions and values across all of these components.***
- ***Likely impacts of construction on pool water levels, water quality and habitat upstream and downstream of the crossing, including as a minimum, the backwater pool associated with the ford crossing at Bulla-Diggers Rest Road and the pool upstream of the Project area, and how these impacts will be managed.***

- ***Likely impacts of flow diversion and dewatering on surface-groundwater interactions, and how these interactions will be managed.***
- ***Sodic and dispersive soils assessment to determine the extent and properties of any sodic and dispersive soils at the site and how they will be managed during construction and operation to minimise risks including erosion and water quality impacts.***
- ***Contamination status of the soils and groundwater at the crossing site, including per- and poly-fluoroalkyl substances and acid sulfate soil, and how any contamination that is identified will be managed.***
- ***How the permanent loss of riparian zone values at the Pipeline crossing (resulting from the removal of existing vegetation and preclusion of revegetation with woody species) could be addressed at a reach scale, such as opportunities for riparian zone restoration beyond the Project area.***
- ***Construction phase monitoring requirements to ensure minimisation of impacts during construction.***
- ***Operational phase monitoring requirements to ensure that rehabilitation measures are successful in the long term.***

33 Amend EMM SW3 to replace dot point 7 with:

- ***Carry out routine inspections (e.g. minimum every six months plus potentially following any significant flood event) to monitor effectiveness of civil rehabilitation works (earthworks and rock beaching works) during the first 24 months post-construction. Where monitoring identifies defects or deficiency in civil rehabilitation works, appropriate rectification measures will need to be implemented.***

34 Amend EMM SW5 to insert the following requirement between paragraphs 3 and 4:

Monitor the benthic macroinvertebrate communities to assess pre-construction condition, detect and evaluate potential impacts from sedimentation and/or flow changes during construction and operation, implement better controls and initiate rehabilitation measures as needed.

35 Amend EMM SW5 to replace the final sentence in paragraph 4 with:

Biodiversity and water quality monitoring must be continued for a period of 24 months post-construction, to identify any potential effects from the construction and rehabilitation work, including secondary and lagged effects.

36 Amend EMM SW8 to replace dot point 4 with:

- ***Carry out routine inspections (e.g. minimum every two months or following any significant flood event) to monitor effectiveness of civil rehabilitation works (earthworks and rock beaching works) during the first 24 months post-construction. Where monitoring identifies defects or deficiency in civil rehabilitation works, appropriate rectification measures will need to be implemented.***

<u>Environmental Line List</u>

37 Amend the Environmental Line List to identify the following waterway crossings as '*high risk waterways*':

- **the waterway crossing at KP 13.97**
- **the waterway crossings at KP 33.85 and KP 33.94.**

Operations Environment Management Plan

38 Amend EMM SW6 so that it applies to all of the 'high risk' waterways, including Jacksons Creek, Merri Creek, Tame Street Drain, Jacksons Creek tributary (Crossing 8), Kalkallo retarding basin waterways (Kalkallo Creek and Crossings 15, 17, 18 and 19) and Merri Creek unnamed tributary.

Ecological Offset Strategy

39 Amend the Ecological Offset Strategy to include impact and offset calculations for the additional areas of native vegetation identified in Figures 1-2 and 1-4 of Mr Dunk's Peer Review of Terrestrial and Freshwater Ecology at Appendix 4 of Document 69.

40 Replace the fourth sentence in Section 3.3.1 with:

Following further construction footprint refinement, landowner negotiations and construction methodologies the area of native vegetation impacted may decrease slightly and this will be addressed prior to the procurement process to purchase offsets, as well as during the reconciliation of impacts following construction.

Other recommendations

The Inquiry makes the following recommendations:

41 The Proponent should continue discussions with the Victorian Planning Authority and relevant infrastructure agencies to identify any future underground infrastructure along Gunns Gully Road, Merrifield North that would require a change to the pipeline depth. Any relevant infrastructure should be identified by 31 March 2022 and accommodated in the final pipeline design and depth.

42 The proposed 'coordination deed' between the Proponent and the Department of Transport should be agreed before the Project's construction commences.

PART A: INTRODUCTION AND BACKGROUND

1 The Inquiry process

1.1 The Inquiry and Panel

The Minister for Planning appointed a three-member Inquiry on 28 July 2021 pursuant to section 9 of the *Environment Effects Act 1978* and section 151 of the *Planning and Environment Act 1987* to inquire into and report on the proposed Western Outer Ring Main Gas Pipeline Project (the Project).

The Minister for Planning signed the Terms of Reference for the Inquiry on 10 June 2021 (included at Appendix A).

The Minister for Energy, Environment and Climate Change appointed the Inquiry members as a Panel on 3 September 2021 pursuant to section 40 of the *Pipelines Act 2005* to consider submissions in relation to Pipeline Licence Application No. PL006918.

The Inquiry comprises:

- Mr Michael Kirsch, Chair
- Ms Elissa Bell, Deputy Chair
- Dr Sandra Brizga, Member.

The Project proponent is APA VTS (Operations) Pty Ltd (the Proponent).

1.2 The Inquiry's role

1.2.1 Terms of Reference

Clause 5 of the Terms of Reference require the Inquiry to:

- Review and consider the Environment Effects Statement, submissions received in relation to the Project, the predicted environmental effects, and the other exhibited documents.
- Consider and report on the potential environmental effects of the Project, their significance and acceptability, and in doing so have regard to the evaluation objectives in the EES Scoping Requirements Report and relevant policy and legislation.
- Identify any measures it considers necessary and effective to avoid, mitigate or manage the environmental effects of the Project within acceptable limits, including any necessary Project modifications.
- Advise on how this relates to relevant conditions, controls and requirements that could form part of the necessary approvals and consent for the Project.
- Report its findings and recommendations to the Minister for Planning to inform his assessment under the *Environmental Effects Act*.

Clause 16 notes the Project might require other approvals, including:

- Cultural Heritage Management Plans (CHMP) under the *Aboriginal Heritage Act 2006.*
- A permit to remove listed flora and fauna under the *Flora and Fauna Guarantee Act 1988.*
- Approvals under the *Water Act 1989* for works on relevant waterways.

Clause 31 requires the Inquiry produce a written report containing:

a. analysis and conclusions with respect to the specific environmental effects of the project and their significance and acceptability;

b. findings on whether acceptable environmental outcomes can be achieved, having regard to legislation, policy, best practice, and the principles and objectives of ecologically sustainable development;

c. recommendations and/or specific measures that it considers necessary and appropriate to prevent, mitigate or offset adverse environmental effects to achieve acceptable environmental outcomes having regard to legislation, policy, best practice, and the principles and objectives of ecologically sustainable development;

d. recommendations to any feasible modifications to the project (e.g. design, alternative configurations, environmental management) that would enable beneficial outcomes;

e. recommendations to the structure and specific content of the proposed environmental management framework, including with respect to mitigation and monitoring of environmental effects, contingency plans and rehabilitation;

f. specific findings and recommendations about the predicted impacts and residual risks for matters of national environmental significance and their acceptability, including appropriate controls and environmental management [1].

The Inquiry provides its consolidated response to the Terms of Reference in Chapter 20.

The *Pipelines Act,* requires the Panel to consider all submissions referred to it (section 40), give the applicant and any submitter a reasonable opportunity to be heard (section 45), and prepare a report making recommendations as to the action that it believes should be taken with respect to the application (section 47). The Inquiry provides its consolidated response to these requirements in Chapter 20.

1.2.2 Scoping Requirements Report

The EES evaluation objectives are included in the Final Scoping Requirements for the Western Outer Ring Main Gas Pipeline Environmental Effects Statement August 2020 (Scoping Requirements Report).

Clause 5 of the Terms of Reference requires the Inquiry to:

b. consider and report on the potential environmental effects of the project, their significance and acceptability, and in doing so have regard to the draft evaluation objectives in the EES scoping requirements and relevant policy and legislation [2].

The Scoping Requirements Report was issued by the Minister for Planning and was finalised following the public exhibition of draft scoping requirements in July – August 2020. It sets out the specific matters to be investigated and documented in the EES. It was prepared in the context of the Ministerial Guidelines for Assessment of Environmental Effects under the *Environmental Effects Act*.

The Scoping Requirements Report includes the following evaluation objectives that identify the '*identify desired outcomes in the context of key legislative and statutory policies, as well as the principles and objectives of ecologically sustainable development and environment protection, including net community benefit*'[3]:

> **Energy efficiency, security, affordability and safety** – Provide for safe and cost-effective pipeline connection between the eastern and western sections of the Victorian Transmission System.

[1] Terms of Reference, Clause 31

[2] Terms of Reference, Clause 5

[3] Scoping Requirements Report, page 8

Biodiversity and habitats – Avoid and minimise potential adverse effects on native vegetation, listed threatened and migratory species and ecological communities, and habitat for these species, as well as restore and offset residual environmental effects consistent with state and Commonwealth policies.

Water and catchment values – Maintain the functions and values of groundwater, surface water and floodplain environments and minimise effects on water quality and beneficial uses.

Cultural heritage – Avoid or minimise where avoidance is not possible, adverse effects on Aboriginal and historic cultural heritage values.

Social, economic, amenity and land use – Minimise potential adverse social, economic, amenity and land use effects at local and regional scales.

Waste – Minimise generation of wastes from the project during construction and operation, and to prevent adverse environmental or health effects from storing, handling, transporting and disposing of waste products[4].

Each of the evaluation objectives is supplemented by descriptions of key issues, existing environment, mitigation measures, likely effects and performance criteria.

The Inquiry discusses the evaluation objectives throughout this report and provides its consolidated response in Chapter 20.

1.3 Exhibition and submissions

The EES was exhibited from 7 July to 17 August 2021.

Clause 17 of the Terms of Reference provided for submissions to be lodged through the Engage Victoria website and collected by Planning Panels Victoria (PPV).

25 submissions were received (listed at Appendix B), including submissions from:

- three State government departments and agencies
- two local government councils
- five business, community and environment groups
- four landowners
- 11 individuals.

One landowner submission (Blueways Land No 1 Pty Ltd) was withdrawn on 3 September 2021.

The City of Whittlesea (Whittlesea) lodged correspondence with PPV on 7 September 2021 (Document [D] 17) following the close of the EES exhibition period. In accordance with the provisions of the *Pipelines Act*, the correspondence was accepted as a 'document' rather than a 'submission'. The Inquiry treated the correspondence as a 'submission' and invited Whittlesea to make a presentation during the Hearing.

1.4 Hearings

The Directions Hearing was held via video conference on 6 September 2021. At the Directions Hearing, the Inquiry introduced itself and its team, explained its role, made various declarations, discussed exhibition and submission issues, and discussed various directions in relation to the Hearing dates, site inspections, experts and cross examination, and the public availability of tabled documents.

[4] Scoping Requirements Report, chapter 4

The recording of the Directions Hearing was made available on the Engage Victoria website on 6 September 2021.

The main Hearing was held via video conference over 6 days between 4 and 14 October 2021. Typically, between 20 to 30 people participated in or viewed the Hearing each day. Daily recordings of the Hearing were made available on the Engage Victoria website, generally on the following business day. The Hearing participants are shown in Appendix C.

All documents and materials tabled during the Inquiry process were assigned a document number, recorded on the Inquiry's document list, and published on the Engage Victoria website generally within one business day of being provided. Tabled documents are shown in Appendix D.

1.5 Site inspections

The Inquiry undertook unaccompanied inspections prior to and following the Hearing. At the request of the Inquiry, the Proponent provided an inspection itinerary (D38) that included various sites nominated by the Inquiry.

The Inquiry was assisted by having access to the Proponent's GIS mapping that was also available to other parties, subject to a confidentiality agreement. At the direction of the Inquiry, the Proponent provided aerial drone footage of three specific areas on a confidential basis. The provision of this footage was discussed on day 1 of the Hearing and there were no objections to the Inquiry being provided with or relying on that material.

1.6 Procedural and other matters

1.6.1 Request for Further Information

The Inquiry prepared a Request for Further Information (RFI) that was provided to the Proponent on 27 August 2021[5]. A link to the RFI on the Engage Victoria website was provided to other parties on the same day.

The RFI sought further information from the Proponent about various matters, based on its preliminary review of the EES and submissions.

The Proponent subsequently responded to the RFI through submissions, evidence and 35 Technical Notes (TN).

1.6.2 Post hearing documents

In its closing comments at the Hearing, the Inquiry confirmed it would not receive any documents submitted post Hearing, except for:

- advice from the Grassy Plains Network in relation to areas where horizontal directional drilling (HHD) or other trenchless construction might be used in order to protect native grasslands[6]
- responses to the further advice provided by the Grassy Plains Network[7]
- 'final day' versions of various approval documents provided by the Proponent.

[5] D6 and 7
[6] D171 and 172
[7] D174, 175 and 176

1.7 Report structure

The material before the Inquiry is significant and includes the EES, initial submissions, nine statements of evidence, over 170 tabled documents and further submissions from those who spoke to the Inquiry at the Hearing. This report is focussed on the Inquiry's assessment of the EES and the Project, together the key issues identified in submissions and evidence. Various issues were resolved between the parties before and during the Hearing, and the Inquiry has focussed on what it understands are the remaining issues in dispute.

Part A of the report explains the Inquiry process, the Project and the legislative and policy framework, and discusses the Project's rationale and the pipeline route options.

Part B provides the Inquiry's discussion of the Project and its impacts, including its responses to evidence and submissions. For convenience, it generally adopts the themes used in the EES.

Part C provides the Inquiry's overarching responses to its Terms of Reference, the evaluation objectives in the Scoping Requirements Report and the relevant considerations under the *Pipelines Act*.

The Inquiry's recommendations relate to the 'final day' versions of the Environmental Management Framework (EMF) documents, including the:

- Construction Environment Management Plan (CEMP) Introduction (D168)
- CEMP Appendix H (D159)
- Updates to the Victorian Transmission System (VTS) – Operations Environment Management Plan (D169)
- Environmental Line List (CEMP Appendix G) (D95).

The Inquiry notes that D167 provides a consolidated set of Environmental Management Measures (EMMs) consistent with EES Chapter 19, Tables 19.5 – 19.17.

Changes to the approval documents (including consequential changes) proposed by the Proponent and included in the 'final day' versions are supported unless otherwise recommended.

Discussions and recommendations relating to the pipeline route and construction footprint are based on the Revision 10 mapping book (D30 and 31).

All recommended changes are dealt with by individual recommendations.

The report uses the term 'mitigation measures' as a generic reference to the various actions contained in the EMF.

2 The Project

2.1 Introduction

This chapter provides a high-level overview of the key elements of the Project drawn from the EES documentation, particularly EES Chapter 4. This provides context for the discussion of specific issues in Parts B and C of this report. Readers should refer to the relevant elements of the EES documentation for more specific or detailed information about the Project.

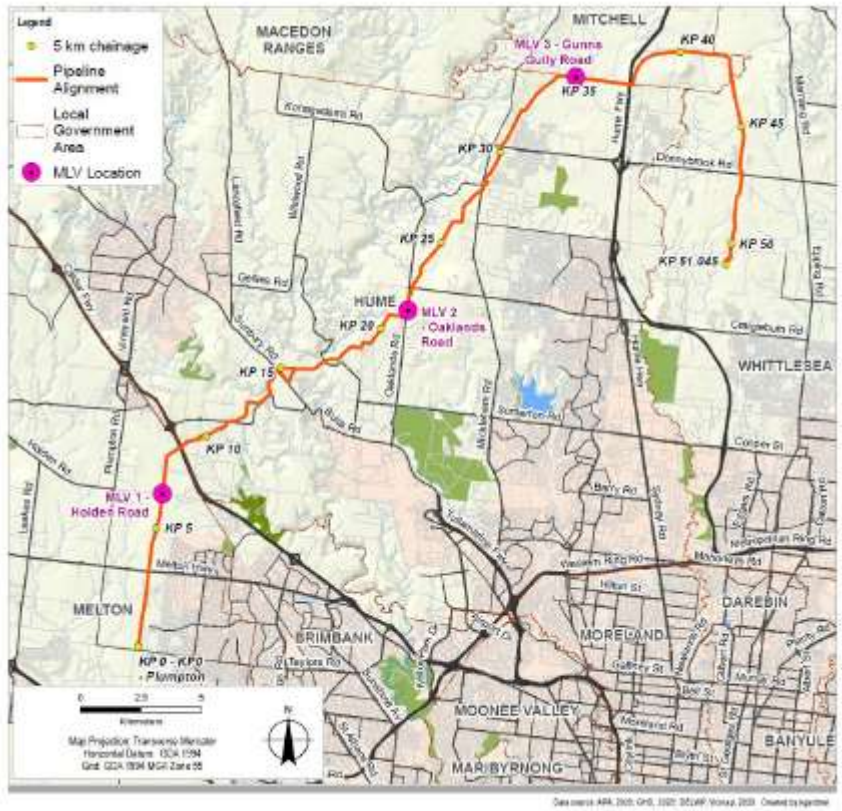
2.2 Project description

The Project provides a new pipeline connection to supply natural gas between the existing Plumpton Regulating Station and Wollert Compressor Station. This connection will link the eastern and western sections of the VTS with a new high-pressure transmission pipeline, bypassing the need for gas travelling to or from the west to travel through the low-pressure Melbourne network.

The Project has three key components identified in Figure 1:

- a new fully buried 51 kilometre pipeline
- three mainline valves (MLV)
- an upgrade to the existing Wollert Compressor Station.

Figure 1 WORM Pipeline route and MLV locations[8]



[8] EES Figure 4-7. Note: (1) Compressor station is located at KP51.045. (2) as this figure is from the EES it shows Revision 7 not Revision 10 explained in section 2.2.1 below

2.2.1 Pipeline

(i) Pipeline route

The proposed pipeline route traverses approximately 51 kilometres from Plumpton to the existing Wollert Compressor Station, passing through the Melton, Hume, Mitchell and Whittlesea local government areas. Approximately 16 kilometres (31 per cent) of the route would be co-located with existing APA gas pipeline easements and approximately 27 kilometres (53 per cent) would be located within or immediately adjacent to the OMR/E6 Public Acquisition Overlay (PAO). Most of the route is either within a green wedge or undergoing various stages of development being subject to current or future Precinct Structure Plans (PSP).

The pipeline route crosses the Melbourne Strategic Assessment program areas (MSA areas) at a number of locations and within those areas crosses two Conservation Areas designated under the Biodiversity Conservation Strategy for Melbourne's Growth Corridors (BCS).

The pipeline route will cross 23 designated waterways and in places will travel across ridgelines to avoid further waterway crossings.

The exhibited EES presented a pipeline route described as 'Revision 7'. This was updated to 'Revision 10'[9] that was included in a request from the Proponent to amend the Pipeline Licence Application[10]. Key differences were:

- construction Right of Way (ROW) locally reduced in response to landowner feedback or to reduce impacts
- construction ROW expanded in other areas to account for the above changes where necessary
- redesign to reflect boring construction technique for Beattys Road (instead of Horizontal Directional Drilling [HDD])
- realignment at Deep Creek at the landowner request to minimise impact on flat land (KP16.3 to 17.3) (refer to Figure 2)
- realignment between KP17.32 and KP18.32 at the request of the landowner to minimise the impact on a dam
- realignment between KP19.24 and 20.88 at the request of DoT to minimise the interface with the OMR/E6 corridor
- removal of potential access tracks from between KP41.16 and KP42.13, as access could be accommodated from the south
- slight increase of construction footprint near and around the Wollert Compressor Station to accommodate the Pipeline Inspection Gauge (PIG) trap construction, allow easier access and accommodate design changes.

This report assesses the Revision 10 route, and all future references to the route are Revision 10, unless Revision 7 is specifically mentioned. Readers should note that many of the 'overview' figures in this report are taken from the exhibited EES which show the Revision 7 route.

[9] Details provided in TN08

[10] The amendment was requested under section 36 of the *Pipelines Act* on 27 August 2021

Figure 2 Pipeline corridor at Deep Creek (orange shows Revision 7, green shows Revision 10 alignment).[11]

(ii) Pipeline design

The pipeline would have a design life of 60 years, although it could operate for longer depending on its integrity. While the EES described and assessed a pipe diameter of 600 millimetres, it was confirmed during the Hearing that the pipe would have a nominal 500 millimetres diameter. The Proponent advised this reduction would not change the outcomes of the exhibited documents as the greater diameter had allowed a conservative assessment of impacts.

The pipeline would be designed in accordance with relevant Australian standards and would be bi-directional, enabling flow in either direction as required.

The pipeline would be buried to a minimum 750 millimetres, with greater cover, of up to 5 metres, in some areas. The required operational easement will be nominally 15 metres, with reductions to 10 metres at locations within the OMR/E6 PAO[12].

The pipeline wall would be thicker where the pipeline traverses an urban environment, sensitive locations, special crossings and possible future urban development as an additional protection measure[13].

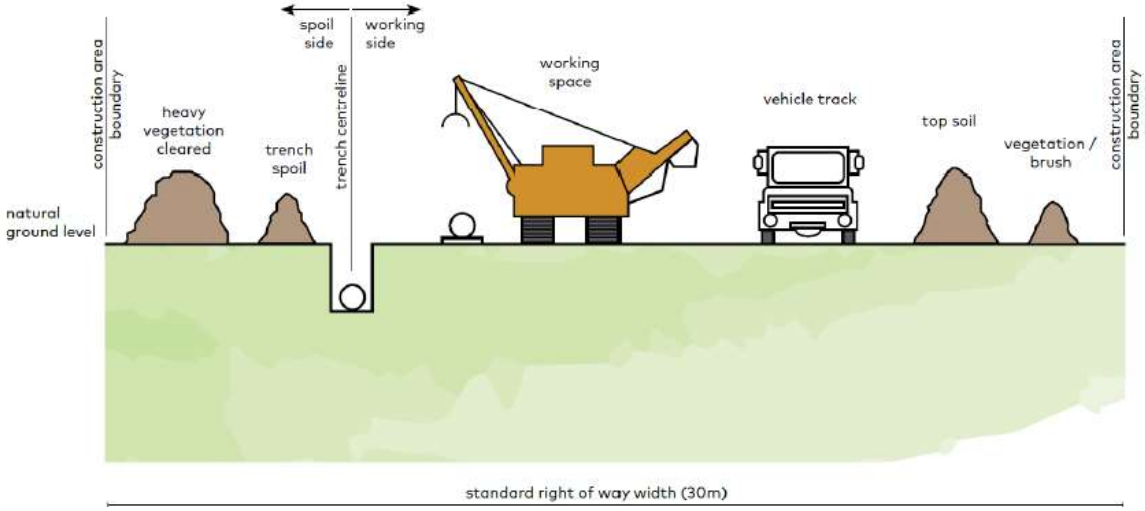
[11] TN08
[12] Identified in Section 2.3 of the CEMP accompanying the Pipeline Licence Application
[13] Section 2.5 of Pipeline Licence Application

(iii) Pipeline construction

The construction ROW will generally be 30 metres wide, with a narrower 20 metre width being used at key sensitive areas. In some areas, the ROW will be wider to enable access tracks, vehicle turning points, work spaces to set up trenchless crossing (including HDD), stockpiling and storage areas.

The typical layout of the ROW is shown in Figure 3.

Figure 3 Typical layout of the construction right of way[14]



Most of the pipeline would be installed via open trenching. In some areas, it would be constructed using trenchless construction techniques such as HDD or horizontal boring, to minimise disturbance.

Areas identified for trenchless construction were as follows:

- HDD would be used at the following roads and watercourses: Melton Highway, Calder Freeway, Sunbury Road (mini-HDD), Deep Creek and Hume Freeway.
- Boring would be used at the following locations: Beattys Road[15], Holden Road, Bendigo Rail Line reserve, Morefield Court, Bulla-Diggers Rest Road, St Johns Road, Oaklands Road, Craigieburn Road, Mt Ridley Road, Mickleham Road, Donnybrook Road (two crossings) and North Eastern Rail Line reserve.

HDD involves drilling from an entry point on one side of the crossing to an exit point on the other. Drilling fluid (typically bentonite) is used to facilitate the insertion of the pipe through the drilled tunnel. The use of HDD is subject to geotechnical, construction and land access constraints.

Shallow horizontal boring (referred to as thrust boring or micro-tunnelling) involves constructing a horizontal bore hole for installing the pipeline. Pipe jacking is another method of boring which involves a hydraulic jack. These methods are not suitable for boring under features, such as major waterways, where a greater depth is required.

The EES included consideration of trenchless crossings for Jacksons Creek and Merri Creek, but determined that it was only appropriate for Deep Creek. A summary of the key considerations for recommending open trenching for each creek crossing was provided as follows[16]:

- Jacksons Creek:

[14] EES Chapter 4, Figure 4-9

[15] Beattys Road was identified as an HDD crossing in the EES. This was revised to boring in Revision 10, as outlined in TN08

[16] Summarised from Table 3-6 of the EES

- geology presents a potential high risk of hydrofracture during HDD
- overbend of pipe required at exit
- additional construction footprint for pipe stringing required in private property currently used for farming.

- Merri Creek:
  - moderate risk of hydrofracture due to geology
  - overbend not expected
  - additional access requirements, either a temporary access track (3.4 kilometres long by up to 10 metres wide) from Beveridge Road using the Victorian Northern Interconnect Expansion (VNIE) easement or, alternatively constructing a temporary access track across Merri Creek for the duration of works between Merri Creek and the North Eastern Rail Line.

At the Hearing, the Proponent advised a temporary access track would be required across Merri Creek in any case (with open trenching as well) to enable access to KP41 to 43 due to the location of the railway line.

(iv) Pipeline testing and rehabilitation

Following construction, the pipeline would be hydrostatically tested for leaks using approximately 10 megalitres of water in total. Water is proposed to be obtained from existing dams or mains water. Depending on the water source, chemicals to control biological growth and corrosion may be added. Water would either be returned to dams or released onto adjoining land.

After further integrity testing using a PIG, the construction area would be rehabilitated in accordance with the Project CEMP, returning the land to its previous use as much as possible. Due to the potential to interfere with the pipeline and impede operational access requirements, tall and deep-rooted vegetation (such as trees) cannot be reinstated along the easement.

(v) Temporary laydown areas

The EES advised that a one off-site temporary laydown and storage area of approximately 200 metres by 200 metres would be required for pipeline works. The location for this had yet to be determined. The exhibited documents indicate that ideally this would be located in a site where it is allowed under existing planning controls, most likely in an existing industrial area. Alternatively, separate approvals would be sought.

The Day 1 version CEMP included a potential additional site to be used for an office and staging area by the contractor. This would likely be proximate to the Metropolitan Ring Road for easy access.

2.2.2 Mainline valve sites

The Project requires three mainline valves (MLVs) to allow for isolation and depressurisation of pipeline sections for maintenance and emergency conditions. MLVs essentially comprise buried and aboveground piping, valves and equipment in a fenced compound with easy road access. The proposed locations of the MLVs are as follows:

- MLV1 located near KP6, co-located with the existing Sunbury Pipeline MLV within a compound of approximately 20 metres by 15 metres. Access would be provided from Holden Road.
- MLV2 located at KP22 would be fully contained within the easement with access from Oaklands Road. The compound would be approximately 12 by 12 metres. The Proponent

proposed changes to the exhibited arrangements including raising the site level by 300 millimetres and relocating it 35 metres to the south[17].

- MLV3 located near KP35 would also be 12 by 12 metres and fully contained within the easement. Access would be provided by Gunns Gully Road. Following exhibition, the Proponent proposed that the site level would be raised by one metre[18].

The precise locations are subject to final design requirements and landowner consultation. A typical MLV is shown in Figure 4.

Figure 4 Typical mainline valve facility[19]

2.2.3 Wollert Compressor Station

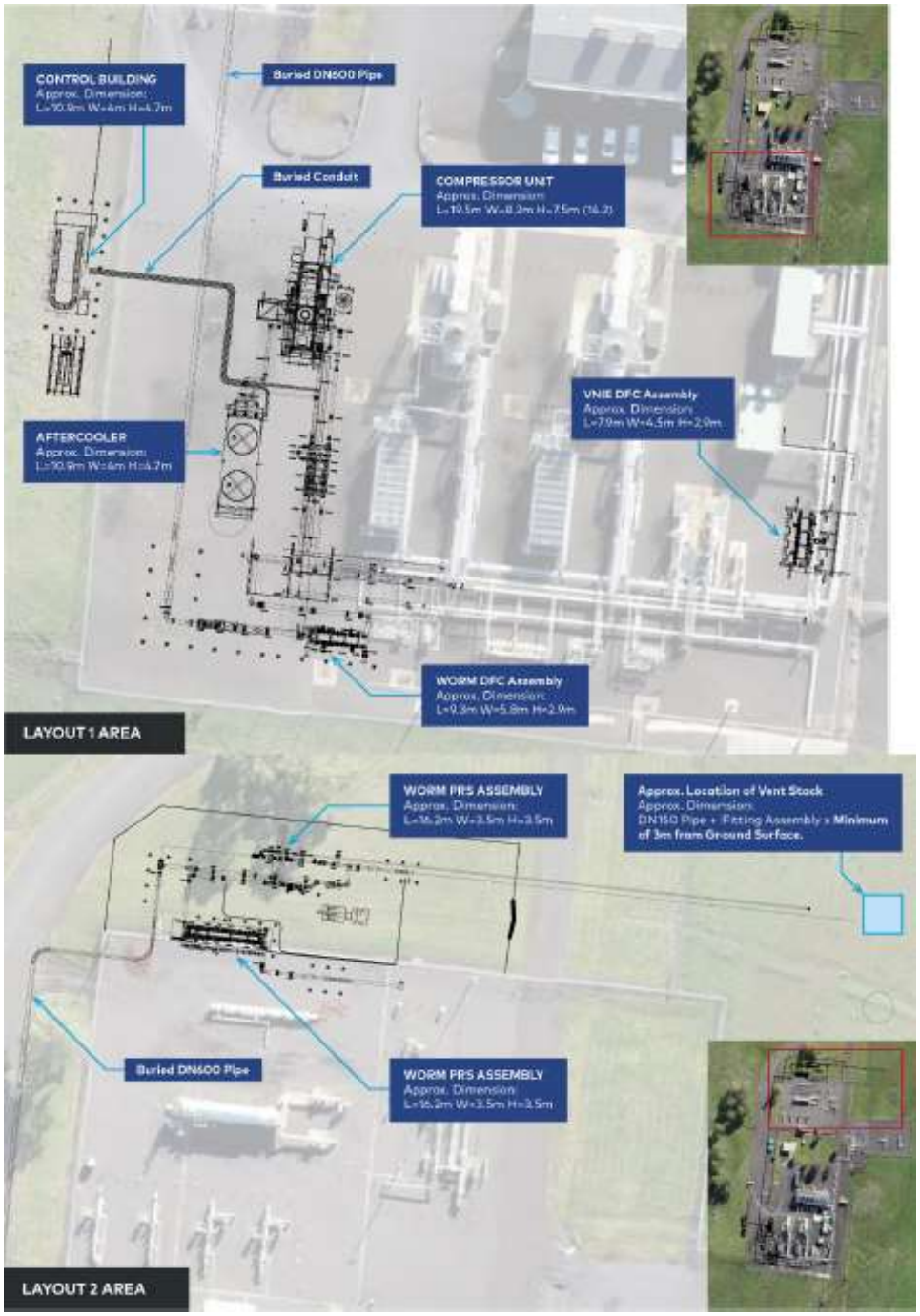
The existing facility located at 289 Summerhill Road, Wollert would be upgraded with the following components:

- Solar Centaur 50 gas turbine driven compressor unit.
- Scraper station required to launch and receive pipeline inspection tools to inspect the pipeline wall.
- Regulating station to enable high pressure gas from the WORM to be delivered at a lower pressure into the existing Pakenham-Wollert pipeline which is designed at a lower operating pressure.

A temporary site laydown area and construction offices would be required for these works. The Wollert Compressor Station site and proposed additional facilities are shown in Figure 5.

17 TN09
18 TN09
19 ESS Chapter 4, Figure 4-6

Figure 5 Wollert Compressor Station site and location of additional facilities[20]



2.2.4 Decommissioning

When the pipeline and associated facilities are no longer required, they would be decommissioned in accordance with the relevant Australian standards and legislative requirements at the time of decommissioning. This would involve consultation with landowners and relevant regulators. The Proponent advised that decommissioning would be subject to separate environmental assessment and did not form part of the EES.

[20] EES Chapter 4, Figure 4-8

3 Legislative and policy framework

Details of legislative and policy context for the Project are set out in the EES, particularly Chapter 5. There are three aspects to the legislative framework:

- environmental assessment
- approvals required to proceed
- instruments to guide Project implementation.

A summary is provided below.

3.1 Environmental assessment

3.1.1 Victorian Environment Effects Act 1978

The *Environment Effects Act* provides for the integrated assessment of projects with the potential for significant environmental effects. In response to a referral, the Minister for Planning determined that an EES would be required and an Inquiry appointed to consider the environmental effects of the Project. The EES was prepared by the Proponent in response to the EES Scoping Requirements Report issued by the Minister for Planning. This is the report of the Inquiry appointed under section 9. The Inquiry report will inform the Minister for Planning's Assessment of the Project under the *Environment Effects Act*.

The Minister's Assessment is not an approval as such, but is an assessment of the environmental effects of the proposal that must be considered by decision-makers in determining approvals required for the Project and any conditions to be imposed.

3.1.2 Commonwealth Environment Protection and Biodiversity Conservation Act 1999

(i) Matters of National Environmental Significance

The *Environment Protection and Biodiversity Conservation Act* provides for the protection of matters of national environmental significance (MNES). The Act provides a streamlined national environmental assessment and approvals process for actions which may potentially have a significant impact on MNES. The Project was referred for consideration due to potential impacts on listed threatened species and ecological communities.

(ii) Melbourne Strategic Assessment

The Melbourne Strategic Assessment (MSA) was a strategic assessment under national environmental law of the expansion of Melbourne's Urban Growth Boundary. It was undertaken pursuant to the *Environment Protection and Biodiversity Conservation Act* in response to future population growth projected in *Melbourne @ 5 million* (Victorian government, 2008). The MSA assessment considered the environmental values that would be impacted by urban expansion and provides for a coordinated approach to compensating and offsetting impacts on biodiversity.

The federal Environment Minister approved four classes of actions under the endorsed MSA, program including urban development in the western, north-western and northern growth corridors. Initially the MSA required developers in the MSA area to pay habitat compensation fees to the Victorian government to fund conservation programs to compensate for impacts under the

endorsed MSA program. This was subsequently replaced by the requirement to pay levies as set out in the *Melbourne Strategic Assessment (Environment Mitigation Levy) Act 2020*.

(iii) Areas inside the Melbourne Strategic Assessment

Parts of the Project are located with the MSA area previously approved under Part 10 of the *Environment Protection and Biodiversity Conservation Act* for development. For these areas, the Proponent advised further approval under the Act was not required.

(iv) Areas outside the Melbourne Strategic Assessment

The Project was determined a controlled action under the *Environment Protection and Biodiversity Conservation Act* (referral number EPBC 2019/8569). The controlling provisions were listed threatened species and ecological communities (sections 18 and 18A). The Victorian EES process is an accredited process for the assessment purposes of the *Environment Protection and Biodiversity Conservation Act* under a bilateral agreement between the Australian and Victorian governments. The Minister's Assessment under the *Environment Effects Act* will inform any approval decision under the *Environment Protection and Biodiversity Conservation Act*.

3.2 Approvals framework

3.2.1 Primary approvals

The key approvals required for the Project to proceed are:

- a pipeline licence under the *Pipelines Act 2005*
- two approved CHMPs under the *Aboriginal Heritage Act 2006*
- approval for a controlled action under the *Environment Protection and Biodiversity Conservation Act*.

(i) Pipelines Act 2005

The *Pipelines Act* is administered by the Minister for Energy, Environment and Climate Change and sets out the process for obtaining a pipeline licence. In addition to detailed requirements for a pipeline licence application (set out in section 30), the *Pipelines Act* provides for public notice and submissions to be made for the Minister's consideration. The Pipeline Licence Application was exhibited jointly with the EES and presented in EES Attachment I.

It was decided under delegation, that the submissions received would be referred to a panel for consideration (under section 38(1)). The Inquiry members were appointed as a panel under section 40 of the *Pipelines Act*. Under section 47, a panel must report to the Minister on the submissions and make a recommendation as to the action that should be taken with respect to the pipeline licence application. This is the report of the Panel consistent with those requirements.

Matters that must be considered by the Minister in determining a licence application are set out in section 49.

(ii) Aboriginal Heritage Act 2006

The *Aboriginal Heritage Act* provides for the protection of Aboriginal cultural heritage in Victoria. A CHMP sets out the results of a cultural heritage assessment of a project area and conditions to be complied with in undertaking the activity. A CHMP is required for all works subject to an EES. The *Aboriginal Heritage Act* sets up a procedure for Registered Aboriginal Parties (RAP) to be established

and recognised as the primary source of advice and knowledge for Aboriginal heritage originating from the area for which they are registered.

3.2.2 Secondary consents

The Project is expected to require a number of secondary consents as described in Table 1.

Table 1 Secondary consents required for the Project to proceed

Activity	Approval or Requirement	Regulator and Act
Pipeline operations	Gas Safety Case (amendment to existing VTS safety case to include the WORM pipeline)	Energy Safe Victoria under the *Gas Safety Act 1997* and regulations
Pipeline operation	Consent to operate	Minister for Energy, Environment and Climate Change under Part 8 of the *Pipelines Act 2015*
Pipeline operation	Environment Management Plan	Minister for Energy, Environment and Climate Change under Part 9 Division 3 of the *Pipelines Act 2015*
Pipeline operation	Safety Management Plan	Energy Safe Victoria under Part 9 Division 2 of the *Pipelines Act 2015*
Removal of protected species if required	Permit to take listed species	DELWP under the *Flora and Fauna Guarantee Act 1988*
Works on waterways	Consent	Melbourne Water under the *Water Act 1989* (Vic)
Works in Conservation Areas identified in the BCS	Works in Conservation Area approval	DELWP pursuant to the MSA Program report
Vegetation removal in the MSA area	Payment of levy were triggered by a defined levy event: - Subdivision of land - Construction of utility on Crown land	DELWP pursuant to the MSA Program report
Vegetation outside MSA Area	Guidelines for the removal, destruction or lopping of native vegetation	Although the *Pipelines Act* exempts the requirement for any planning permits, the Guidelines should be applied or considered in any case
Works within existing arterial road reservations	Consent	Coordinating road authority under the *Roads Management Act 2004*

3.3 Project implementation

3.3.1 Pipelines Act 2015

(i) Construction

A pipeline licence application must contain items listed in section 30 of the *Pipelines Act*, including any matters prescribed by the Pipeline Regulations 2017. In particular, this list includes the following:

> outline of the measures to be undertaken to control, mitigate and manage identified impacts arising from the proposed pipeline and pipeline operation.

To address this, the Proponent submitted various documents, including the proposed CEMP with its pipeline application. The application anticipated these documents would be implemented through a condition on the pipeline licence.

(ii) Operation

The *Pipelines Act* sets out general duties for licensees to manage the pipeline operation to minimise hazards and risks to public safety and the environment, as far as is reasonably practicable (section 124). Guidance for determining what is 'reasonably practicable' is set out in section 125.

An Environmental Management Plan (EMP) must be accepted by the Minister for Energy prior to any pipeline operation (section 134)[21]. The Proponent advised that to facilitate the operation of the Project, it would amend the existing Victorian Transmission System - Operational Environmental Management Plan (VTS OEMP)[22]. The Inquiry was provided with a copy of the existing VTS OEMP (D20) and a copy of proposed amendments in response to the Project (D169). The Inquiry discusses the process for amending the VTS OEMP in Chapter 18.

3.3.2 Environment Protection Act 2017

The *Environment Protection Act* came into effect on the 1 July 2021 (just prior to the public exhibition of the EES), replacing the former Act of 1970. The centrepiece of the new laws is the 'general environmental duty' (GED) which applies to all Victorians. When undertaking any activity which may pose a risk of harm to human health or the environment, there is a general obligation to take all reasonably practicable steps to eliminate or minimise the risk of those harms arising (with elimination the clear preference).

The GED is an ongoing duty and requires continuous consideration of the evolving 'state of knowledge'. The EPA's submission described the 'state of knowledge' as:

> … all the information a person knows or ought to know about identifying, assessing, and controlling the risks and the steps which should be taken to eliminate or reduce those risks. The 'state of knowledge' is dynamic and evolving – it requires the duty holder to assess and consider applying emerging and new methods and technology to identify, assess and control risks to human health and the environment[23].

The *Environment Protection Act* is supported by the Environment Protection Regulations 2021 and the Environment Reference Standard (ERS). The ERS is made up of many 'reference standards'

[21] Regulation 8(1)(a)(viii)

[22] The Inquiry notes that "pipeline operation" is defined (section 5) as meaning the construction or operation of the pipeline. The CEMP would be required by this section of the *Pipelines Act* in any case (that is, absent a condition on the pipeline licence).

[23] S9, page 8

which contain environmental values, indicators and objectives for different components of the environment. The ERS is a reference tool and does not:

- create specific obligations that must be followed;
- set out enforceable compliance limits; and
- describe levels that it is acceptable to "pollute up to"[24].

The ERS forms part of the state of knowledge which also includes information from the following knowledge sources: manuals, safety data, industry body guidance, guidance notes and outcomes from decisions the EPA has made. This means the state of knowledge will evolve with the Project, as time goes on.

While the EES and relevant technical studies anticipated this legislation, some finer details of associated policies were not yet available at the time of drafting the EES. Further, as with any new regime, there remained some uncertainty as to how requirements to demonstrate the GED might be met.

The Proponent submitted the EES and relevant technical reports largely remained current as they were based on a risk-based assessment, consistent with the new GED. Minor changes to the EMMs were made to more clearly refer to the GED, as opposed to identifying previous policies which may have set firm limits (for example, noise limits) under the old regime. These changes were explained in a number of technical notes (TN01 to TN07) and outlined in the Day 1 version documents.

The EPA's submission provided detailed comments as to how the EMF (including the EMMs) could better address the GED. In response to a request from the Inquiry, the EPA presented at the Hearing and provided more detail about the expectations of the GED. In addition, the EPA circulated further written advice and marked up changes to the Day 1 version documents (D121 and 122).

The Inquiry is grateful for the EPA's time and assistance.

[24] EPA Website – How the Environment Reference Standard applies. Accessed at https://www.epa.vic.gov.au/about-epa/laws/epa-tools-and-powers/environment-reference-standard/applying-the-standard on 18 October 2021.

4 Project rationale and alternatives

4.1 Project rationale

4.1.1 Introduction

The Project rationale was discussed in EES Chapter 2. In summary, the rationale is that the Project would provide critical infrastructure that would:

- improve Victoria's gas network capacity and performance, allowing greater volumes of gas to be efficiently transferred and stored
- provide efficiencies in the operation and management of the VTS.

The relevant evaluation objective is:

> **Energy efficiency, security and safety** – Provide for safe and cost-effective pipeline connection between the eastern and western sections of the Victorian Transmission System.

Table 2 lists the evidence that was provided.

Table 2 Project rationale evidence

Party	Expert	Firm	Area of expertise
Proponent	Mr Snow	Oakleigh Greenwood	Energy policy

4.1.2 Key issues

The key issues are:

- The greenhouse gas and climate change impacts of the Project.
- The Project's consistency with Commonwealth and State energy policy.
- The Project's cost effectiveness and safety.

4.1.3 Evidence and submissions

Individual and community group submitters raised concerns about the greenhouse gas and climate change implications of continuing to use natural gas. These submitters supported the increased use of renewable energy and supported investment in that sector rather than non-renewable energy. They highlighted the increasing electrification of the energy sector and the scope for demand-side initiatives to reduce demand for natural gas. They submitted the Project would be inconsistent with that trend.

Darebin Climate Action Now expressed similar concerns and submitted the Project would further entrench gas as a fuel source into the future. It submitted that using natural gas for firming capacity in support of renewable energy was not necessary and referred to its submission to the Help Us Build Victoria's Gas Substitution Roadmap[25] consultation process. It submitted the Project rationale did not consider demand-side measures and the scope to reduce demand. It concluded that the Project's benefits did not outweigh the climate impacts of it proceeding.

The Animal Justice Party expressed concerns about the economic and environmental justification for investing in natural gas infrastructure and submitted the investment should be diverted into

[25] A Victorian Government initiative to provide a strategic framework for decarbonising natural gas in Victoria. The Roadmap is expected to be released in late 2021.

clean energy projects. It provided a range of recommendations related to the use of and investment in natural gas and other fossil fuels.

The City of Hume's (Hume) submission at the Hearing acknowledged *'that need for the Project and evaluation of alternatives to the Project are beyond the terms of reference for this Inquiry*'[26]. Nevertheless, Hume submitted that investment in the Project should be balanced by investment in alternatives, allowing businesses and households to migrate to lower-emission energy alternatives. Hume submitted the design of the Project should anticipate and provide for long-term transition to hydrogen and/or biogas. It noted its Greenhouse Action Plan 2018-2022 provides for transition to renewable energy for municipal infrastructure and facilitating community investment in low-emission technology.

The City of Whittlesea (Whittlesea) submitted the Project rationale does not adequately take into account the Victorian Government's climate change targets under the *Climate Change Act 2017* and its commitment to reducing greenhouse gas emissions by reducing reliance on gas, particularly for residential use. Whittlesea concluded the Project should properly consider how it will assist with meeting the net zero greenhouse gas emissions target and assist suburbs in transitioning away from gas supply.

Friends of the Earth raised concerns about the use of non-renewable energy and submitted the Project would 'lock in' the continued use of natural gas and compromise emission reductions. It submitted the Project rationale did not adequately address demand-side measures that could reduce natural gas demand, particularly during winter peaks. It queried the possible benefits associated with hydrogen distribution and submitted that on-site hydrogen production or dedicated pipelines is the more likely outcome.

Dr Crosthwaite submitted the Project rationale failed to adequately account for demand reduction potential and that the possible benefits of using the pipeline for hydrogen transmission were overstated. He queried the emissions accounting associated with the steel and other materials used for the Project. Dr Crosthwaite submitted additional infrastructure was not needed to 'store' gas and accommodate demand.

Mr Forcey submitted the demand for gas was falling, expanding gas infrastructure would accelerate what he described as the '*gas death spiral*'[27], and energy policy and infrastructure should be focussed on economic and cost-saving gas demand reduction. Mr Forcey focussed on domestic energy consumption and advocated the reduction of gas demand by using renewable heat through heating with air conditioners (heat pumps). He submitted hydrogen was too expensive to compete with heat pumps for home and water heating and concluded that the Project was a bad investment and should not be approved.

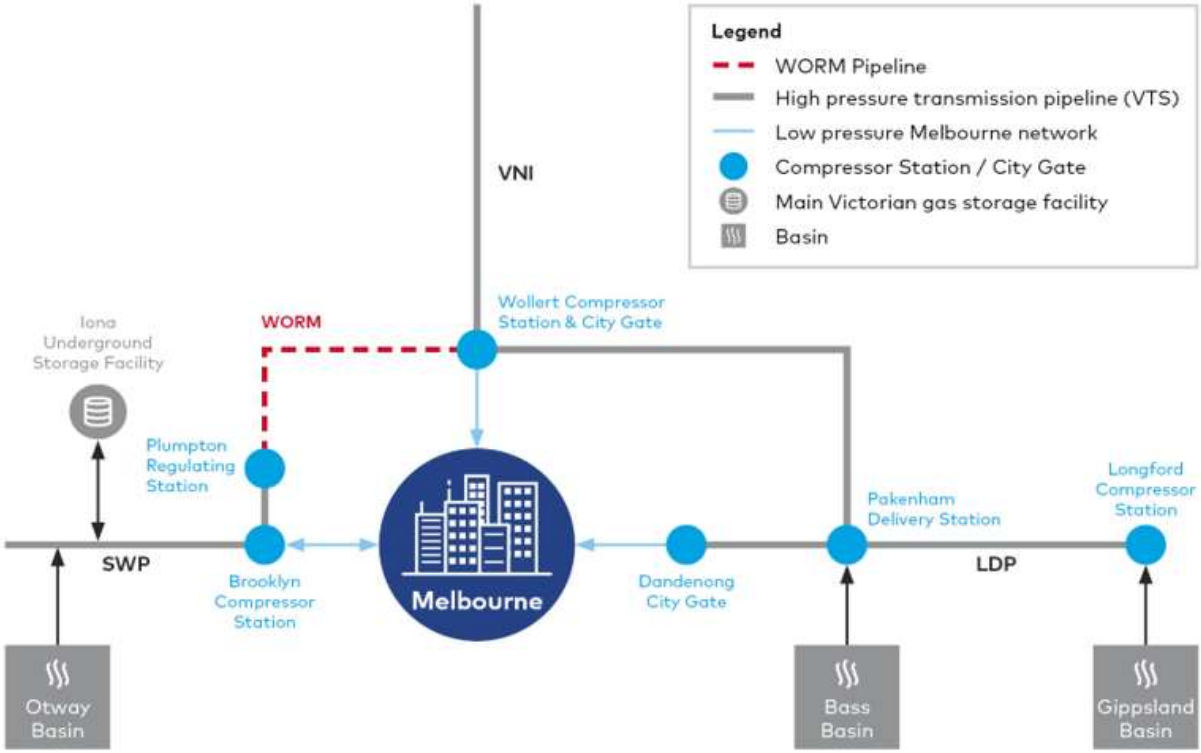
The Proponent relied on the Project rationale explained in Chapter 2 of the EES and the evidence of Mr Snow. The Proponent submitted the Project would be critical to Victoria's short-term energy security by linking the eastern and western sections of the VTS (as shown in Figure 6) and addressing the peak demand gas supply shortages that were projected within two to three years. In summary, the Proponent identified the following 'energy supply' benefits:

- more efficient gas transmission and storage at the Iona gas storage facility
- increased 'line pack' capacity

[26] D148
[27] D129

- provision for projected peak demand supply shortages
- reduced chance of unplanned outages at major gas processing plants by better balancing of gas pressures within the VTS
- improved operational efficiency by adding an additional compressor at the Wollert Compressor Station
- reduced greenhouse gas emissions from the network as a result of operational efficiencies and reduced fuel requirements.

Figure 6 **Victorian gas transmission system**[28]



Mr Snow gave evidence relating to gas infrastructure and the Project rationale, relevant energy policy and Victorian gas industry transition issues and challenges. He cited South Australia as a case study of the role that gas (natural and zero emission gas) can play in the development of net-zero emissions.

Mr Snow outlined the current and projected use of gas within Victoria, including its use for domestic, commercial and power generation use, and its role as a transition fuel in support of decarbonisation policies. In this context, his evidence was that the use of gas as a transition fuel for electricity generation could significantly reduce Australia's greenhouse gas emissions more quickly and affordably.

Mr Snow's evidence supported the Project rationale and highlighted the Project:

- has already been factored into energy transition arrangements
- is consistent with Victorian government energy policy
- is necessary to address Australian Energy Market Operator (AEMO) projections of a natural gas supply shortfall in Victoria in the winter months, from 2024 onwards
- will provide an appropriate energy mix, including the potential for zero emission gases

[28] EES Chapter 2, Figure 2.6

- will facilitate more effective use of the Iona gas storage facility, including its possible use for zero emission gases
- will provide greater flexibility and efficiency in gas transmission.

Mr Snow gave evidence the Project is consistent with the Victorian *Climate Change Act*, while noting the Victorian net-zero target will mean that natural gas use will be significantly abated over time. He referred to the recent Help Build Victoria's Gas Substitution Roadmap - Consultation Paper that identified '*Maintaining the reliability, affordability and safety of gas supply*' as a key issue.

The Consultation Paper noted:

> Given the reliance on gas in Victoria, gas will continue to play a role in meeting Victoria's energy needs for years to come. Until such time as renewable and zero emissions alternatives become available at scale and are embraced by the market, it is important to maintain a reliable supply of affordable gas[29].

In relation to the Project, the Consultation Paper noted:

> The expected completion of the Western Outer Ring Main in 2022, a proposed 50-kilometre buried transmission gas pipeline to connect existing pipelines in Melbourne's west and north, will help to alleviate current constraints in Victoria's south-west pipeline and improve the ability to refill the Iona Underground Storage facility[30].

Mr Snow noted the Consultation Paper acknowledges the transitional issues related to ensuring an affordable (natural) gas supply and meeting customer demands, particularly in light of AEMO projections about gas supply shortages.

Mr Snow indicated that gas supply and infrastructure development is a key Commonwealth policy focus and highlighted various initiatives and programs that are relevant to the Project and the broader issues associated with decarbonisation and the use of fossil fuels. He noted the support for the transitional use of gas in what he described as the '*Gas fired recovery*'[31]. He also noted that the National Gas Infrastructure Plan: Interim Report[32] identified the Project as part of the South West Pipeline expansion '*Critical Infrastructure Priorities*' and described it as '*a planned augmentation of the Victorian Transmission System*'[33]. Mr Snow advised that the Project rationale had either been explicitly acknowledged in energy policy or was consistent with the intent of policy.

Mr Snow's evidence concluded that the rationale was '*based on the very real need to keep gas supplies flowing in order to meet the current levels of demand until the transition can occur*' and that this transition, '*largely driven by decarbonisation policies, will not be quick due to investment and other timing constraints, and specifically over the next 10 to 15 years will still have a very high reliance on the gas infrastructure to meet demand*'[34]. He added '*Trying to transition too early to electricity for example would also increase greenhouse gas emissions significantly as the electricity grid itself is still 75% dependent on fossil fuel generation[35].*'

Mr Snow concluded his presentation at the Hearing with the following observations:

- It is also seen in the AEMO analysis that the WORM construction is a given in that analysis, a base line assumption, and the Australian Energy Regulator has approved its construction after a rigorous review of its prudency.

[29] Help Build Victoria's Gas Substitution Roadmap - Consultation Paper, page 42
[30] Help Build Victoria's Gas Substitution Roadmap - Consultation Paper, page 43
[31] Gas-Fired Recovery, Media Release, Prime Minister, Minister for Energy and Emissions Reduction, Minister for Resources, Water and Northern Australia, 15 September 2020
[32] Commonwealth Department of Industry, Science, Energy and Resources, 2021
[33] National Gas Infrastructure Plan Interim Report, 2021
[34] D64, page 5
[35] D64, page 5

- While the approval of gas infrastructure may seem at odds with a policy goal of decarbonisation there are good reasons why this is not the case and it may be a major support, and
- Whilst the transition to a net zero emissions energy system in Victoria is in progress there is a critical need to maintain a reliable supply of both electricity and natural gas (as recognised by the Victorian Government). This is even more critical for business consumers, and hard to abate industries that operate in Victoria.
- It is also very important given the options for decarbonisation involve significant renewable electricity generation and a critical need for effective very deep storage of renewable electricity not to foreclose too early on any of those options.
- The WORM expansion would materially assist for example, in most cases, a zero emission gas solution, which is still very much in contention competitively and being actively supported by all policy makers at this time[36].

The Proponent relied on Mr Snow's evidence and argued the Project was consistent with the 'energy efficiency, security and safety' evaluation objective. Its overarching conclusions were that:

- The Project is critical to Victoria's short-term energy security.
- The Project is consistent with decarbonisation policy and likely to make a valuable contribution to achieving decarbonisation.
- Impacts will be limited and acceptable.

4.1.4 Discussion

(i) Scope of the Inquiry's considerations

There was discussion during the Hearing and in submissions about the role of the Inquiry in assessing the Project rationale in terms of climate change and greenhouse gas impacts. The Proponent, for example, highlighted the observation made in the Crib Point Inquiry, Advisory Committee and Panel (IAC) report[37], that the IAC was required to assess that project in light of existing policy, rather than review that policy or anticipate future policy.

Hume submitted that the need for the Project was beyond the scope of the Inquiry's Terms of Reference.

Other submitters who raised concerns about the greenhouse gas and climate change issues, opposed the use of natural gas and the provision of infrastructure (such as this project) that would support its continued use. These objections were largely based on matters of broad principle, including greenhouse gas emission targets, rather than detailed analysis of the existing policy framework and the extent to which the Project was consistent with that framework.

While the Inquiry acknowledges the widely held concerns about the greenhouse gas and climate change issues, it is required to assess the Project in the context of existing policy.

Related issues raised by submitters, such as greenhouse gas emissions directly attributable to the Project's construction and operation are discussed in Chapter 10.

(ii) Energy policy

The Inquiry acknowledges the extensive array of State and Commonwealth energy and climate change policy and actions that are relevant to the Project. It acknowledges the Project has been

[36] D94, page 31

[37] Inquiry, Advisory Committee and Panel Report No 1, Crib Point Gas Import Jetty and Crib Point – Pakenham Gas Pipeline, 22 February 2021

through various assessment and review processes by market regulators and planners. In this context, Mr Snow's evidence was helpful in understanding where the Project sits within the broader policy framework and how it has informed recent energy and infrastructure planning.

The Inquiry accepts the Project is consistent with State and Commonwealth energy policy, particularly as a transition fuel and a means of providing firming capacity as further renewable energy sources are brought on-line. However, it acknowledges that it is difficult to predict the extent of this role over the longer-term in light of evolving policy responses, demand/supply factors and technological advances. This was highlighted by Dr Crosthwaite and Mr Forcey who noted the possible impacts of demand management strategies and alternative technologies on projected gas usage.

While acknowledging these uncertainties, the Inquiry is satisfied that the continued use of natural gas and the development of gas infrastructure, including this project, have broad policy support. This is reflected in a range of policies and documents, including the recent Gas Substitution Road Map – Consultation Paper which highlights the need for gas supply reliability and foreshadows the contribution the Project would make to alleviating current constraints in Victoria's south-west pipeline and improving the ability to refill the Iona gas storage facility.

The Proponent, Mr Snow and some submitters discussed the pipeline's potential to carry zero-emission gases, including hydrogen. Some submitters did not believe that this was a likely or realistic outcome, although the Proponent and Mr Snow were more positive about these possibilities. The Inquiry accepts Mr Snow's evidence that the pipeline would have the potential for transmitting zero-emission gas, although this seems to be a far from certain proposition, and as such is not a key factor in the Inquiry's assessment.

(iii) Cost effectiveness

The evaluation objective requires an assessment of the Project's 'cost effectiveness'.

The Proponent submitted the Project would improve the operational cost-effectiveness of the VTS through a significant reduction in the amount of fuel used to transfer gas within the system. This increased efficiency was estimated to reduce the operating costs of the VTS by approximately $3 million per annum.

The Proponent referred to the application and business case for the Project that were lodged with the Australian Energy Regulator (AER), which approved the Project in November 2017. The approval noted the Project would provide capacity and security across the VTS and address gas pipeline constraints.

The Inquiry accepts that the efficiency improvements in the VTS and the AER approval of the 'business case' for the Project are relevant factors in demonstrating cost effectiveness. However, whether or not the Project is cost effective will be a matter for the Proponent and subject to the range of variables that will affect that investment decision. Subject to this caveat, the Inquiry is satisfied that the Project is consistent with the 'cost effectiveness' element of the evaluation objective.

(iv) Safety

The evaluation objective requires an assessment of the Project's safety.

Safety issues are discussed in Chapter 17, where the Inquiry concludes there are no safety issues that would preclude the Project proceeding.

4.1.5 Findings

The Inquiry finds:

- The Project rationale must be considered in the context of existing energy policies and it is not the role of the Inquiry to review those policies.
- Commonwealth and Victorian government energy policies support the continued use of gas, particularly as a transition fuel to renewable energy sources.
- The Project rationale is consistent with Commonwealth and Victorian government energy policies.

4.2 Alternative pipeline routes

4.2.1 Introduction

The Scoping Requirements Report required the EES to document the Proponent's process that led to the preferred project design. This included a description of alternatives considered in the design process, including alternative pipeline routes. These matters are principally addressed in Chapter 3 of the EES.

Some submitters raised site specific issues associated with the pipeline alignment and sought changes or refinements. These are discussed in the relevant chapters in Part B of this report. One submitter opposed the preferred alignment and submitted that an alternative route should have been adopted. The Inquiry discusses the assessment of the route options and the selection of the preferred route below.

4.2.2 EES evaluation of alternative pipeline alignments

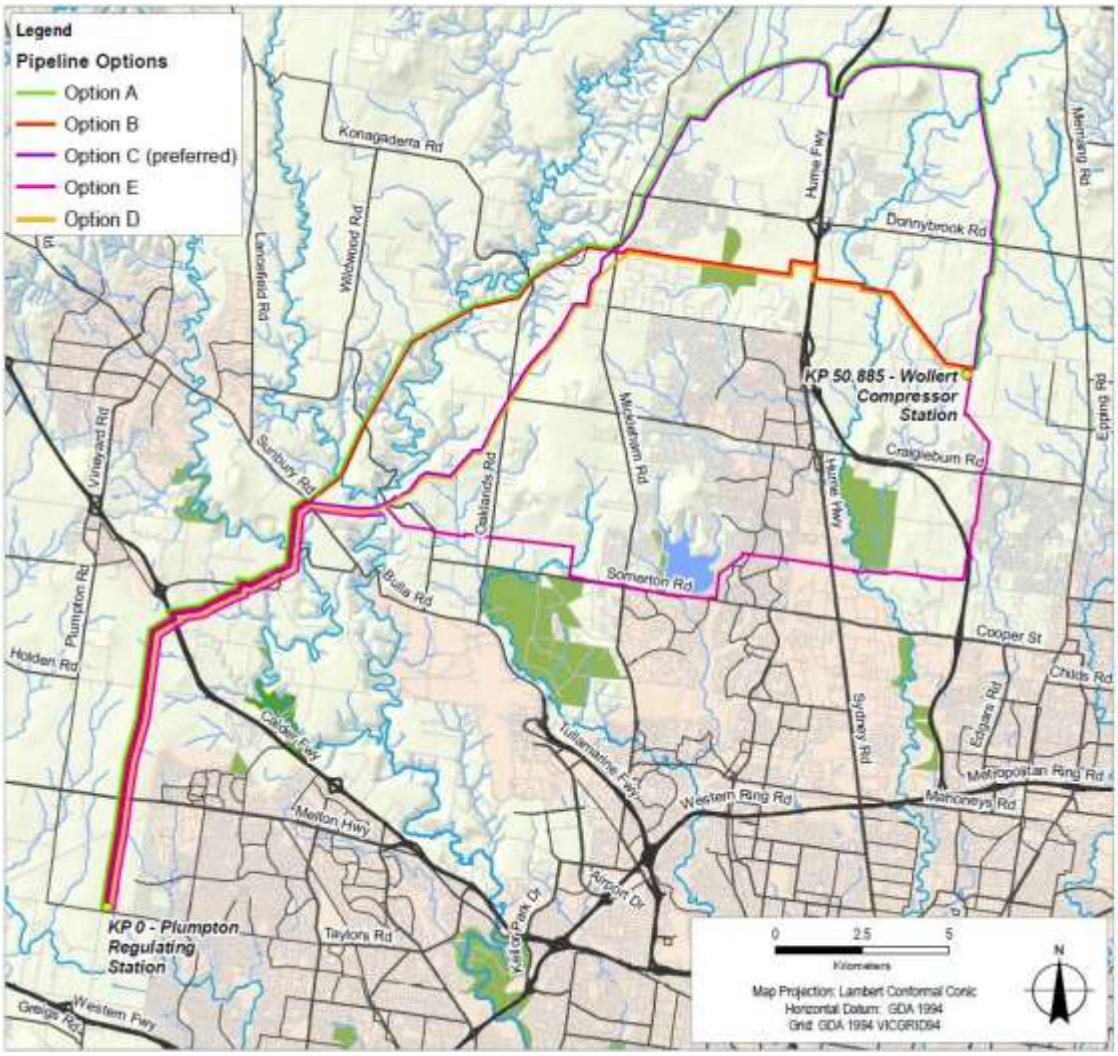
The EES noted that route options have been under consideration since 2007 and have been the subject of discussion with AER and AEMO since 2012. As part of the business case submission to the AER discussed earlier, the Proponent identified four route options, including a preferred route. In response to increasing urban development within the study area, the Proponent undertook further detailed site investigations over 2018 and 2019, leading to the identification of the five route options shown on Figure 7.

The options were assessed through a multi-criteria analysis (MCA) assessment approach based on qualitative and quantitative evaluation criteria. The assessment process is documented in the APA Route Options Report 2019, available on the Project website. The MCA process identified Option C as the preferred route alignment because:

- It achieves strong alignment with the objectives of the Pipeline Act and EE Act
- It avoids environmental impacts to the greatest extent possible, particularly to areas of high biodiversity value including the Mount Ridley Nature Conservation Reserve, adjoining MSA conservation areas and Merri Creek
- It avoids requiring land tenure or direct location on properties with established residential, industrial or conservation uses and it traverses a lower number of properties than other options

- It minimises location within existing high-voltage transmission easements which would add design, construction and operational complexity to the Project[38].

Figure 7 Pipeline route options[39]



Option C was the subject of further review and refinement through stakeholder consultation, resulting in various changes documented in the EES. This option then formed the basis of the preferred route in the EES and is described as Revision 7 in the EES and associated documents. Following further discussions with stakeholders, the Proponent proposed additional refinements to the route (described as Revision 10) that were included in a request to amend the Pipeline Licence Application[40]. The Revision 10 Mapbook was appended to TN08 (D29, 30 and 31) and was the alignment generally referred to in submissions and evidence during the Hearing.

4.2.3 Evidence and submissions

The Proponent outlined the route selection process and relied on the evidence of various experts who generally supported the proposed route. Mr Bromhead, for example, reviewed the route options and the basis for selecting Option C. He concluded Option C was an appropriate 'planning'

38 EES Chapter 3, page 16
39 EES Chapter 3, Figure 3-3
40 The amendment was requested under section 36 of the Pipelines Act on 27 August 2021

outcome and consistent with relevant pipeline planning considerations, including the avoidance of areas of sensitivity and potential land use conflict.

JII Investment Pty Ltd (JII Investment) submitted the assessment of route options was inadequate, and Option C was not the best outcome having regard to the assessment criteria. It submitted the alignment with the OMR/E6 PAO did not provide any significant benefit because of the difference in construction timing. The submission did not include a comparative assessment of the exhibited route and any alternatives.

4.2.4 Discussion

The Inquiry's role is to review the exhibited route (including the Revision 10 changes) and assess whether it is acceptable, consistent with its Terms of Reference and the evaluation objectives in the Scoping Requirements Report. Although it is open to the Inquiry to reject the exhibited alignment or recommend further revisions, it is not the Inquiry's role to review the other options or to form a view about what might be the best option.

Nevertheless, the Inquiry notes that the selection and assessment of route options involved a lengthy and detailed process. It is satisfied the MCA assessment was adequately rigorous and considered, and provided a sound basis for selecting Option C as the preferred route. As the Proponent noted, Option C was selected despite being the longest route (almost 12 kilometres longer than then shortest option) and the second costliest option. The Inquiry is satisfied the location of supporting infrastructure, including the MLVs, is appropriate.

4.2.5 Findings

The Inquiry finds:

- The assessment of pipeline route options in the EES and other background documents is acceptable.
- The proposed alignment (Option C) is a legitimate option that warranted detailed assessment.

PART B: ENVIRONMENTAL EFFECTS OF THE PROJECT

5 Biodiversity and habitats

5.1 Introduction

Biodiversity and habitat effects are discussed in EES Chapter 7 and Technical Report A. Additional material was provided in TN07, TN08, TN15, TN16, TN31 and TN33.

Table 3 lists the biodiversity and habitat evidence that was provided.

Table 3 Biodiversity and habitat evidence

Party	Expert	Firm	Area of expertise
Proponent	Ms Dalton	GHD	Fauna
Proponent	Ms Comber	GHD	Flora
Proponent	Mr Dunk	Nature Advisory	Biodiversity (peer review)

The relevant Scoping Requirements Report evaluation objective is:

> **Biodiversity and habitats** – Avoid and minimise potential adverse effects on native vegetation, listed threatened and migratory species and ecological communities, and habitat for these species, as well as restore and offset residual environmental effects consistent with state and Commonwealth policies.

The key environmental risk to be addressed by the EES was:

- Effects on biodiversity and ecological values within and near the site, associated with adjacent road/rail reserves, conservation and riparian areas, including native vegetation; ecological communities and species of flora and fauna listed under the *Flora and Fauna Guarantee Act 1988;* and other habitats or protected species.

The EES proposes the following EMMs to manage the biodiversity and habitat impacts of the Project:

- Vegetation and tree management (B1, B16 and B23)
- Weed, pest animal and pathogen control (B2)
- Contractor awareness (B3)
- Groundwater dependent ecosystem mitigation (B4)
- Lighting and noise impacts on fauna (B5 and B6)
- Site rehabilitation (B7 and B15)
- General and specific fauna species management (B9, B17, B18 to B22).

Following further review of the EMMs, submissions and evidence, the Proponent proposed the following changes:

- Change the language in B4, B8, B9, B10, B11, B22 and B23 from avoiding 'impacts' to avoiding 'risk of harm', consistent with the EPA's submissions.
- Add a requirement to B15 for a Site Restoration Plan for revegetation of native vegetation to be verified by a bushland restoration land management contractor.
- Amend B15 to specifically require its application to all of the construction corridor in the property to the north of Craigieburn Road, not just the area mapped as native vegetation.
- Amend the proposed management and mitigation measures for striped legless lizard in B20.
- Amend B21 to:

  - avoid scheduling construction in Jacksons Creek during the peak breeding period of growling grass frog (as opposed to peak active period which was longer)
  - provide contingency measures in case construction in Jacksons Creek was to occur between January and March.
- Amend B22 to provide contingency measures in case construction was to occur between September and March. The exhibited version had required this period be avoided if the presence of burrows could not be avoided.
- Include a new B24 to require implementation of the Offset Management Plan.

These changes are reflected in the final day documents provided by the Proponent.

5.2 Key issues

The key issues are:

- The adequacy of the flora surveys.
- The accuracy of the native vegetation characterisation.
- Whether the Project appropriately avoided native vegetation impacts.
- The significance of flora and native vegetation impacts.
- The appropriateness of the proposed measures to mitigate impacts on significant fauna species.
- The adequacy of the proposed rehabilitation measures.
- The provision of suitable offsets and the regulatory mechanism for this to be implemented.

5.3 Adequacy of flora surveys

5.3.1 Background

The EES reported the Project area contains suitable habitat for 19 flora species listed under the *Environment Protection and Biodiversity Conservation Act* and 30 flora species listed under the *Flora and Fauna Guarantee Act*[41]. However, targeted field surveys identified only two *Environment Protection and Biodiversity Conservation Act* or *Flora and Fauna Guarantee Act* listed flora species (matted flax-lily and tough scurf-pea)[42]. Two *Environment Protection and Biodiversity Conservation Act* listed Threatened Ecological Communities and two *Flora and Fauna Guarantee Act* Act-listed threatened communities were recorded in the Project area.

The EES outlines the methods employed to characterise and assess the vegetation in the Project area, starting with broad desktop reviews of available databases and aerial photography, progressing to rapid field assessments and ending with detailed field surveys on foot. Likelihood of occurrence assessments were undertaken for each threatened species or community and migratory species identified as potentially occurring through the desktop assessments. The likelihood of occurrence assessments considered whether the species or community was likely to occur within 5 kilometres of the Project area.

Where the Revision 7 alignment differed from the 2019 Project area, any areas previously not surveyed were surveyed (subject to access). In total, three parcels of land outside the MSA were

[41] EES page 7-9
[42] EES page 7-10

not surveyed due to lack of access (at KP9, 11 and 32). In each case, these parcels were able to be assessed 'over the fence' from adjoining properties with a high degree of certainty as to the extent of vegetation. In the case of areas inside the MSA, 13 parcels were unable to be surveyed and for them, timestamped data was used.

Three *Environment Protection and Biodiversity Conservation Act* listed plant species (hoary sunray, maroon leek-orchid and swamp everlasting) were excluded from initial targeted surveys based on the assessment of likelihood of occurrence. In its referral decision, the Department of Agriculture, Water and the Environment (DAWE) considered the Project may have a significant impact on these species and further investigation was warranted. Biosis and subsequently GHD undertook further analysis and deemed the species as highly unlikely to occur[43]. DAWE subsequently advised additional assessment was not required if reasonable assessment had been undertaken at a desktop level[44].

Further details of site investigations were provided in section 7.2 of Technical Report A Biodiversity and Habitats.

5.3.2 Evidence and submissions

The Grassy Plains Network raised concerns with the adequacy of surveys and submitted that due to the approach taken, some biodiversity values would not have been identified. In particular, it submitted field surveys were required for hoary sunray, maroon leek-orchid and swamp everlasting, as desktop assessments are unreliable. It further submitted the rapid field assessment approach from road reserves (that is, looking over fences from a car) is inadequate to identify anything of significance.

Ms Dalton and Ms Comber gave joint evidence that rapid assessments were only a part of a series of investigations. These surveys were employed early in the process *'as a tool to gain a broad understanding of the extent of 'uncultivated', 'previously cultivated' or 'cultivated' land, to inform the requirement for more detailed vegetation surveys'*[45]. In relation to the hoary sunray, maroon leek-orchid and swamp everlasting, the joint evidence statement provided that desktop surveys were not the only determinant for considering these species to be 'unlikely to occur'. Herbarium records and ecological reports were assessed together with field assessments that *'built up an on-ground understanding of habitat quality along the alignment and its potential to support these species – i.e., not a desktop method'*[46]. It was confirmed by DAWE that additional assessment was not required for these species.

Mr Dunk's peer review initially identified that swamp everlasting may occur within or near the Project area due to previous records of this species within 10 kilometres of the Project area. Considering the additional investigations undertaken following the request from DAWE, Mr Dunk was satisfied the species had been adequately considered.

5.3.3 Discussion

Technical Report A is comprehensive and includes all surveys that were undertaken, including desktop, rapid assessment, through to detailed foot surveys walking in transects. The Inquiry is

43 EES Technical Report A page 56
44 EES Technical Report A page 94
45 D68, section 4.1.3
46 D68, section 4.1.9

satisfied the nature and totality of all surveys undertaken and evidence was comprehensive and appropriate to identify significant biodiversity features.

5.3.4 Findings

The Inquiry finds:

- the biodiversity surveys were appropriate.

5.4 Adequacy of native vegetation characterisation

5.4.1 Background

Mr Dunk undertook a peer review of the EES assessment of terrestrial and freshwater ecology, which was appended to his expert witness statement. As part of this review, Mr Dunk and his associates undertook an on-ground audit of the native vegetation mapping and fauna habitat and likelihood of occurrence of listed fauna species. The purpose of this was to determine whether the EES[47] had adequately and accurately fulfilled various requirements for assessment of impacts and comprehensively addressed corresponding regulatory obligations. Mr Dunk's site inspections were conducted over three days from 18 to 20 August 2021 and encompassed all key and accessible locations of the Project area outside the MSA. These areas are listed in the peer review.

Mr Dunk's audit of native vegetation mapping identified nine instances of discrepancies compared with Technical Report A[48], including:

- areas where patches were no longer considered native vegetation or the extent of native vegetation was considered to be reduced (KP11, 19 to 20 and 32)
- a patch considered greater than mapped, however the larger area was outside the Project area (KP8)
- a patch considered greater than mapped in the vicinity of the Deep Creek crossing (KP17)
- patches that were not considered to qualify as *Environment Protection and Biodiversity Conservation Act* threatened ecological community (KP11, 19 to 20 and 21)
- both properties north (1/PS733045) and south (1/PS733043) of Craigieburn Road were considered to qualify as native vegetation and mostly as *the Environment Protection and Biodiversity Conservation Act* threatened ecological community of Grassy Eucalypt Woodland of the Victorian Volcanic Plain and not Natural Temperate Grassland of the Victorian Volcanic Plain.

In light of the discrepancies, the Inquiry questioned whether further work was required to finalise the calculations of native vegetation impacts and offsets.

5.4.2 Evidence and submissions

Prior to the Hearing, Mr Dunk provided an Addenda to his evidence statement regarding the discrepancies identified in the properties either side of Craigieburn Road.

He clarified that he had initially misunderstood the provided mapping, but that he and GHD were in agreement regarding the vegetation south of Craigieburn Road being Grassy Eucalypt Woodland of the Victorian Volcanic Plain. In relation to the extent of vegetation on the northern property, Mr

[47] Specifically Technical Report A
[48] Shown in Figures 1-1 to 1.9 Appendix A to the Peer Review

Dunk advised it had been drawn to his attention that the pipeline route through this property had been re-aligned based on fine-scale mapping of the native vegetation. He gave evidence that:

> Although most of the property can be broadly classified as native vegetation under the Guidelines, and qualifies as GEWVVP, it is possible to delineate areas within this that in isolation do not meet the definition of a patch of native vegetation (and consequently the listed community)[49].

Mr Dunk considered the finer grain analysis and mapping was an accurate approach from a regulatory viewpoint. He considered there would still be native vegetation within this corridor and impacts would still result in fragmentation. To this end, he recommended rehabilitation measure EMM B15 specifically reference the property identification (1/PS733045) so that native rehabilitation measures would apply to the whole of the construction corridor in the land parcel (not just the area that was mapped as native vegetation).

Ms Dalton considered it appropriate for EMM B15 to be expanded in this manner.

In relation to the other differences observed in native vegetation characterisation, Mr Dunk gave evidence these were reasonable given the *'highly changeable nature of grassland vegetation (seasonally, with management, grazing pressure and in response to weed invasion or biomass density), as well as the known variability that assessors demonstrate in surveying grassland vegetation'*[50]. He summarised:

> Discrepancies were mostly minor and included either reduced patch extent or grassland no longer being present at 25 per cent of perennially cover due to weed invasion (especially Chilean Needle-grass) or, less commonly, additional or larger patches[51].

Mr Dunk's expert witness statement recommended impacts and offsets be reassessed when the Project was finalised, including incorporating '*any impacts to the additional native vegetation mapped as Plains Grassy Woodland as shown in Figure 1-4 of the Peer Review'*[52].

In response to the Inquiry's question, Mr Dunk replied the minor discrepancies were reasonable, to be expected and stood to support the validity of the original assessments. In short, further assessment was not required. Mr Dunk explained that due to the changing nature of vegetation, native vegetation assessments are only valid for three years.

The Proponent submitted the very small deviation between results from Mr Dunk and the original assessment of existing conditions by GHD, demonstrated the thoroughness of the assessment and confirmed that this work should be endorsed.

5.4.3 Discussion

The Inquiry accepts the evidence that discrepancies in native vegetation mapping were minor and there was a high level of agreement between experts as to the mapping and classification of native vegetation.

The Inquiry accepts Mr Dunk's evidence that further assessment is not required unless the Project is substantially altered or delayed. The Inquiry understands the alignment is significantly progressed and further changes are unlikely.

As Mr Dunk's evidence identified some additional native vegetation, the state of knowledge of this vegetation has progressed and it is appropriate that this additional native vegetation be included in

[49] Addendum to D105
[50] D69, page 19
[51] D69, page 19
[52] D69, page 5

assessments of impacts and assessments. Mr Dunk's expert witness statement refers to Figure 1-4 of the peer review. The Inquiry has noticed additional native vegetation also identified by Mr Dunk in Figure 1-2 and recommends this be added.

The Inquiry agrees with the evidence that changes should be made to EMM B15 to ensure the whole of the construction corridor within the land parcel north of Craigieburn Road is rehabilitated. Draft wording was provided in the Proponent's final day version of the CEMP EMMs. For clarity, the Inquiry has recommended some minor changes to the wording.

5.4.4 Findings

The Inquiry finds:

- Native vegetation has been adequately characterised.
- Additional areas of native vegetation identified by Mr Dunk should be added to native vegetation calculations for impacts and offsets.
- EMM B15 should be expanded to apply to the whole of the construction corridor within the land parcel to the north of Craigieburn Road and not limited to the mapped native vegetation in this area.

5.4.5 Recommendations

The Inquiry recommends:

Environmental Management Measures

Amend EMM B15 to replace the second sentence with:

> ***Prepare a Site Restoration Plan(s) for revegetation of native vegetation within the construction corridor (including the whole of the construction corridor in Property 1/PS733045). The plan(s) shall be prepared in consultation with each landholder and in accordance with any agreement made as part of easement negotiations.***

Ecological Offset Strategy

Amend the Ecological Offset Strategy to include impact and offset calculations for the additional areas of native vegetation identified in Figures 1-2 and 1-4 of Mr Dunk's Peer Review of Terrestrial and Freshwater Ecology at Appendix 4 of Document 69.

5.5 Flora and native vegetation impacts

5.5.1 Background

(i) Relevant policies, strategies and studies

The *Guidelines for the removal, destruction or lopping of native vegetation* (NV Guidelines) seek to ensure no net loss to biodiversity through the three-step process of avoid, minimise and offset.

The *Ministerial Guidelines for Assessment of Environmental Effects under the EE Act 1978* (DELWP, 2007) describes a significant effect as an environmental effect of regional or State significance. Criteria for referring a project includes, as an example, the potential clearing of 10 hectares or more of native vegetation from an area that is an Ecological Vegetation Class (EVC) identified as endangered.

(ii) Exhibited documents and updates provided during the Hearing

Native vegetation impacts

This section discusses the exhibited documents and revised versions provided during the Hearing as indicated in footnotes. The native vegetation to be impacted by clearing has multiple values and attributes, including patches of EVCs, threatened ecological communities and native vegetation in designated Conservation Areas within the MSA.

Expected impacts are summarised in Table 4.

Amendments to the Project alignment between Revisions 7 and 10 resulted in changes to the impacts assessed in the EES. In some places there was a reduction in native vegetation clearance and in other places there was an increase. Changes since the EES are indicated in brackets in Table 4.

Proposed native vegetation removal included the pipeline construction ROW and additional areas required for construction, including pipe stringing areas associated with HDD and access tracks required for machinery. Off-site laydown areas have not been identified or included.

Impacts within the MSA

According to the *Melbourne Strategic Assessment (Environment Mitigation Levy) Act 2020,* impacts within the MSA trigger an offset (by means of levy payment) in certain circumstances. Relevant triggers for this Project are clearance of Crown land and subdivision. TN16 provides the Project's leviable extent is 2.93 hectares.

Works in Conservation Areas

The pipeline route will impact on native vegetation in two BCS Conservation Areas[53]:

- Conservation Area 34a – Northern Growth Corridor; growling grass frog corridor (between KP42 and KP43). This area protects important populations of growling grass frog and provides habitat connectivity.
- Conservation Area 28b – Summerhill Road (East), Wollert (between KP48 and KP49). This area was to preserve areas of Grassy Eucalypt Woodland of the Victorian Volcanic Plain, Natural Temperate Grassland of the Victorian Volcanic Plain and striped legless lizard habitat. A small area of modelled habitat is impacted.

The construction footprint in both these areas largely follows the existing VNIE easement.

The extent of clearance in these areas is as follows[54]:

- Conservation Area 34a – 2.39 hectares (0.58 hectares outside existing easement)
- Conservation Area 28b – 1.78 hectares (0.53 hectares outside existing easement).

TN16 provides that there are no changes to these impacts resulting from Revision 10 of the alignment, however 0.13 hectares of native vegetation and two large trees had previously been omitted from offset totals. The TN advises this has been reflected in the total impacts and offsets and illustrated in Figure 9 of the TN.

[53] Section 8.7 of Technical Report A
[54] Table 48 of Technical Report A

Table 4 Native vegetation impacts[55]

Community	Outside the MSA	Inside the MSA[1]
Ecological Vegetation Class		
Plains Grassland	7.84 (reduction of 1.11)	1.71 (reduction of 0.18)
Plains Grassy Woodland	5.56 (increase of 1.26)	2.49 (increase of 0.02)
Riparian Woodland	0.05 (no change)	0.01 (no change)
Aquatic Herbland	0.06 (no change)	-
Stony Knoll Shrubland	-	1.37 (no change)
Creekline Tussock Grassland	-	0.02 (reduction of 0.01)
Totals	**13.54**	**5.77**
***Environment Protection and Biodiversity Conservation Act* Listed, Critically endangered threatened ecological communities**		
Direct impacts		
Natural Temperate Grassland of the Victorian Volcanic Plain[2]	3.46	0.72
Grassy Eucalypt Woodland of the Victorian Volcanic Plain[3]	2.20	0.05
***Indirect impacts*[4]**		
Natural Temperate Grassland of the Victorian Volcanic Plain	0.26	0.02
Grassy Eucalypt Woodland of the Victorian Volcanic Plain	-	0.04
***Flora and Fauna Guarantee Act* Listed, threatened ecological communities[5]**		
Western (Basalt) Plains Grasslands Community	7.62	1.71
Floristic Community 55-04 Western Basalt Plains (River Red Gum) Grassy Woodland	5.40	2.47
Trees		
Small scattered	9 (reduction of 3)	6
Large scattered	7 (reduction of 3)	6
Large canopy	9	2 (reduction of 1)

Notes: (1) For EVC's and FFG listed communities timestamped data has been used; For EPBC Act-listed TECs and trees, field mapped data has been used (2) This TEC sometimes correlates with Plains Grassland EVC 132 and Creekline Tussock Grassland EVC 654. (3) This TEC sometimes correlates with Plains Grassy Woodland EVC 55 and Stony Knoll Shrubland EVC 649. (4) indirect impacts resulting from fragmentation of patches to the extent that the patches will no longer qualify as a patch under the classification. (5) Removal of these communities only requires a permit under the FFG Act, where they exist on public land. The majority is on private land.

[55] TN15

Residual risks

The EES assessed the key residual risks for biodiversity as follows[56]:

- B2 - Removal of threatened ecological communities during construction – residual risk rating of 'very high'
- B4 – Land clearing during construction impacting threatened EVCs – residual risk rating of 'very high'.

The 'very high' risk rating for B2 and B4 represents an 'almost certain' likelihood of a major consequence being (in the case of B2) the loss of 10 to 20 hectares of State or Commonwealth listed ecological community, and (in the case of B4) the loss of any EVC (20 to 25 hectares) within at least 50 per cent of known patches.

The Project will impact on one individual arching flax-lily plant (on the Victorian Advisory List). The Project will avoid a single matted flax-lily and forty-eight individual tough scurf-pea's in one location through proposed mitigation measures. The residual risk rating for the impact on threatened flora of land clearing (B3) is 'low'.

(iii) OMR/E6 project

On 13 August 2009, the (then) Minister for Planning decided an EES was not required for the OMR/E6 project. This decision was subject to a number of conditions, including that an Environmental Impact Report be prepared to the satisfaction of relevant Departments. The report is yet to be prepared but is to document the likely environmental effects and project benefits of both the preferred alignment and relevant variations which may offer significantly better environmental or social outcomes. The report is also to document results of native vegetation field studies, likely ecological impacts and availability of suitable offsets. Other impacts to be considered are those on cultural heritage, current and future land uses, and existing and planned residential areas.

The decision requires exhibition of the Environmental Impact Report for public comment and provides for an expert advisory committee to be established to consider submissions and provide the Minister with:

- Findings on likely effects of the preferred alignment and relevant variations
- Recommendations on whether any of the refinements or variations to the preferred corridor identified in the Environmental Impact Report are justified in light of likely effects
- Advice on the appropriateness of the proposed approach to project design and environmental management[57].

(iv) Requests for further information

Considering the significant amount of vegetation to be removed, the Inquiry sought further information[58] in relation to the potential to further avoid native vegetation by route realignment and/or trenchless construction techniques. Responses were provided in evidence, submissions and TN31.

The Inquiry requested specific advice on the potential to avoid vegetation loss (and dissecting large patches) by amending the route in the following locations:

[56] EES Technical Report A, Table 51
[57] Decision under *Environment Effect Act 1978 and Reasons for Decision,* Referral Number 2009-08
[58] In D07 and questioning

- keeping west of the road between KP21.5 and 23
- avoiding splitting vegetation patches between KP31 and KP32 and between KP32 and 33
- avoiding vegetation between KP48 and 49.

The Inquiry questioned the experts about whether further avoidance was feasible or warranted in other areas:

- alternative alignments for temporary access points (for example, near KP15 and KP28)
- new trenchless construction between KP48 and 50, being Conservation Area 28b
- extending the length of proposed trenchless constructions, for example at Craigieburn Road, Melton Highway, Moreland Road and the rail track at KP41
- new trenchless construction at Jacksons Creek and Merri Creek.

5.5.2 Evidence and submissions

(i) Has the Project appropriately avoided native vegetation?

The Proponent advised it had originally considered alternative alignments in three of these locations (between KP21.5 and 23, KP31 and 32, and KP32 and 33) but they were not supported by DoT because of OMR/E6 interface issues.

DoT explained the OMR/E6 corridor was reserved by a PAO introduced by VC68 in 2010 and was identified in *Plan Melbourne.* DoT submitted the key purpose of the PAO is to:

> Reserve land for a public purpose and to ensure that changes to the use or development of the land do not prejudice the purpose for which the land is to be acquired[59].

DoT submitted that permitting any development within the PAO that would undermine or impede the proposed OMR would be contrary to the planning controls. In relation to the Environmental Impact Report, DoT submitted it was conceivable this process could identify a change in the route, but material changes were unlikely.

Dr O'Shea provided her understanding that MSA Conservation Areas are to protect MNES within the MSA and compensate losses associated with urban development. She queried how these Conservation Areas would be able to fulfill such purpose if they are *'eroded by yet more urban development'*[60]. Whittlesea submitted all works in the Conservation Areas should be restricted to the existing easement.

The Proponent submitted that following the easement reduced impacts, including impacts on privately owned land.

Ms Comber provided evidence that mapping undertaken by Biosis was likely limited to the construction footprint and not necessarily indicative of whether or not there was native vegetation outside the construction footprint.

Ms Comber believed it would be ideal to avoid any previously undisturbed native vegetation in the Conservation Area.

Specific impacts associated with the waterway crossings are discussed in Chapter 6.

Ms Comber gave evidence the Grassy Eucalypt Woodland either side of Oaklands Road was the highest quality vegetation in the Project area, warranting further avoidance if possible. In her

[59] D136, page 6
[60] S24

evidence, the southern property held higher quality native vegetation than the northern property. She stated she had spent additional time surveying this area to identify the most acceptable alignment and locations for entry and exit points for the horizontal bore crossing of Craigieburn Road, if it was not feasible to extend the trenchless crossing to the area of non-native vegetation.

Ms Comber was not able to provide any detailed evidence as to the cost or engineering factors that contributed to decisions not to further avoid vegetation clearance.

Mr Dunk gave evidence most of the alignment had avoided and minimised native vegetation as much as possible as documented in the EES[61]. In his opinion, the vegetation was generally poor quality and under land management practices which were not conducive to protecting the ecological values. He considered there were no areas of particularly high ecological value which warranted further consideration of avoidance.

Mr Dunk stated it was understandable that mapping would be limited to the construction footprint and it was likely that compared to adjacent vegetation, the mapped polygon would be of similar or lesser quality.

In closing, the Proponent submitted the NV Guidelines do not impose a mandate to avoid at all costs but set an objective to avoid and minimise by any *'feasible opportunities'* that will not *'undermine the objectives of the proposed use or development'*[62]. It submitted that reasonable attempts had been made to avoid native vegetation as much as feasible, consistent with the intent of the NV Guidelines and no more was required.

In relation to the native vegetation either side of Craigieburn Road, the Proponent submitted potential impacts of HDD had not been assessed. Referencing Mr Dunk's evidence, the Proponent submitted that having regard to the low quality of the vegetation and low likelihood of improved land management measures in the future, further avoidance in this area was unlikely to be worth the effort.

The Grassy Plains Network submitted *'the grasslands of the Victorian Volcanic Plain have been described as Australia's most endangered ecosystem … Sadly, less than 2 per cent of that original extent remains, and much of what does is heavily degraded*[63]*'*.

It submitted the pipeline should be constructed by trenchless methods to avoid native vegetation and known and assumed striped legless lizard habitat. The Inquiry asked the Grassy Plains Network if it had any specific locations in mind. It responded[64] with comments on updated native vegetation impact Figures 8.1 to 8.27 from D30 and 31. Fourteen locations were specified, those with native vegetation included:

- several patches between KP10 and 11
- several patches in the vicinity of KP13
- two patches between KP15 and 16
- one patch around KP19, St Johns Road crossing
- several patches around KP20
- properties north and south of Craigieburn Road (around KP23)
- one patch around KP25

61 EES Chapter 3 and particularly section 3.11.4
62 D146, paragraph 34, quoting the NV Guidelines
63 S14, page 2
64 D171

- two patches between KP31 and 32.

The Proponent responded[65] with detailed considerations regarding the use of HDD and outlined considerations that the Inquiry must balance, including the perceived biodiversity benefits and issues, such as:

- the need for suitable geological conditions (cohesive soils, high clay content)
- the concentration of construction impacts (noise and traffic) in one location for a longer time
- the need for set up areas which would need to be free from native vegetation and habitat to ensure benefits, but also houses, sheds and roads
- potential impacts to efficient construction transporting equipment around the Project area
- the additional cost.

The Proponent reiterated Mr Dunk's evidence that there was no further avoidance work to be done.

The Animal Justice Party raised concerns with the impact to the Victorian Volcanic Plan Grasslands, being an ecosystem that has already been decimated by human activity with less than 0.1 per cent remaining.

(ii) River red gums

Whittlesea submitted the Proponent had not considered Council's river red gum policy which required the retention of 80 per cent of medium to very large old trees. The Proponent responded that this had been considered in the EES and that trees, particularly those with hollows, would be avoided were possible and that retention through detailed design was facilitated by EMM B23. Further, changes to the alignment since exhibition had avoided four trees, three of which were river red gums.

(iii) Deep Creek crossing

The Proponent advised that the feasibility of realigning the crossing at Deep Creek was still being investigated. If not feasible, the Proponent proposed to revert to the Revision 7 alignment.

No specific biodiversity evidence was led in relation to those two options.

5.5.3 Discussion

(i) Has the Project appropriately avoided native vegetation?

The Inquiry agrees with the very high residual risk ratings relating to the clearance of native vegetation and significant ecological communities.

In relation to further refinement of the alignment or construction method to avoid native vegetation, the Inquiry notes three main issues:

- the Project alignment has in numerous locations been aligned with the location of the proposed OMR/E6 PAO
- the extent of native vegetation mapping was, in many cases, limited to the proposed construction footprint
- no specific evidence was available as to the feasibility of trenchless crossing in additional locations.

[65] D175

Although the precise OMR/E6 alignment is yet to be finalised, it is not expected by DoT to change significantly. The OMR/E6 has strong policy support and will be important State significant infrastructure. For these reasons, the Inquiry agrees with the Proponent and DoT that the agreed horizontal pipeline alignment in these areas should not be modified to reduce native vegetation clearance in a way that might obstruct or impede the OMR/E6. This has likely placed some limitations of the ability to avoid native vegetation clearance in these areas, but this is acceptable given the need to protect the OMR/E6 alignment.

The Inquiry accepts the NV Guidelines aim for avoidance to be commensurate with the biodiversity gains being achieved. The Proponent advised that the cost of trenchless compared with trenched construction was approximately three times as much.

The Proponent has avoided native vegetation by its chosen route and by further changes, including narrowing the construction corridor in certain locations. The Inquiry agrees with submissions that there would be benefits in avoiding native vegetation loss through trenchless construction as much as possible, however it accepts it is not feasible to employ this technique to avoid all native vegetation loss.

The residual impact remains significant at a State level, including the removal of over 13 hectares of *Flora and Fauna Guarantee Act* listed communities. Inside the MSA, the Inquiry agrees with submissions that further impacts to remaining native vegetation in Conservation Areas should be avoided. The Inquiry considers this warrants a measure to provide further opportunities to avoid vegetation loss during the detailed design processes. The Inquiry considers the EMMs should be strengthened to reflect this in relation to the following key areas:

- temporary access track entrances – limitations of current vegetation mapping prevented consideration of potential improvements
- extending the existing trenchless crossings of Craigieburn Road to further avoid vegetation either side of that road and St Johns Road to avoid further vegetation loss on the east
- the property on the corner of Bulla-Diggers Rest Road and Morefield Court (property 12LP92520) for reasons set out in section 5.6
- previously undisturbed patches of native vegetation in the Conservation Areas 28b and 34a.

The Inquiry accepts Ms Combers evidence that native vegetation impacts should not *"increase slightly"* following further refinement of the footprint and has made a recommendation to remove this wording from the Ecological Offset Strategy.

The Inquiry accepts the Proponent's submission that the route alignment process and the EMMs have appropriately considered the avoidance of impacts to trees. The loss of one Arching flax-lily plant is not significant and is an acceptable impact.

(ii) River red gum policy

The Inquiry agrees with the Proponent's submission that the Project has and will continue to avoid impacts to trees where possible through the EMMs.

(iii) Deep Creek crossing

The proposed Revision 10 crossing at Deep Creek would be preferable from a native vegetation perspective. The exhibited alignment required one large tree in the construction corridor to be removed and potentially another three large trees within 15 metres of the footprint. The revised

crossing location would avoid trees in the construction corridor and potentially only require indirect impacts on one large tree within 15 metres. Accounting for the larger patch of native vegetation recorded by Mr Dunk in this area, the revised alignment would also have less impacts on native vegetation and therefore be preferable.

5.5.4 Findings

Inquiry finds:

- Residual impacts of native vegetation clearance will be significant at a State level.
- The potential for additional avoidance of native vegetation clearance should be investigated during detailed project design.

5.5.5 Recommendations

The Inquiry recommends:

Environmental Management Measures

Amend EMM B1 to add at the beginning:

> ***Investigate and implement further opportunities to avoid the loss of native vegetation, particularly FFG and EPBC Act-listed communities, through detailed design and construction planning, including consideration of:***
> - ***the possible extension of the proposed trenchless construction at Craigieburn Road and St Johns Road***
> - ***relocating temporary access tracks***
> - ***additional trenchless construction to avoid Property 12LP92520***
> - ***additional trenchless construction to avoid native vegetation in Conservation Areas 34a and 28b.***

Ecological Offset Strategy

Replace the fourth sentence in Section 3.3.1 with:

> ***Following further construction footprint refinement, landowner negotiations and construction methodologies the area of native vegetation impacted may decrease slightly and this will be addressed prior to the procurement process to purchase offsets, as well as during the reconciliation of impacts following construction.***

5.6 Fauna impacts and management

5.6.1 Background

(i) The EES

The EES reported that 23 terrestrial fauna species of conservation significance (listed in Victoria or under the *Environment Protection and Biodiversity Conservation Act*), including 21 threatened species and two migratory species, have a medium or higher likelihood of occurring in the construction corridor[66]. Seven threatened aquatic species were identified as potentially occurring

[66] EES page 7-16

in the construction corridor, but only one of these species (Australian grayling) was identified as having a medium or greater likelihood of occurring there[67].

The EES identified potential impacts on the following *Environment Protection and Biodiversity Conservation Act* and *Flora and Fauna Guarantee Act* listed species.

Table 5 Significant fauna species potentially impacted

	Conservation status	
Species	**Environment Protection and Biodiversity Conservation Act**	**Flora and Fauna Guarantee Act**
Striped legless lizard	Vulnerable	Endangered
Tussock skink	Vulnerable	Endangered
Golden sun moth	Critically endangered	Vulnerable
Growling grass frog	Vulnerable	Vulnerable
Platypus		Vulnerable

Key impacts include loss of habitat during construction and potential for injury or death from construction activities. Impacts were generally considered temporary due to the potential for habitat to be reinstated post construction, subject to landowner agreements.

In relation to striped legless lizard habitat, the EES indicated the quality of much of the potential habitat present is marginal and there is a low likelihood of the species occurring. However, following advice from DELWP and DAWE to the Proponent[68], a conservative approach was taken such that the species is assumed present in all areas of suitable habitat whether or not targeted surveys were undertaken or if they identified any individuals. An important population was however identified in one property on the corner of Bulla-Diggers Rest Road and Morefield Court between KP10.539 and 10.586 (property 12LP92520)[69]. Vegetation at this property is identified as Natural Temperate Grasslands of the Victorian Volcanic Plain.

For golden sun moth, 111 land parcels were surveyed (88 of which included four rounds of surveys) and the 90 individuals were identified in 14 parcels, seven of which were in the MSA. Over 89 hectares of land outside the MSA was considered for golden sun moth. Of this area, 11.85 hectares was later determined to be known habitat due to the presence of golden sun moth during targeted surveys. The remaining 8.08 hectares was considered potential habitat as incomplete surveys (less than four rounds) had not yet identified any individuals.

The EES identifies that golden sun moth and striped legless lizard have persisted in the environment in areas of degraded native vegetation, but also areas with non-native vegetation.

Although impacts will be greater during construction, the EES recognised that the golden sun moth and striped legless lizard are very susceptible to ground disturbance and may not successfully recolonise revegetated areas post construction.

The EES states:

> The effectiveness of topsoil management for the purpose of reinstating soil that contain the larvae of golden sun moth is not well understood. It is acknowledged that this may not be an

[67] EES Table 7-2
[68] Technical Report A, page. 58
[69] Technical Report A, page 145

> effective EMM, consequently all known and assumed habitat for the golden sun moth has been considered lost[70].

Due to the uncertainty of the effectiveness of proposed mitigation measures, the Project has fully offset all vegetation that is known or assumed to support these species.

Indirect impacts include those from the introduction or spread of pest plants, animals and pathogens. EMM B2 requires vehicles to be free of soil clumps and sods prior to entry and exit of the construction corridor and to be cleaned before entry and after exit of a waterway.

Growling grass frog is known or assumed to occur at Deep Creek, however the HDD crossing was expected to avoid impacts. Growling grass frog were identified as known in Jacksons Creek however the chance of the species actually using the Project area was considered low[71]. The area of impact was identified as 0.03 hectares and impacts would be temporary during construction. Works were proposed to be limited to the low flow period of March to May to minimise water quality and erosion impacts. In addition, three dams are proposed to be removed (outside the MSA). Studies indicated they were each devoid of frogs at the time of assessment, minimising the risk of impact[72].

A recent sighting of platypus in Jacksons Creek had occurred around 200 metres downstream of the Project area. The EES reported a low likelihood of Platypus being present at Deep Creek and it was considered unlikely to be present in Merri Creek. The open trench crossing of Jacksons Creek was therefore a key focus for both growling grass frog and platypus.

EMMs require species specific management plans for:

- striped legless lizard (EMM B20)
- golden sun moth (EMM B19)
- growling grass frog (EMM B21)
- platypus (EMM B22).

In addition, a general Fauna Management Plan (EMM B9) is required to establish general procedures for flushing wildlife out of potential habitat, fauna handling procedures, managing the trench and worksite to reduce fauna injury, and a kangaroo management plan.

Specific measures in EMM B20 to be implemented as part of the striped legless lizard management plan included active searching (including rock rolling), slashing and tyning of habitat to make it less suitable.

Section 9.2.1 of the CEMP requires the Proponent to seek approval from DELWP of the:

- kangaroo management plan
- species-specific management plans for the platypus, growling grass frog, golden sun moth and striped legless lizard
- threatened species handling and relocation protocol.

The EES assessed the key residual risk for fauna was the loss of threatened fauna habitat (B13) which was assessed as having a residual risk rating of 'medium'.

The 'moderate' risk rating for B13 represents an 'almost certain' likelihood of a minor consequence occurring, being defined as an insignificant change in populations of State or Commonwealth listed threatened species.

[70] Technical Report A, page 324
[71] Technical Report A, page 251
[72] Technical Report A, page 266

The residual risk for death or injury of fauna during construction activities was considered 'low' for all species. In the case of striped legless lizard, this was reduced from a 'high' rating prior to the application of mitigation measures.

(ii) Guidelines

Platypus

The *Platypus Management Guidelines* indicate the critical period for breeding in Victoria is between September and February as this is when mothers are limited to their nesting burrows with their young. Platypus have two types of burrows – nesting and camping. While camping burrows are easy to spot, nesting burrows are more cryptic.

The EES indicated the breeding period begins around August and extends to early March.

Striped legless lizard

The *Environment Protection and Biodiversity Conservation Act 1999 referral guidelines for the vulnerable striped legless lizard, Delmar impar* outlines best practice impact mitigation. These measures include avoiding habitat through design and construction techniques, incorporating buffer zones (50 metres minimum), construction environmental management plans, retaining and maximising habitat corridors (of 30 to 100 metres) and appropriate weed prevention measures[73].

Golden sun moth

The Commonwealth *Significant impact guidelines for the critically endangered golden sun moth (Synemon plana)* provides examples of mitigation measures[74]. These include providing buffers around habitat (for example 1-200 metres around breading habitat), restricting vehicular movement during times of high soil moisture and when adults are flying, fence design to reduce birds perching, and weed and hygiene measures for equipment.

Golden sun moth has two discrete life stages: the larval stage of two to three years underground and the adult stage, which typically lasts between one and four days.

In relation to translocation, the Guidelines provide that:

> Translocation does not reduce the impact of an action. Translocation of the golden sun moth is not considered to mitigate or offset the impact of an action, as it is unlikely to result in a positive conservation outcome for the species[75].

The Guidelines note translocation may be tried as an experiment as an additional measure and as such may be considered for salvage purposes. In this case, it must be carried out with a comprehensive monitoring program and adaptive management strategy. Additional permits may be required for translocation.

(iii) Open trench crossing at Jacksons Creek

Jacksons Creek was identified as potential habitat for both platypus and growling grass frog. The exhibited CEMP included EMMs for both these species which require the avoidance of construction during critical time periods for these species:

- platypus - if presence of burrows cannot be ruled out, avoid the peak juvenile nesting period between September and beginning of March (EMM B22)

[73] Summarised from Table 2
[74] Summarised from Table 4
[75] Significant impact guidelines for the critically endangered golden sun moth (Synemon plana), page 10

- growling grass frog – schedule outside peak active period of November to March (EMM B21).

TN33 proposed changes to the EMMs to include contingency measures in the event the initially proposed construction timing could not be met, including:

- Platypus – clearing of vegetation on the south bank in September, undertaking surveys for camping burrows and blocking these. Additional measures were proposed to deal with water flow.
- Growling grass frog – schedule outside peak breeding between November and December. Contingency measures if construction is to occur between January and March.

5.6.2 Evidence and submissions

(i) Striped legless lizard

The Grassy Plains Network and Dr O'Shea submitted striped legless lizard habitat should be avoided.

Ms Dalton gave evidence the extent of striped legless lizard habitat identified in the EES was an overestimate. It included both known and assumed habitat. Ms Dalton explained the striped legless lizard had been identified during targeted surveys in one individual property of around 0.5 hectares. She considered a higher likelihood the species would also exist in the adjacent property. The remaining area identified as habitat in the EES included over 16 hectares that had been surveyed more than 10 times without recording a single striped legless lizard. Over 20 hectares of assumed habitat had not been surveyed.

In its post-Hearing document, the Grassy Plain Network submitted that specific locations identified as being potential striped legless lizard habitat around KP14, 28, 30 and 31 should be surveyed and if found, the alignment should be constructed via trenchless methods.

The Proponent responded that the EES had outlined constraints for surveys on striped legless lizard and the appropriateness of a targeted approach. The Proponent had adopted a conservative approach including requiring management measures and offsets to apply to both areas of known and assumed habitat. It submitted further surveys would not alter the ultimate management and offset measures.

In relation to striped legless lizard surveys, Mr Dunk's evidence stated:

> For fauna species, the striped legless lizard surveys deviated from the current guidelines. I am satisfied with the explanation for not following a strict interpretation of these guidelines given the logistical complexity of doing so for linear infrastructure projects. The survey effort was, nonetheless, considered sufficient to conclude that the survey effort has been adequate to assess the potential for important populations of striped legless lizard occurring in the Project area and ultimately to assess the impact of the Project on this species[76].

Not wanting to detract from their primary position of 'avoidance', the Grassy Plains Network, Dr O'Shea and Hume were concerned the proposed capture and translocation measures (which included mowing and tyning) were not best practice and likely to result in mortality.

Ms Dalton gave evidence that salvage methods proposed in the EES were based on previously accepted measures. Since then, proposed methods had been amended, in line with submissions and Mr Dunk's peer review, to more current methods that would reduce the risk of harm to this species.

[76] Section 1.4.2 page 4

At the Hearing, the Grassy Plains Network welcomed the proposed changes and recommended including pit fall traps as well as tiles to maximise the individuals caught. It further recommended a practice, based on emerging evidence, of using large compounds prior to release to enable acclimatisation.

The Proponent responded that EMM B20 presents a balanced approach and additional measures such as pitfall traps and compounds were unnecessary. The Proponent reiterated that DELWP would approve details of the procedure prior to implementation.

(ii) Tussock skink

Hume and Dr O'Shea were concerned with the outcomes for tussock skink and submitted it was unclear if this species would recolonise the Project area after construction.

Ms Dalton responded that proposed measures to capture and relocate striped legless lizard would equally enable salvage of tussock skink. She noted that impacts would be compensated by offsets, including species offsets, where triggered.

(iii) Golden sun moth

Hume, Darebin Climate Action Now and the Animal Justice Party were concerned with potential impacts to golden sun moth during construction. Hume was concerned the preference for 'in situ' regeneration is not practical for grasslands.

Ms Dalton outlined the efforts made to avoid and minimise habitat as much as possible. In relation to regeneration, Ms Dalton gave evidence in situ regeneration has the advantage of preserving genetic composition and maximising species diversity. For areas of known or assumed golden sun moth and striped legless lizard however, Ms Dalton explained EMM B7 specifically required revegetation with native grass seed.

Ms Dalton considered it relevant to the magnitude of the effect that residual impacts would be offset. In response to queries from the Inquiry, she stated it was not proposed to monitor for any fauna species following rehabilitation or reinstatement of non-native vegetation. It was however proposed that the revegetation and reinstatement efforts would be monitored and that would be considered as a surrogate for suitable fauna habitat. In her evidence, this was an appropriate focus as habitat impacts would be offset.

(iv) Growling grass frog

Hume was concerned with impacts on growling grass frog habitat due to open cut trenching at Merri, Jacksons and Kalkallo Creeks.

Ms Dalton gave evidence impacts to growling grass frog habitat in Jacksons and Merri Creeks was expected to be minimal given:

- the low habitat suitability in the Project area
- the construction corridor would be limited to 20 metres
- impacts would be temporary
- reinstatement would have regard to growling grass frog habitat.

In relation to Jacksons Creek, the proposed changes to EMM B21 provided suitable contingency measures.

In relation to Kalkallo Creek, Ms Dalton gave evidence recent mapping indicated no suitable habitat is present at the proposed crossing location.

Finally, Ms Dalton noted the management plan required by EMM B21 would be approved by DELWP and implemented in all areas identified as potential growling grass frog habitat.

(v) Platypus

Hume and the Animal Justice Party were concerned with potential impacts on platypus due to open cut trenching at Merri, Jacksons and Kalkallo Creeks.

Ms Dalton gave evidence it was unlikely platypus were in Kalkallo Creek or at the Merri Creek crossing due to unsuitable habitat.

Although platypus have been recorded in Jacksons Creek, within 200 metres of the Project area, Ms Dalton gave evidence that measures outlined in EMM B22 would minimise potential risks.

In response to questioning from the Inquiry, Ms Dalton gave evidence weed and pathogen control measures should be implemented between properties, not just between waterways.

5.6.3 Discussion

(i) Striped legless lizard

The Inquiry notes the identification of an important population of striped legless lizard at one property. The fact that the OMR/E6 PAO prevents the alignment moving south means realignment in this area is not possible. The Inquiry recommends the investigation of trenchless crossing in this location.

The Inquiry considers the proposed changes to the striped legless lizard management plan to be appropriate. The Inquiry notes however that EMM B20 essentially establishes a secondary consent which needs to be approved by DELWP. The Inquiry is concerned that EMM B20 potentially provides too much specification for methods to be implemented which have not been considered by the approval authority as they were introduced post-exhibition. The Inquiry is reassured that the approach has the support of two experts (Ms Dalton and Mr Dunk), however further changes suggested by the Grassy Plains Network were not able to be considered by the experts. The Inquiry therefore recommends the language of EMM B20 be softened to allow appropriate latitude for the approval agency.

(ii) Tussock skink

The Inquiry accepts evidence the measures for striped legless lizard will enable similar management for any tussock skink also located in the same habitat. For clarity, it would be appropriate for this to be included in the EMM and the Inquiry recommends an addition to that effect.

(iii) Golden sun moth

The Inquiry accepts the evidence that fully offsetting for the loss of known and potential golden sun moth habitat is acceptable and that monitoring of reinstated vegetation is the most appropriate use of resources to gauge likelihood of success. Having said that, considering the uncertainty around the effectiveness of translocation, and likely future impacts from other Projects, it appears a missed opportunity not to incorporate some form of monitoring of the success of reinstating existing top

soil which may have larvae present, especially considering this includes the potential disbenefit of returning weed seeds as well.

In light of this, the Inquiry considers it would be desirable that some form of monitoring for the golden sun moth is undertaken. A suggested approach would be to enlist assistance from landowners who may be working in and around the easement on a regular basis.

The Inquiry notes EMM B19 includes the possibility for the management plan to include requirements for 'ongoing management and/or monitoring' and is satisfied such requirements, if considered appropriate, could be included in this.

(iv) Growling grass frog

The Inquiry is satisfied the proposed growling grass frog management plan will appropriately reduce potential risks to this species. The Inquiry is however concerned with the total potential impacts of a trenched crossing at Jacksons Creek as discussed in Chapter 6.

(v) Platypus

The Inquiry does not support the proposed clearing of vegetation at the Jacksons Creek crossing site prior to construction to prevent platypus nesting. Vegetation removal to prevent nesting is not a management measure recommended in the Platypus Management Guidelines and brings significant risks including stream bank erosion and impacts on water quality and downstream aquatic habitat. Furthermore, the Platypus Management Guidelines indicate the critical period for nesting in Victoria is from September to February, so the proposed clearing of vegetation in September or October may be too late to prevent nesting. This is further discussed in Chapter 6, where amendment of EMM B22 is recommended.

(vi) Mitigation and management measures

Generally speaking, the EMMs are not well organised. In some cases, measures seem to overlap or compete with each other. This makes it difficult to assess them as a whole.

For example, striped legless lizard and golden sun moth persist in non-native vegetation. Evidence was clear that site restoration plans required under EMM B15 are for areas of native vegetation only. Reinstatement activities for non-native vegetation are addressed as a social issue in EMMs S14 to S22. The focus is to reinstate land to original contours and land use as soon as possible and in consultation with landowners. Some of these measures (such as the application of fertiliser and ripping of compacted soil) contrast with preferred measures for potential habitat for golden sun moth and striped legless lizard. In addition, EMM B19 requires the preparation of a golden sun moth management plan which includes details of habitat location and rehabilitation measures.

It is hard to see how these measures will be balanced with each other and implemented. In comparison to B19, B20 does not include a requirement for the striped legless lizard management plan to include details of habitat. The Inquiry considers it necessary for habitat to be included.

If both the golden sun moth and striped legless lizard management plans identify non-native vegetation as habitat, then there is potential for these plans and measures to have some primacy over other considerations in rehabilitation. The social EMMs could provide a link to these management plans, identifying those rehabilitation objectives as important.

As much of the pipeline route is in private property with non-native vegetation that sometimes supports native fauna (such as striped legless lizard and golden sun moth), it would be beneficial if

the Proponent informed landowners of potential habitat values so this can be considered in discussions relating to the reinstatement of vegetation. Landowners should be informed of measures which could protect or enhance these values and provided the opportunity to choose to do so.

The Inquiry accepts Ms Dalton's evidence that weed and pathogen control measures should be implemented between properties, not just between waterways and has suggested an amendment to that effect.

Given the specialised nature of fauna management, the Inquiry considers it appropriate that DELWP approve the plans listed in section 9.2.1 of the CEMP. For clarity, the Inquiry considers reference should be made to the relevant EMMs.

The Inquiry has also recommended some minor wording changes to improve clarity.

5.6.4 Findings

The Inquiry finds:

- The proposed mitigation measures are generally appropriate to minimise impacts on significant fauna species.
- Minor changes to EMMs are recommended to improve clarity and operation.

5.6.5 Recommendations

The Inquiry recommends:

Construction Environment Management Plan

Amend Section 9.2.1 to replace the second dot point with:

- ***Flora and fauna management plan(s) for approval by DELWP (prior to construction commencing) including:***
  - ***Fauna management plan, including kangaroo management measures (required by EMM B9)***
  - ***Species specific management plans for platypus (required by EMM B22), growling grass frog (required by EMM B21), golden sun moth (required by EMM B19), and striped legless lizard (required by EMM B20)***
  - ***Threatened species handling and relocation protocol (required by EMM B9).***

Environmental Management Measures

Amend EMM B2 to include the following dot point under the first sentence:

- ***To the reasonable extent practicable, ensure vehicles and plant traversing between land parcels are managed to avoid the risk of additional spread of weeds between land parcels.***

Amend EMM B8 to replace the second paragraph with:

> ***Stockpiled topsoil from weed-infested sites may be reused at the same location where the soil is sourced from if the site supports golden sun moth and where larvae may be present.***

Amend EMM B20 to add the following dot points:

- ***Details of the location of striped legless lizard habitat***
- ***Any deviation of proposed salvage and relocation measures required in the event tussock skink or other species are also captured.***

Amend EMM B21 to reinstate the exhibited version.

5.7 Site rehabilitation and restoration

5.7.1 Background

(i) EES

The EES explained that native vegetation impacts would be minimised by the rehabilitation of the construction ROW following construction.

The EES stated:

> Impacts to botanical values from disturbance of sodic soils are not expected to occur, since these are currently considered as a low risk and manageable (but require further testing and analysis)[77].

TN12 however indicated there were areas with 'moderate' to 'very high' dispersion risk in the Project area. At least one of these correlates with an area of existing native vegetation.

(ii) Request for information

The Inquiry queried whether specific contingencies would be required for rehabilitation of native vegetation in areas of sodic and dispersive soils.

5.7.2 Evidence and submissions

The Grassy Plain Network submitted that creating a 30 metre wide corridor of disturbance would create the potential for weed invasion on surrounding vegetation and considerable long-term management (which would be difficult on private land) was required to minimise this. It submitted restoration should achieve a higher degree of biodiversity than existed prior to clearing.

Hume was concerned the stated preference for in-situ regeneration was not feasible. It submitted native grasslands were notoriously difficult to re-establish and specific restoration plans should be deployed. In addition, Hume submitted revegetation was required to avoid additional off-site impacts to remaining patches from weeds.

Whittlesea submitted habitat rehabilitation should aim for improved conditions, including replanting with locally sourced plants, including structural components (logs, rocks etc) for fauna and including weed and pest animal control. It submitted monitoring and active management should continue for a minimum of five years.

Ms Dalton and Ms Combe's witness statement responded that EMM B7 requires revegetation with native grass seed in areas of known and assumed habitat of golden sun moth and striped legless lizard, subject to landowner consultation. They recommended EMM B15 be updated to reflect the requirement for native vegetation restoration to be managed through a reinstatement plan to be verified by a bushland restoration land manager.

The Proponent adopted the changes to EMM B15 and this was reflected in the final day version of the CEMP EMMs. The Proponent submitted ongoing monitoring of revegetation was provided for in the OEMP which required right of way patrols to identify any issues including those associated with vegetation growth or weeds.

[77] EES Technical Report A, page 254

The Proponent submitted rehabilitation was explicitly dealt with under the *Pipelines Act* including requirements for a rehabilitation bond and to restore land, as much as possible, to enable its former use or, with prior approval of the relevant Minister, to any other purpose agreed between the owner and occupier.

5.7.3 Discussion

The Inquiry supports the proposed changes to the EMMs dealing with site rehabilitation and notes the rehabilitation bond and requirements under the *Pipelines Act*.

Considering the difficulty in re-establishing grasslands and potential impact on adjacent grasslands from weed invasion, the Inquiry considers contingency measures should be developed in case revegetation is not immediately successful. Similarly, due to the specific challenges presented by sodic and dispersive soils, contingency measures should be included to manage issues that may arise. The Inquiry has recommended additions to EMM B15 to this effect.

General monitoring provisions are outlined in the CEMP section 12.2 and will be included in the OEMP (EMM B13). The Inquiry considers specific monitoring requirements may need to be developed for areas subject to site restoration plans in EMM B15 and has recommended additional wording to this effect.

5.7.4 Findings

The Inquiry finds:

- Subject to the recommended change to EMM B15, the approach to rehabilitation of native vegetation is appropriate.

5.7.5 Recommendations

The Inquiry recommends:

Environmental Management Measures

Amend EMM B15 to add after the second paragraph:

> ***The Site Restoration Plan is to include any specific monitoring requirements and contingency measures for addressing potential rehabilitation issues such as weed invasion and sodic and dispersive soils, as they arise.***

5.8 Native vegetation offsets

5.8.1 Background

(i) State policy

The *Assessor's handbook – applications to remove, destroy or lop native vegetation* provides that any approval to remove native vegetation must include a permit condition for evidence of the secured offset to be provided to the responsible authority prior to the removal of native vegetation to the satisfaction of the responsible authority[78]. Offsets may be provided as either a new offset site established by the Proponent and a landowner or purchasing credits on the Native Vegetation Credit Register. Where the Proponent is establishing a new site, evidence must include a security

[78] Appendix G

agreement and management plan outlining the 10 year management actions and ongoing management. This is not required for credits purchased on the Register.

(ii) Commonwealth policy

According to the *Environment Protection and Biodiversity Conservation Act 1999 Environmental Offsets Policy*¸ offsets:

- provide flexibility
- do not mean that unacceptable impacts will be approved
- do not reduce the scale or intensity of potential impacts
- compensate for residual significant impacts
- will only be considered once all reasonable avoidance and mitigation measures have been considered.

Types of offsets considered under the policy include direct offsets (for example protecting habitat), other compensatory measures (such as funding research techniques) and advanced offsets (a summary of offsets for potential future use). Direct offsets must make up at least 90 per cent of the offset strategy. Offsets that provide other social, economic and or environmental co-benefits are encouraged. Examples of such offsets include contributing to landscape connectivity and offsets achieved by funding rural landholders to protect and manage land for conservation purposes.

Offset requirements are included as a condition of approval under the *Environment Protection and Biodiversity Conservation Act*[79].

(iii) Requests for information

The Inquiry's RFI requested an update on the availability of suitable offsets as the exhibited Ecological Offset Strategy indicated investigations regarding the availability of suitable offsets were ongoing.

(iv) Ecological Offset Strategy

In response to the Inquiry's request, the exhibited Ecological Offset Strategy (Attachment III to the EES) was updated in TN16. Updates were required based on the Revision 10 alignment and the updated status of investigations for appropriate offsets. The following background is provided from this updated version.

The Ecological Offset Strategy outlines two distinct types of offsets required for the Project:

- State offsets – general habitat units required in the Port Phillip and Westernport Catchment Management Authority area or in the municipalities of Hume City, Melton City, Mitchell Shire or Whittlesea City Council.
- Commonwealth offsets – specific offsets required for MNES impacts.

State offsets

Section 3.3.1 of the Ecological Offset Strategy which discusses the general habitat units required for State offsets states:

> Following further construction footprint refinement, landowner negotiations and construction methodologies the area of native vegetation impacted may decrease or increase slightly and

[79] Section 134

> this will be addressed prior to the procurement process to purchase offsets, as well as during the reconciliation of impacts following construction[80].

Commonwealth offsets

Offsets required for impacts on MNES were identified as:

- 110 hectares of golden sun moth habitat
- 127 hectares of striped legless lizard habitat
- 16 hectares of Natural Temperate Grassland of the Victorian Volcanic Plain
- 10.5 hectares of Grassy Eucalypt Woodland of the Victorian Volcanic Plan.

The Ecological Offset Strategy identified the Proponent engaged a broker to identify suitable offset sites. Two potentially suitable sites – one, located south of Dunkeld, to offset the Grassy Eucalypt Woodland of the Victorian Volcanic Plain and the other, located in Cressey (approximately 40 kilometres south of Colac), to offset the remaining MNES were identified.

The Cressy site is new since the exhibition of the EES and replaces previously proposed sites at Glenhope and Stockyard Hill. This is based new information available from an offset broker.

The Dunkeld site was proposed in the EES and is the preferred offset site for Grassy Eucalypt Woodland for the Victorian Volcanic Plain. TN16 explained this site was previously used for grazing and initial surveys undertaken but have not been able to confirm its suitability. Further assessment is required three months after the cessation of grazing.

Measures to ensure these sites are suitable and mechanisms to ensure protection and ongoing improvements are realised, are outlined in the strategy.

The Ecological Offset Strategy provides that:

> An Offset Management Plan will be developed in consultation with the Offset Landowner/DELWP/council and approved by DAWE to ensure that the offset site is maintained, monitored and results a gain for the MNES over the management period[81].

Section 4 outlines three potential mechanisms to legally secure these offsets:

- an agreement with the relevant responsible authority under section 173 of the *Planning and Environment Act 1987*
- a security agreement arranged through Trust for Nature under section 3A of the *Victorian Conservation Trust Act 1972*
- a security agreement arranged through DELWP under section 69 of the *Conservation, Forests and Lands Act 1987.*

Section 4.1.3 explains *'the time required to secure an offset site is dependent on the preferred legal mechanism, which is largely determined by the offset site landowner'*[82]. A combination of all mechanisms is currently proposed between both sites according to landowner preferences. After explaining that it is unlikely any such agreements will be registered on titles prior to the start of construction (commencement of the *Environment Protection and Biodiversity Conservation Act* controlled action), the Ecological Offset Strategy states:

> APA is targeting ministerial approval of the Section 69 agreement and local council approval of the Section 173 agreement prior to commencement of the controlled action as demonstration of APA's commitment to securing offset sites[83].

[80] D79, section 3.3.1
[81] D79, section 4.1.3
[82] D79, section 4.1.3
[83] D79, section 4.1.3

In terms of the management of offsets, section 4.1.3 provides that an Offset Management Plan will be developed in consultation with the relevant landowner and authority, and approved by DAWE. The exhibited version of the Ecological Offset Strategy indicated the final Offset Management Plan would be developed once the offset requirements are known following approval of the pipeline. The TN16 version provided that a draft Offset Management Plan was in development and would be finalised following approval of the pipeline.

(v) Construction Environment Management Plan

The final day version of Section 9.2.1 of the CEMP provided:

> APA will develop, seek approval/acceptance for and implement the following management plans for the Project:
>
> - …..
> - Offset Management Plan for MNES, for approval by DAWE under the EPBC Act[84].

There were no EMMs dealing with offsets in the exhibited version.

The Proponent's day 1 version of the EMMs recommended a new EMM B24 requiring implementation of the approved Offset Management Plan required by clause 9.2.1 of the CEMP.

The Proponent's final day version of the EMMs recommended further additions to this EMM:

> **Provide Offsets**
> Implement the DAWE approved Offset Management Plan required by clause 9.2.1 of this CEMP and provide offsets in accordance with the Guidelines for the removal, destruction or lopping of native vegetation (DELWP, 2017) and generally in accordance with the WORM EES Offset Strategy (GHD, September, 2021)[85].

5.8.2 Evidence and submissions

Ms Comber gave evidence that the EES assessment of total native vegetation impacts were worst case, and it was not anticipated that further vegetation clearance beyond this would be necessary.

(i) State offsets

Ms Dalton provided evidence that State offsets were readily available and there would be no difficulty in obtaining them. It was her view they should be acquired prior to construction and that there was a mechanism under the *Pipelines Act*.

The Proponent submitted offset credits would be purchased prior to construction commencing and an audit undertaken post-construction so that any decrease in the final amount cleared could either be re-sold or retained for another Project. The Proponent submitted Pipeline licences rarely have conditions and the proposed EMM B24 provided more certainty State offsets would be provided.

(ii) Commonwealth offsets

Whittlesea '*strongly recommended any offsets be located as close to the impact site as possible to ensure that the threatened species and vegetation communities can be retained within the municipalities affected*'[86].

[84] Section 9.2.1 of the CEMP (D168)
[85] D159
[86] D17

5.8.3 Discussion

(i) State offsets

The Inquiry understands the Project requires State and Commonwealth offsets. Some projects co-locate such offsets, however in this case it is not feasible. The Inquiry is satisfied that the process for acquiring State offsets is straight forward owing to the fact that only general habitat units are required, and third-party offsets are readily available for purchase on the Native Vegetation Credit Register.

Absent a clear mechanism under the *Pipelines Act* or as a pipeline licence condition, the Inquiry considers changes need to be made to the CEMP to improve the linkages between the approvals and implementation of offsets. The Inquiry recommends changes to EMM B24 to this effect and to make the distinction between State and Commonwealth offsets clearer considering separate delivery models are proposed.

In relation to State offsets, the Inquiry recommends wording that aligns closely with the usual requirements under a planning permit as provided in Appendix G of the *Assessor's handbook*.

(ii) Commonwealth offsets

A strategy was provided to address offset requirements, although whether the two identified offset sites are suitable is to be confirmed. This will be determined in the future by DAWE and is not a matter for the Inquiry to decide.

Having said that, both offset sites are geographically distant from the species populations and communities to be impacted. The Inquiry agrees with Whittlesea it would be desirable for the Proponent to consider alternative or additional sites local to the Project area that could serve as potential offsets for consideration by DAWE. For example, investigating whether local landowners with suitable land are interested in creating offsets on their own property which may serve to protect local communities of striped legless lizard or golden sun moth. This would be a desirable approach and consistent with the *Environment Protection and Biodiversity Conservation Act 1999 Environmental Offsets Policy.* Ultimately, these matters will be determined through other processes, however the Inquiry believes there would be merit in the Proponent exploring alternative approaches to providing offsets, based on local sites.

The strategy outlines robust legal mechanisms to secure the offsets however there is uncertainty as to when such security may be achieved in the context of the Project schedule. The Inquiry recommends construction should not commence until offsets have at least been secured by agreement in the manner outlined as the Proponent's preference (i.e., Ministerial or local council approval of agreement achieved but registration on title pending).

Approval under the *Environment Protection and Biodiversity Conservation Act* should be conditional upon the final identified offset sites being secured prior to the commencement of construction activities and development and implementation of suitable Offset Management Plan(s) to the satisfaction of DAWE.

The Inquiry considers changes proposed by the Proponent made this clear, however it recommends changes be made to EMM B24 to separate the requirements for State and Commonwealth offsets.

5.8.4 Findings

The Inquiry finds:

- The proposed approach to State offsets is appropriate.
- The Ecological Offset Strategy identifies potentially suitable sites for Commonwealth offsets, however further investigations of their suitability is ongoing.
- Further consideration of local offset sites for Commonwealth offsets would have merit.
- The recommended EMMs ensure offsets will be secured prior to construction.

5.8.5 Recommendations

The Inquiry recommends:

Environmental Management Measures

Replace EMM B24 with:

Provide State Offsets

Before any native vegetation is removed, evidence that the required offset (generally in accordance with in the WORM EES Offset Strategy, 30 September 2021) for the Project has been secured must be provided to the satisfaction of DELWP. This evidence is to be a credit extract(s) allocated to the Proponent from the Native Vegetation Credit Register.

At the conclusion of the Project, offset requirements can be reconciled with agreement by DELWP.

Provide Commonwealth Offsets

Before any native vegetation is removed, evidence that the required offset (generally in accordance with the WORM EES Offset Strategy, 30 September 2021) for the Project has been secured must be provided to the satisfaction of DAWE.

Implement the DAWE approved Offset Management Plan required by clause 9.2.1 of this CEMP.

5.9 Biodiversity and habitat conclusions

The Inquiry concludes that:

- Native vegetation impacts are significant at a State level and will be compensated for by offsets. This is consistent with the biodiversity and habitats evaluation objective, although the further investigation of opportunities to avoid impacts is warranted.
- Biodiversity and habitat impacts can be acceptably managed through the recommended mitigation measures.
- There are no biodiversity or habitat impacts that preclude the Project being approved.

6 Surface water

6.1 Introduction

Surface water effects are discussed in EES Chapter 8 and Technical Report B. Additional material was provided in TN04, TN18, TN29, TN30 and TN33.

Table 4 lists the surface water evidence that was provided.

Table 6 Surface water evidence

Party	Expert	Firm	Area of expertise
Proponent	Mr Roberts	GHD	Surface water
Proponent	Dr McCowan	Water Technology	Surface water (peer review)

The relevant Scoping Requirements Report evaluation objectives are:

> **Water and catchment values** – Maintain the functions and values of groundwater, surface water and floodplain environments and minimise effects on water quality and beneficial uses.
> **Biodiversity and habitats**: Avoid and minimise potential adverse effects on native vegetation, listed threatened and migratory species and ecological communities, and habitat for these species, as well as restore and offset residual environmental effects consistent with State and Commonwealth policies. (Aspects related to groundwater dependent ecosystems).

The EES proposed 10 EMMs to manage the impacts of the Project on surface water:

- SW1: Managing runoff from adjacent construction areas, discharge from dewatering activities and spills/leaks
- SW2: Waterway and floodplain function (construction)
- SW3: Site Rehabilitation measures for disturbance caused by open cut trench construction
- SW4: Control measures for open cut trench construction and watercourse management
- SW5: Implement a Monitoring Program
- SW6: Periodic Visual monitoring
- SW7: Design and Construction Management (Jacksons Creek)
- SW8: Site Rehabilitation (Jacksons Creek)
- SW9: Develop and implement a Flood Management and Response Plan (FMRP) for Jacksons Creek, Deep Creek, Kalkallo Creek and Merri Creek
- SW10: Managing pipeline design solution for waterway crossings within a Drainage Services Scheme (DSS).

The Proponent proposed revisions to the surface water EMMs in response to submissions from the EPA, expert evidence and editorial changes for clarification. The changes were included in the final documents provided by the Proponent.

Other EMMs relevant to surface water include EMMs B2, B4, B7, B10, B11, B17, B21, and B22 (biodiversity), C1, C6, and C9 (contamination), GW3 (groundwater), and GM4 and GM7 (land stability and groundwater).

6.2 Key issues

The key issues are:

- Impacts of the waterway crossings on waterway functions and values, water quality and beneficial uses.
- Impacts of Project construction and operation on surface water quality.
- Interaction of the Project with floodplains.

6.3 Waterway crossings

6.3.1 Background

The EES described the conduct of the surface water assessment, including:

- establishment of a surface water study area that includes the 30 metre construction corridor that extends upstream and downstream of each waterway crossing to allow for a reach-scale assessment of each waterway
- review of relevant baseline data and reports and preliminary desktop assessment of all designated waterways that intersect the construction corridor
- more detailed desktop assessment of the six main waterways identified as potentially higher risk, with reference to geotechnical, hydrological and hydraulic factors (including flooding)
- site inspections of the three complex waterways identified as potentially higher risk than the other main waterways
- risk-based review of potential impacts
- assessment of surface water impacts during construction and operation.

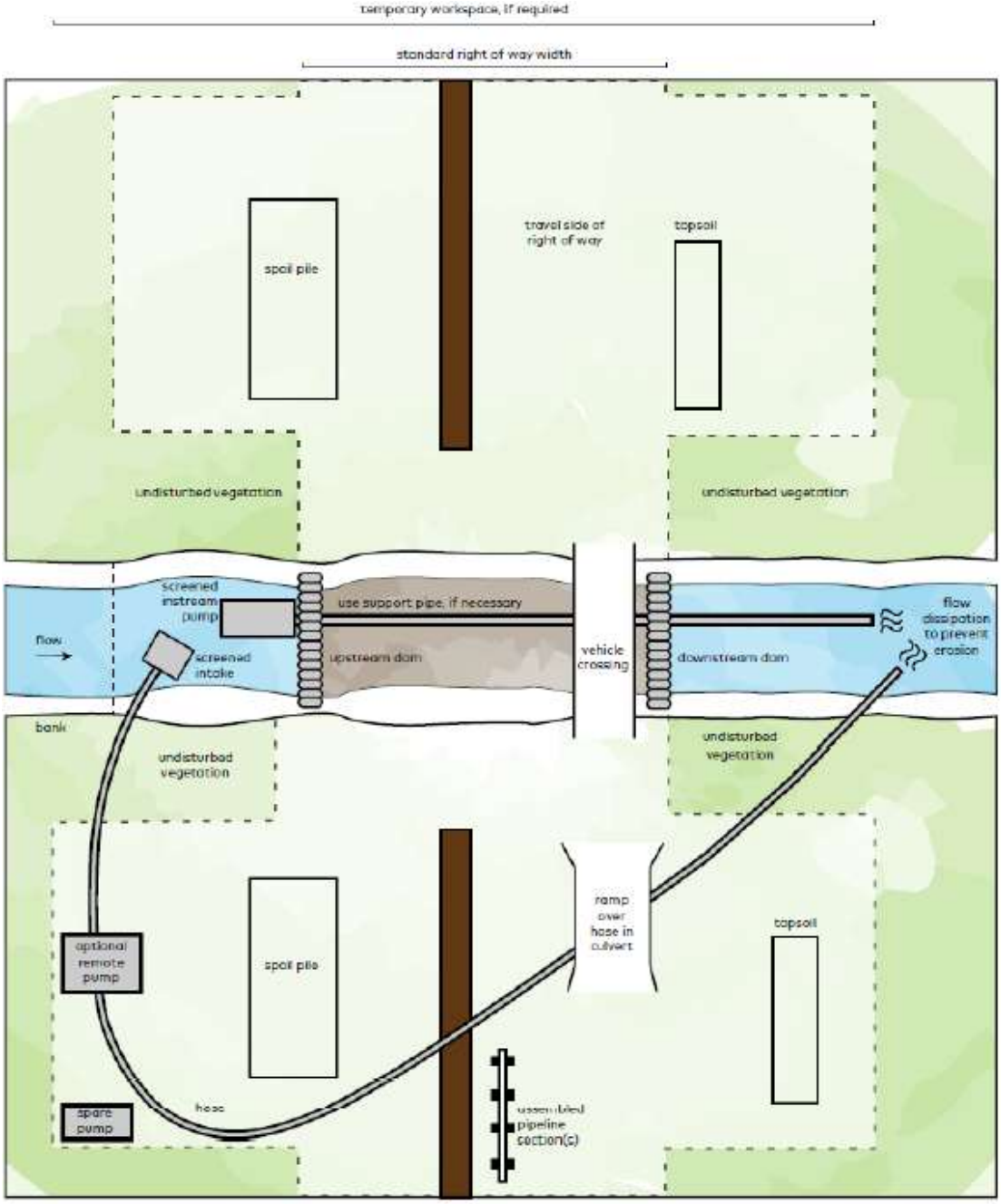
The Project area extends across three catchments that drain into Port Phillip Bay: the Koroit Creek (Werribee River basin), Maribyrnong River and Yarra River catchments. Twenty three designated waterways intersect the construction corridor.

The EES identified six 'main' waterways that were assessed in more detail, including three 'complex waterways' (Jacksons Creek, Deep Creek and Merri Creek) and three other main waterways (Tame Street Drain, Kalkallo Creek and Merri Creek tributary at KP40.8). Jacksons Creek, Deep Creek and Merri Creek all have natural channels, whereas the Tame Street Drain and Kalkallo Creek have been channelised. The tributary of Merri Creek has an undefined channel.

Waterway crossings were a key issue in the surface water component of the EES and a major focus of submissions relating to surface water. Waterway crossings are separately discussed in this section. Section 7.4 focuses on other issues relating to surface water.

The pipeline (Revision 10) will cross 22 designated waterways, including six 'high risk' waterways, as well as some minor drainage lines that are not designated waterways. The EES lists 23 waterway crossings but reported that Crossing 1 (KP1) does not intersect the pipeline, instead it flows in parallel. The Revision 10 alignment has greater separation between the pipeline corridor and this waterway. The Proponent proposes that the Deep Creek crossing will be constructed by HDD with all the other waterway crossings being constructed by open trenching. Jacksons Creek is the only waterway with perennial flow that is to be trenched. Figure 8 shows the proposed construction approach for the Jacksons Creek crossing.

Figure 8 Proposed open trench construction set up for the Jacksons Creek crossing[87]



Plan View
(not to scale)

The EES presented risk assessments relating to the waterway crossings in the surface water and biodiversity material. Relevant information was presented in other sections of the EES, including groundwater, ground movement and contamination.

The EES assessed the risks associated with the HDD crossing of Deep Creek as 'low' to 'negligible' in terms of biodiversity and surface water.

87 EES Chapter 4, Figure 4-12

The EES assessed the residual risks from the trenched waterway crossings for surface water and biodiversity as 'low' except for 'waterway or floodplain function' at Jacksons Creek, which was assigned an initial risk of 'high' and residual risk of 'medium'.

6.3.2 Evidence and submissions

(i) Trenchless crossing of Deep Creek

The changes in pipeline route from Revision 7 to Revision 10 included a change in the location of the Deep Creek crossing in response to a landowner request. The Proponent indicated that geotechnical investigations for the new route were incomplete and submitted:

> If the geotechnical investigations indicate that trenchless construction is not feasible at the new site, APA would revert to the route originally proposed'[88].

Hume was supportive of the use of HDD for the stream crossing and submitted:

> The project has recommended directional drilling for the Deep Creek, and this should be applied broadly to all creeks …[89].

(ii) Acceptability of trenched waterway crossings

The acceptability of trenched waterway crossings was a focus of submissions relating to surface water and biodiversity. Hume submitted:

> The use of open cut trenching for any natural waterway including Kalkallo Creek, Jacksons Creek and the Merri Creek is unnecessarily invasive. Direct drilling technology has advanced to the point that this kind of impact is considered an unacceptable and unnecessary risk to the natural environment[90].

Hume added that open trenching of Jacksons Creek and Kalkallo Creek '*is inconsistent with the objectives of the ESO1, the objective and strategies of clause 19.01-3S*' of the Hume Planning Scheme and '*the principle of sustainable development under the Pipeline Act 2005 (Vic)'*[91]. It submitted that '*All the proposed waterway crossings are located within High priority stormwater areas, noting the government's intention to reduce additional impacts to these waterways and improve their condition*'[92].

Hume submitted HDD should be used for all waterway crossings to avoid disturbing natural bed and bank formations as well as impacts on growling grass frog habitat, platypus populations, fish migration and cultural heritage.

Hume disputed the arguments presented in the EES for adopting open trenching rather than HDD at Jacksons Creek based on geotechnical risks and extension of the construction footprint into cultivated private land. It submitted the geotechnical risks at this site are not insurmountable and the construction footprint for a HDD crossing would not impinge on private cultivated land.

The Grassy Plains Network submitted open trenching of creeks is unacceptable and that it:

> …is the most destructive process imaginable for crossing Merri Creek and Jacksons Creek. It will cause immense disruption and sedimentation, and create long-lasting damage, not just at the trenching site, but to the ecological communities upstream and downstream. Open trenching at Creek crossings must be avoided[93].

88 D146, paragraph 195
89 S15, section 5
90 S15, section 5
91 D148, paragraph 61
92 S15, section 5
93 S14, page 3

The Animal Justice Party expressed concerns about the impacts on the riparian habitat of the Merri Creek.

JII Investment submitted the crossing of the Merri Creek tributary '*will have an unreasonable impact on the surface water and environmental values of the site*'[94].

Mr Roberts and Dr McCowan both considered the potential impacts of the trenched stream crossings, including Jacksons Creek, to be acceptable with the implementation of mitigation measures (including changes to the EMMs proposed by Dr McCowan). Mr Roberts advised the scope of the surface water assessments of the stream crossings was limited to channel hydraulics and stability and did not extend to wider stream health considerations such as water quality or aquatic biota.

In evidence relating to biodiversity, Ms Comber advised the trenched crossing of Jacksons Creek would require the removal of two canopy trees from the riparian zone and the Merri Creek crossing would require the removal of one canopy tree from the riparian zone, in both cases river red gums. Ms Dalton and Ms Comber advised it would be preferable to construct the Jacksons Creek and Merri Creek Crossings by HDD rather than open trenching from a biodiversity perspective, but understood that HDD was not feasible. Offsets would be provided for the trees removed from the riparian zone. The Proponent explained that if HDD was used, it may be possible for existing canopy trees to be retained, however, reestablishment of large woody vegetation would not be possible within the pipeline corridor for operational and safety reasons.

The Proponent proposed changes to the EMM B22 (platypus) based on the evidence of Ms Dalton and Ms Comber to allow greater flexibility in the construction schedule for this creek crossing. The final day version of EMM B22 requires clearing of vegetation on the south bank of Jacksons Creek to occur in September or October, months before construction, to prevent platypus from nesting there. This is inconsistent with the advice of Dr McCowan that stream crossing construction in all high risk waterways should be undertaken during summer/autumn low flow conditions.

In evidence relating to cultural heritage, Mr Dalla-Vecchia advised that Traditional Owners had expressed concerns about the trenched stream crossings, particularly the Jacksons Creek and Merri Creek crossings, and preferred these crossings be constructed by HDD, where feasible.

The Proponent submitted that:

> There is no basis on the evidence to require HDD at all waterway crossings. None of the biodiversity or surface water experts had any hesitation in relation to HDD for the minor waterways.[95]

The Proponent made detailed submissions regarding the Jacksons Creek and Merri Creek crossings, drawing on the EES and evidence from the two surface water experts.

The Proponent submitted that a trenchless crossing of Jacksons Creek is not feasible for geotechnical reasons. It disagreed with Hume's submission that HDD is feasible at Jacksons Creek, noting that opposing technical evidence had not been presented. The Proponent submitted:

> If a trenchless crossing of Jacksons Creek were feasible, such a crossing would have, in light of the perennial nature of the creek and its ecological values, been proposed[96].

The Proponent submitted the 'medium' residual risk rating for 'waterway or floodplain function' in Jacksons Creek is acceptable, for the following reasons:

94 S10, paragraph 9
95 D162, paragraph 76
96 D146, paragraph 107

- The 'medium' risk is based on major consequence, but remote likelihood. It noted Dr McCowan's advice that the 'major' consequence rating may be conservative in relation to stability.
- The EPA's guidance on assessing and controlling risk provides that a medium risk '*Can be acceptable if controls are in place. Attempt to reduce to low*' [97]. The Proponent has done everything it reasonably and practicably can to reduce the risk to low but, with a major consequence rating, it can do no more without eliminating the risk.

The Proponent submitted '*it is not reasonably practicable to undertake a HDD crossing for Merri Creek*'[98] and the effects of a trenched crossing of Merri Creek are acceptable in relation to the surface water evaluation objective.

The Proponent submitted open trenching is proposed at Merri Creek for a number of reasons including:

- the crossing location is within an existing APA easement that was previously trenched, and the rehabilitation works have been successful in terms of maintaining a stable channel
- geotechnical investigations showed that basalt is present at shallow depth, reducing the risk of erosion
- moderate risk of hydraulic fracture from HDD
- HDD would require the construction footprint to be increased, as a new access track would be required along the VNIE easement north of the crossing
- the crossing works would provide the opportunity for improvement in the quality of vegetation in the currently degraded riparian zone at the site
- HDD is significantly more expensive than open trenching.

Mr Roberts and Dr McCowan advised that the existing rehabilitated pipeline crossing on Merri Creek was stable. However, Ms Dalton, Ms Comber and Mr Dunk all advised that from a biodiversity viewpoint, the site is ecologically degraded. They advised the rehabilitation works proposed for the crossing could potentially achieve improvements in some aspects of the site's ecology compared to its existing condition.

(iii) High risk waterways

Dr McCowan undertook site inspections of more waterways than the EES surface water assessment and advised that the list of high risk waterways to be crossed should be expanded to include:

- Crossing 8 of the unnamed tributary to the north of Jacksons Creek, due to high flow velocities and the potential for erosion to occur
- Crossings 15, 17, 18 and 19 of the waterways (agricultural drains) along Gunns Gully Road, due to the generally poor drainage in the area and the presence of dispersive sodic soils.

He advised that all of the requirements set out in the EMMs for high risk waterways should be applied to these waterways.

(iv) Monitoring of waterway crossings

The EPA submitted that to ensure appropriate rehabilitation of the pipeline corridor occurs for all waterway crossings, the monitoring requirements in the EMMs should be strengthened as follows:

[97] Assessing and controlling risk: A guide for business, EPA Victoria, Publication 1695.1* August 2018, p 10
[98] D146, paragraph 118

- surface water quality monitoring requirements in the CEMP should include benthic macroinvertebrates
- post-construction monitoring and maintenance should occur at all of the waterway crossings for a period of at least three years, rather than 12 to 24 months as proposed in EMM SW5.

Mr Roberts and Dr McCowan both noted that benthic macroinvertebrate monitoring is already required by EMM SW5.

Mr Roberts advised that EMMs SW3 and SW8 are more relevant to the monitoring of site rehabilitation and maintenance measures than EMM SW5. Mr Roberts advised that the 12 – 24 month construction monitoring period proposed for EMMs SW3 and SW8 was based on the 12 – 24 month defects liability period in the Melbourne Water 'Constructed Waterway Design Manual' and coincides with the period for which the CEMP will be in place.

Mr Roberts and Dr McCowan highlighted the operational monitoring requirements in EMM SW6 and the VTS OEMP in relation to longer-term monitoring. Dr McCowan recommended the visual monitoring in EMM SW6 be extended to:

- cover all waterway crossings after the first 12 months of operation, to ensure that any potential failure of rehabilitation and revegetation works would be identified and rectified
- require on-going annual monitoring of all the high risk waterways (rather than just Jacksons Creek and Merri Creek).

(v) Additional Mitigation and Compensation

Hume submitted that if open trenching of waterway crossings is carried out, additional mitigation and compensation activities should be undertaken in the affected creek corridors to offset its impacts. For example, this could include funding for activities such as removal of artificial fish barriers, weed control, and habitat enhancement within the same reach that the impact has occurred.

The Proponent responded that:

> The management of the wider catchment such as the removal of artificial fish barriers, weed control and habitat enhancement outside of the project works area are not within scope of the EES[99].

6.3.3 Discussion

(i) Deep Creek crossing

The Inquiry supports the proposed HDD crossing of Deep Creek and the Proponent's undertaking to revert to the Revision 7 alignment for the Project if HDD is not feasible at the Revision 10 crossing. A trenchless crossing at Deep Creek is important for protecting the environmental values of this area, including growling grass frog as well as riparian vegetation and aquatic habitat.

(ii) Jacksons Creek crossing

The trenched crossing of Jacksons Creek is the most controversial aspect of the Project from the viewpoint of surface water impacts. Hume expressed strong concerns about this crossing and did not agree with the Proponent's submission that HDD was unfeasible at this location.

[99] D114, page 12

The Proponent acknowledged a trenchless crossing of Jacksons Crossing would have been preferable if feasible, due to the perennial nature of the creek and its ecological values. However, it questioned the significance of the risk indicated by the 'medium' residual risk rating for 'waterway or floodplain function – Jacksons Creek' and submitted that the 'medium' risk rating in this instance was acceptable.

This raises the question of how the risk assessments for the Jacksons Creek crossing were presented in the EES. The surface water component presented assessments of two risk pathways in relation to the Jacksons Creek crossing, 'River bed or bank erosion – impacts to river health (Jacksons Creek)' and 'Waterway or floodplain function – Jacksons Creek'. In evidence, Mr Roberts advised that the surface water assessment of risks associated with the Jacksons Creek crossing was limited to hydraulic and geomorphological matters, and did not consider broader aspects of waterway health, such as the loss of shade from canopy trees and impacts on instream processes. The biodiversity component included consideration of all the stream crossings, including Jacksons Creek, in its risk assessment, but did not provide separate assessments of ecological risks associated with the Jacksons Creek crossing or any other individual stream crossing. It is unclear how the risks to various sites were weighted to derive the overall risk rankings presented in the biodiversity component. In effect, this means that the EES does not transparently quantify the overall level of risk of the Jacksons Creek crossing on waterway functions and values, water quality and beneficial uses, matters that are important to the Inquiry's assessment.

The information presented in the surface water component of the EES indicates the Jacksons Creek crossing has risks associated with the geomorphology and soils of the site, including the presence of unconsolidated sediment deposits and dispersive soils. This makes the site susceptible to erosion as well as significant risks to water quality associated with runoff from dispersive soils. The surface water assessment indicated that risks to the physical structure of Jacksons Creek could not be mitigated below 'moderate'. Potential risks to water quality were not quantified.

As noted, the biodiversity component of the EES did not provide a separate assessment for the biodiversity risks associated with Jacksons Creek crossing, instead presenting risk ratings for more general biodiversity risk pathways across the whole Project area. It identified that platypus were known to be present in Jacksons Creek and would potentially be affected by the crossing. The evidence of Ms Comber indicated the trenched crossing of Jacksons Creek would lead to the unavoidable loss of two canopy trees, which the Proponent indicated cannot be replaced for operational and safety requirements. These trees could potentially be retained if the crossing was constructed using a trenchless technique.

The loss of canopy trees will have implications for the stability and habitat structure of the creek banks, as well as for loss of shade over of the pool in Jacksons Creek formed by the backwater from the ford downstream (refer to Figure 9). The loss of shade will, in turn, have implications for instream processes, water quality and aquatic biota. These secondary and tertiary impacts have not been assessed and quantified.

The Inquiry notes the cultural heritage evidence of Mr Dalla-Vecchia in relation to a Traditional Owner preference for these crossings to be constructed by HDD, where feasible.

The EMMs intended to address the impacts of the trenched crossing of Jacksons Creek on channel stability and biodiversity have contradictory requirements. For example, the final day EMM B22 (platypus) requires vegetation to be cleared from the south bank of Jacksons Creek in spring, months before construction, to prevent platypus from nesting there. This is inconsistent with stream

stability requirements, including the advice from Dr McCowan that stream crossing construction in all high risk waterways should be undertaken during summer/autumn low flow conditions. EMM B22 relies on an untested assumption that geofabric or a similar material will provide adequate protection to the stream bank during spring flows that may include floods or freshets to prevent adverse impacts on stream stability or water quality.

Figure 9 Jacksons Creek looking downstream towards the proposed pipeline crossing[100]

The Inquiry's position is that if a trenched crossing of Jacksons Creek was to proceed, it would need to be constructed in autumn (March to May) to minimise risks to channel stability, water quality and platypus, as originally proposed in the EES.

The creek banks are likely to require artificial stabilisation measures after trenching and tree removal, with further implications for stream habitat values. However, the biodiversity advice has indicated that hardened surfaces such as concrete are not compatible with the habitat requirements of platypus and EMM B22 requires that concrete must not be substantially used as a binding agent on channel or bank surfaces. This limits stabilisation options for the site. The EES identified the presence of dispersive soils at the Jacksons Creek crossing, which would complicate the establishment of stabilisation works.

The proposed construction methodology for the Jacksons Creek crossing is more complicated than for the other trenched stream crossings because it is perennial, and it will be necessary to construct the crossing while the stream is flowing. This increases risks of impacts on water quality, with implications for downstream stream health including water quality and aquatic biota. The EPA submitted that post-construction monitoring should include benthic macroinvertebrates. Benthic macroinvertebrates are susceptible to impacts such as smothering by sediment from upstream works.

[100] D125

Per- and poly-fluoroalkyl substances (PFAS) have been recorded in Jacksons Creek. The contamination status of the soils and groundwater at the Jacksons Creek crossing site is not known because the necessary investigations (as recommended in the EES and TN10) have not been completed due to access constraints. This is significant because it means the risk of disturbing acid sulfate soils or other contaminants during construction is not known. This is further discussed in Chapters 7 and 9.

The Proponent acknowledged that the Jacksons Creek crossing would have significant environmental effects but submitted HDD was not a feasible alternative. Hume disagreed with the Proponent in relation to the feasibility of HDD but did not present any evidence to demonstrate that HDD would be feasible.

Hume submitted that if open trenching is carried out, additional measures should be undertaken in the affected creek corridors in the vicinity of the Project area to enhance stream health. The Proponent dismissed mitigation measures outside of the Project area as being outside the scope of the EES. The Inquiry does not agree with the Proponent in this regard. It considers that while it is preferable for the effects of the Project to be contained and mitigated within the Project area, in some limited circumstances, mitigation and enhancement measures outside of the Project area are a relevant consideration. In the case of the Jacksons Creek crossing, there are two key issues that could appropriately be addressed by such measures:

- The permanent loss of riparian zone habitat within the Project area (removal of two canopy trees that cannot be replaced and loss of opportunity for riparian zone regeneration or revegetation due to operational and safety reasons) – in this situation, the Inquiry considers it appropriate to consider riparian zone restoration within the local reaches of Jacksons Creek as a relevant mitigation option because it would provide some of the biodiversity benefits that will be lost in the Project area.
- The construction of the Jacksons Creek crossing brings the risk of downstream impacts, such as water quality changes and sedimentation, particularly in the near vicinity of the site. It is appropriate to consider mitigation measures to address these downstream impacts, in addition to rehabilitation measures within the Project area.

The Inquiry is unable to reach a conclusion regarding the feasibility or otherwise regarding the use of HDD for the pipeline crossing of Jacksons Creek for several reasons:

- The EES only assessed a single crossing site at Jacksons Creek, which has somewhat unusual geomorphological and geological conditions associated with its location at the junction with a minor tributary on the north bank (Crossing 8).
- The Inquiry was not provided with expert evidence or review regarding the feasibility of HDD at Jacksons Creek crossing.

The Inquiry is concerned whether the environmental effects of a trenched crossing of Jacksons Creek on waterway functions and values, water quality and beneficial uses are acceptable. It notes the necessary investigations in relation to contamination are incomplete and that some of the proposed EMMs are contradictory. It notes Hume's concern about the impacts of this crossing, which conflict with Council's objectives as expressed in the Hume Planning Scheme, as well waterway management objectives. The Healthy Waterways Strategy for the Port Phillip and Westernport Region 2018 has a vision for the Maribyrnong River catchment of significant improvement in ecological health, which includes establishing and maintaining continuous vegetated buffers, and mitigating threats to physical form such as erosion.

The Proponent and Hume disagreed on the feasibility of HDD for Jacksons Creek, but neither party called expert evidence. The Inquiry is not convinced that trenchless construction cannot be used to cross Jacksons Creek, either at the proposed crossing site or nearby. However, the Inquiry is also not certain that HDD is feasible and has not been provided with the necessary information to determine the acceptability of the overall environmental impacts of HDD either at the proposed crossing site or an alternative site. The Inquiry notes the Proponent amended the pipeline alignment in other areas to address specific concerns.

For these reasons, the Inquiry believes further analysis of the potential for trenchless crossing of Jacksons Creek, either at the proposed crossing or a nearby alternative site, is necessary. In the first instance, this analysis should include further assessment of the feasibility of constructing a trenchless crossing of Jacksons Creek at the proposed location or at a nearby location where the geology may be more suitable. This assessment should be undertaken by a suitably qualified professional with expertise in relation to the construction of trenchless waterway crossings. This assessment should be completed to the satisfaction of DELWP (pipeline regulator) and Melbourne Water (works on waterways permit) and include consultation with the RAP.

In the event that DELWP, Melbourne Water and the Proponent agree that there is no alternative to open trenching, further analysis of likely impacts and further mitigation options for a trenched crossing should be undertaken, addressing the following matters:

- Transparent assessment of impacts and risks to Jacksons Creek function and values, including stream geomorphology, hydraulic habitat (e.g. pools and riffles), groundwater, surface water quality, riparian zone biodiversity, and aquatic biodiversity. Mitigation measures to manage these risks. Rehabilitation measures to ensure restoration of stream functions and values across all of these components.
- Likely impacts of construction on pool water levels, water quality and habitat upstream and downstream of the crossing, including as a minimum the backwater pool associated with the ford crossing at Bulla-Diggers Rest Road and the pool upstream of the Project area, and how these impacts will be managed.
- Likely impacts of flow diversion and dewatering on surface-groundwater interactions, and how these interactions will be managed.
- Sodic and dispersive soils assessment to determine the extent and properties of any sodic and dispersive soils at the site and how they will be managed during construction and operation to minimise risks including erosion and water quality impacts.
- Contamination status of the soils and groundwater at the crossing site, including PFAS and AASS/PASS, and how any contamination that is identified will be managed.
- How the permanent loss of riparian zone values at the pipeline crossing (resulting from the removal of existing vegetation and preclusion of revegetation with woody species) could be addressed at a reach scale, such as opportunities for riparian zone restoration beyond the Project area.
- Construction phase monitoring requirements to ensure minimisation of impacts during construction.
- Operational phase monitoring requirements to ensure that rehabilitation measures are successful in the long-term.

This analysis should be undertaken by the Proponent to the satisfaction of Melbourne Water and DELWP and include consultation with the RAP. In the event that trenchless crossing is not deemed

to be feasible, the Inquiry would not object to trenched crossing, subject to the application of any additional mitigation measures and monitoring that might be identified through that process.

(iii) Merri Creek crossing

Hume and other submitters expressed concern about the trenched crossing of Merri Creek. The Proponent submitted HDD would potentially be feasible at this site but would not necessarily lead to significantly better environmental outcomes.

A key factor in the Proponent's selection of the trenched crossing option is the requirement for access to the construction corridor between Merri Creek and the railway line, which is proposed to be accessed from Donnybrook Road via a crossing on Merri Creek, rather than by constructing a track along the VNIE easement from the north. The temporary construction access crossing will be used for a period of approximately three months and will be used by construction traffic including machinery for open trenching and the trenchless crossing at the railway line.

The Merri Creek crossing is situated within an existing easement, which was previously trenched for installation of the VNIE pipeline. The proposed Pipeline has been aligned at the minimum offset (six metres) from the existing pipeline required for safety purposes and cannot safely be located closer than proposed.

The Proponent submitted the existing pipeline corridor has been successfully rehabilitated. Mr Roberts and Dr McCowan agreed this was the case from the viewpoint of channel stability. However, Ms Dalton, Ms Comber and Mr Dunk advised that from a biodiversity viewpoint, the vegetation of the site is weed-infested and ecologically degraded. The Inquiry concludes that while the channel may be stable, this is arguably a poor example of 'successful' rehabilitation in relation to the overall evaluation objective for surface water.

The EES surface water and biodiversity assessments indicated the residual risks are 'low', noting the same limitations on the scope of assessment are applicable here as discussed for Jacksons Creek. That is, the EES provided a site-specific assessment of risks in relation to stream hydraulics and stability, but no site-specific risk ratings for biodiversity. Relevant contamination assessments have been completed with satisfactory outcomes (as discussed in Chapter 9). This section of Merri Creek has ephemeral flow, making construction less complicated than at Jacksons Creek, provided construction is undertaken during a dry period when the creek is not flowing.

The Merri Creek crossing will bisect the 'Merri Creek Park' site of Geological and Geomorphological Significance and cause direct disturbance by trenching and construction of the temporary access crossing for construction. This site is identified as having 'regional' significance based on being a 'natural' sector of Merri Creek and 'almost certainly' the least disturbed sector in the whole Merri Creek catchment[101]. The site has already been disturbed by the existing VNIE pipeline, which was constructed after the listing of the site, and will be further disturbed by the Project. This issue is further discussed in Chapter 8, including recommended mitigation measures.

The Merri Creek crossing will require the removal of one canopy tree (river red gum) from the riparian zone, which cannot be replaced within the pipeline corridor for operational and safety requirements and will be managed by an offset. The riparian zone at this site is only 'one tree wide', but these trees have an important role in relation to channel structure and habitat, and form part of the site of geological and geomorphological significance due to the structural role of the trees in

[101] VRO website, VRO Site 35

relation to the channel morphology. Given the permanent loss of opportunity for riparian zone restoration (as well as the loss of one canopy tree), it would be appropriate for riparian zone restoration measures in other parts of the local reach to be considered to address riparian habitat loss (as discussed above for Jacksons Creek).

The Inquiry notes the concerns expressed by submitters regarding the trenched crossing of Merri Creek. The Inquiry is tasked with determining whether environmental effects of the proposal before it are 'acceptable' rather than whether an alternative option (such as HDD crossing of Merri Creek) would provide better environmental outcomes.

The Inquiry considers the proposed trenched crossing of Merri Creek is acceptable, providing that all relevant mitigation measures are applied, including the amendments recommended by the Inquiry. It notes the trenched crossing will be constructed within an existing easement that has already been disturbed by previous trenching, and that the residual environmental risks were assessed in the EES as 'low'.

(iv) Other Trenched Waterway crossings

The Inquiry notes Hume's submission that HDD should be used to construct all waterway crossings but agrees with the Proponent that '*There is no basis on the evidence to require HDD at all waterway crossings*'[102].

Apart from Jacksons and Merri Creeks, specific submissions were made relation to crossings of two other waterways (Kalkallo Creek and the unnamed tributary of Merri Creek near Donovans Lane).

Hume submitted the open trenching of the Kalkallo Creek crossing was unacceptable but did not provide any explanation or site-specific reasons for this position. The Inquiry notes that Kalkallo Creek and tributaries in the Kalkallo retarding basin are agricultural drains that have previously been channelised and will undergo further modifications to accommodate drainage requirements for the Merrifield North PSP. The Inquiry is not convinced that HDD should be required in this area but accepts Dr McCowan's advice that all stream crossings in the Kalkallo retarding basin should be managed as high risk waterway crossings.

JII Investment raised concerns about the diagonal crossing of the unnamed tributary of Merri Creek near Donovans Lane. The Proponent that advised the orientation of the crossing is constrained by the OMR/E6 PAO. This waterway currently has an undefined channel and will be modified to enable future development under the Lockerbie PSP. The Inquiry considers the crossing approach proposed in the EES is appropriate at this location, noting it has been identified as a high risk waterway and therefore subject to more extensive mitigation measures.

The northern tributary of Jacksons Creek (Crossing 8) has a steep ephemeral course that poses higher risks to trenching and associated construction activities in the stream valley. The Proponent submitted this route was selected due to the greater difficultly of trenching in the steep adjacent valley sides. However, the proposed route presents significant challenges due to the combination of a steep valley gradient and substantial watercourse that result in a high-energy, high erosion risk situation. The Inquiry accepts Dr McCowan's evidence that this stream should be managed as a 'high risk' waterway due to high flow velocities and high erosion risk. The pipeline makes two crossings in this tributary system, one crossing is situated on the designated waterway (KP13.86)

[102] D162, paragraph 76

and the other on a tributary which is not a designated waterway (KP13.97). The Inquiry recommends that both of these crossings should be managed as 'high risk' waterway crossings.

The Inquiry accepts Dr McCowan's advice that the waterways in the Kalkallo retarding basin should all be managed as high risk waterways, and this is generally reflected in the final day Environmental Line List (ELL)[103]. The Inquiry recommends amending the ELL to identify all three channels at Crossing 15 as high risk waterways. In the final day ELL, only one of the three channels is identified as a high risk waterway.

(v) Monitoring of waterway crossings

The final day EMMs include the following monitoring requirements in relation to waterway crossings:

- Post-construction visual monitoring of all trenched waterway and floodplain crossings (EMM SW3) with additional requirements for Jacksons Creek (EMM SW8), as part of the CEMP.
- Water quality and biodiversity monitoring of Jacksons Creek and Merri Creek in relation to the effects of construction (EMM SW5), as part of the CEMP.
- Periodic inspections of Jacksons Creek and Merri Creek during the operational period (EMM SW6), under the VTS OEMP.

The Inquiry accepts the EPA's submission that EMM SW5 should include a specific requirement for monitoring of benthic macroinvertebrates. Further, the monitoring requirements for EMM SW5 should be extended into the rehabilitation and recovery phase. The Inquiry recommends the monitoring period for EMM SW5 be extended to 24 months post construction, to allow for detection of persistent and delayed impacts resulting from construction. This aligns with the duration of the CEMP. Water quality and biodiversity monitoring should be accompanied by observations of channel structure and habitat, including evidence of erosion or sedimentation to assist in understanding the Project's effects.

The Inquiry notes the EPA's submission that there should be post-construction monitoring and maintenance for all stream crossings for a minimum of three years post construction, as well as Mr Roberts' advice that a 12 to 24 month post-construction monitoring period is appropriate and consistent with Melbourne Water's 'Constructed Waterway Design Manual'. The Inquiry agrees with the 24 month monitoring period proposed for vegetation reestablishment and recommends EMMs SW3 and SW8 be amended to require civil rehabilitation works at all waterway crossings to also be monitored for a period of 24 months after completion.

The Inquiry accepts Dr McCowan's recommendation that EMM SW6 should include a requirement for all of the high risk waterways (based on the expanded list of high risk waterways recommended by Dr McCowan) to be monitored at least annually on an ongoing basis under the VTS OEMP. The Inquiry notes the OEMP requirements cited in EMM SW6 include inspections and maintenance in relation to erosion or stability issues, as well as vegetation growth and weeds. The focus of the vegetation inspections and maintenance is on the removal of weeds and vegetation, rather than vegetation establishment or biodiversity values of vegetation.

[103] D95

6.3.4 Findings

The Inquiry finds:

- The trenchless crossing of Deep Creek will have negligible impacts on surface water.
- In regard to the Jacksons Creek Crossing:
  - the Inquiry has concerns about the water quality, bank stability, biodiversity and habitat impacts of the proposed trenched crossing
  - the Inquiry was not provided with adequate evidence to confirm that a trenchless crossing, either at the proposed site or other nearby location, is not feasible
  - the Inquiry believes that further analysis of the potential for a trenchless crossing either at the proposed site or other nearby location is necessary.
- In regard to the other trenched crossings, including the Merri Creek crossing:
  - the EES assessment of stream crossing impacts is satisfactory
  - the impacts of the stream crossings are acceptable (subject to the application of the recommended mitigation measures), noting that the Inquiry has not been tasked with determining whether the proposed crossing arrangements are optimal in each instance.
- Construction impacts associated with the pipeline will be more problematic than the operational impacts but can be satisfactorily managed through the recommended mitigation measures, including additional investigations in relation to Jacksons Creek.
- For all crossings, direct impacts will occur during the construction phase, but long-term monitoring will be required during the operational phase to ensure that rehabilitation measures remain successful and are not damaged by extreme events such as floods.

6.3.5 Recommendations

The Inquiry recommends:

Environmental Management Measures

Include a new 'Surface water' EMM:

Further assessment of the Jacksons Creek crossing

Undertake further assessment of constructing a trenchless crossing of Jacksons Creek at the proposed location or at a nearby location where the geology may be more suitable. This assessment must be undertaken by a suitably qualified professional with expertise in relation to the construction of trenchless waterway crossings. This assessment should be completed to the satisfaction of DELWP and Melbourne Water, and include consultation with the RAP.

In the event that there is no feasible alternative to open trenching, further analysis of likely impacts and suitable mitigation options for a trenched crossing must be undertaken, addressing the following matters:

- ***Assessment of impacts and risks to Jacksons Creek function and values, including stream geomorphology, hydraulic habitat (e.g. pools and riffles), groundwater, surface water quality, riparian zone biodiversity, and aquatic biodiversity. Mitigation measures to manage these risks. Rehabilitation measures to ensure restoration of stream functions and values across all of these components.***
- ***Likely impacts of construction on pool water levels, water quality and habitat upstream and downstream of the crossing, including as a minimum, the backwater pool associated***

with the ford crossing at Bulla-Diggers Rest Road and the pool upstream of the Project area, and how these impacts will be managed.

- ***Likely impacts of flow diversion and dewatering on surface-groundwater interactions, and how these interactions will be managed.***
- ***Sodic and dispersive soils assessment to determine the extent and properties of any sodic and dispersive soils at the site and how they will be managed during construction and operation to minimise risks including erosion and water quality impacts.***
- ***Contamination status of the soils and groundwater at the crossing site, including PFAS and AASS, and how any contamination that is identified will be managed.***
- ***How the permanent loss of riparian zone values at the Pipeline crossing (resulting from the removal of existing vegetation and preclusion of revegetation with woody species) could be addressed at a reach scale, such as opportunities for riparian zone restoration beyond the Project area.***
- ***Construction phase monitoring requirements to ensure minimisation of impacts during construction.***
- ***Operational phase monitoring requirements to ensure that rehabilitation measures are successful in the long term.***

Amend EMM B22 to delete the second paragraph and following two dot points.

Amend EMM B22 to include the following additional dot points under 'Measures to be implemented within Jacksons Creek to facilitate passage for Platypus through the works area are:'

- ***The construction works at Jacksons Creek waterway/banks must be timed to avoid the peak juvenile nesting period between September and the beginning of March.***
- ***A pre-construction survey must be undertaken by a Platypus specialist for the presence of burrows within the construction corridor at Jacksons Creek.***
- ***Excavations should proceed carefully using a non-toothed excavator bucket (e.g. mud or batter bucket) in order to allow any individuals present to escape.***

Amend EMM SW3 to replace dot point 7 with:

- ***Carry out routine inspections (e.g. minimum every six months plus potentially following any significant flood event) to monitor effectiveness of civil rehabilitation works (earthworks and rock beaching works) during the first 24 months post-construction. Where monitoring identifies defects or deficiency in civil rehabilitation works, appropriate rectification measures will need to be implemented.***

Amend EMM SW5 to insert the following requirement between paragraphs 3 and 4:

Monitor the benthic macroinvertebrate communities to assess pre-construction condition, detect and evaluate potential impacts from sedimentation and/or flow changes during construction and operation, implement better controls and initiate rehabilitation measures as needed.

Amend EMM SW5 to replace the final sentence in paragraph 4 with:

Biodiversity and water quality monitoring must be continued for a period of 24 months post-construction, to identify any potential effects from the construction and rehabilitation work, including secondary and lagged effects.

Amend EMM SW8 to replace dot point 4 with:

- ***Carry out routine inspections (e.g. minimum every two months or following any significant flood event) to monitor effectiveness of civil rehabilitation works (earthworks and rock beaching works) during the first 24 months post-construction. Where monitoring identifies defects or deficiency in civil rehabilitation works, appropriate rectification measures will need to be implemented.***

Operation Environment Management Plan

Amend EMM SW6 so that it applies to all of the 'high risk' waterways, including Jacksons Creek, Merri Creek, Tame Street Drain, Jacksons Creek tributary (Crossing 8), Kalkallo retarding basin waterways (Kalkallo Creek and Crossings 15, 17, 18 and 19) and Merri Creek unnamed tributary.

Environmental Line List

Amend the Environmental Line List to identify the following waterway crossings as '*high risk waterways*':

- **the waterway crossing at KP 13.97**
- **the waterway crossings at KP 33.85 and KP 33.94.**

6.4 Other surface water impacts

6.4.1 Background

The EES surface water risk assessment addressed risks relating to waterway crossings and other surface water risks. The other surface water risks were assessed as having a 'low' residual risk and include:

- a high flow or flood event during construction in the waterway or floodplain
- water quality impacts from the Project, including site runoff, spills and erosion of sodic and dispersive soils.

The EES assessed cumulative impacts of the Project on surface water together with four other planned projects, the OMR/E6, Sunbury Road Upgrade, Bald Hill to Yan Yean Pipeline and AusNet and Mondo's Western Victoria Transmission Network project. The EES reported that cumulative impacts of the Project could occur in relation to the OMR/E6 and Bald Hill to Yan Yean Pipeline and should be addressed through coordination between the projects. No significant cumulative impacts on surface water were expected in relation to the Sunbury Road Upgrade or Western Victoria Transmission Network project.

6.4.2 Evidence and submissions

(i) Environment Protection Act and Environment Protection Authority guidance documents

The EPA submitted that the surface water management measures should be amended to apply the *Environment Protection Act*, the Environment Protection Regulations 2021 and ERS, and to include reference to recently published EPA guidance, including EPA Publication 1739 (Urban stormwater management guidance).

The Proponent generally accepted the EPA's submissions and amended relevant surface water EMMs in accordance with its recommendations (discussed in TN42), except in relation to EPA Publication 1739. Mr Roberts and Dr McCowan both queried the relevance of EPA Publication 1739 to the Project. The Proponent submitted that:

> APA maintains that EPA Publication 1739 – Urban Stormwater Management Guidance is of little if any relevance to the Project and that reference to it will not contribute anything to the proper management of stormwater of the Project …No reference to the publication has been included in the EMMs, but it has been listed in Table 4.2: Applicable policies and guideline of the CEMP in case of marginal relevance[104].

However, EPA Publication 1739 was not included in Table 4.2 of the final day version of the CEMP.

The EPA provided subsequent clarification that EPA Publications 1739 is:

> … part of the 'state of knowledge' which is shorthand for the matters which section 6(2)(c) of the Environment Protection Act 2017 provides that a duty holder must have regard to when determining what is reasonably practicable for the purposes of the General Environmental Duty and is therefore guidance generally in relation to the management of surface water risks[105].

(ii) Surface water quality and flooding

The Animal Justice Party submitted the Project will affect biodiversity through a number of drivers including water pollution. It recommended impacts on water quality, habitat and flood risk should be modelled.

The VPA submitted that EMMs for the Project should ensure that:

> Sodic and dispersive soils are managed to eliminate any runoff from soil stockpiles, and sodic and dispersive soils are disposed of in a manner that prevents the sodic soil finding its way into waterways[106].

The Proponent responded to these submissions by referring to expert evidence from Mr Roberts and Dr McCowan, as well as TN24 regarding sodic soils management. Neither of the surface water experts provided detailed commentary in relation to sodic and dispersive soils.

Dr McCowan recommended EMM SW1 provide more detail regarding the types of erosion and sediment control measures required in particular situations. He drew attention to the elevated risk of erosion on steep slopes on the sides of Jacksons and Deep Creek valleys. He advised EMM SW4 should be amended to require trenched crossings of high risk waterways to be undertaken in the drier months (December to May) where practicable. Otherwise, both experts advised that the EES assessment and proposed EMMs were adequate and appropriate.

(iii) Future development

The VPA advised it has commenced preliminary discussions with Melbourne Water for preparation of the Merrifield North PSP. This will involve significant drainage infrastructure, including a significant waterway or drainage crossing of the Project area. It submitted the Proponent should liaise with Melbourne Water and the VPA to ensure an integrated infrastructure planning outcome for drainage works in the future PSP.

The Proponent responded by referring to evidence from Mr Roberts and Dr McCowan, who both noted the ongoing liaison between the Proponent and Melbourne Water. Dr McCowan noted the EES indicated the bed of the upgraded waterway will be approximately one metre below the existing bed level, and recommended the pipeline should have a minimum of two metres of cover from the bed of the upgraded Kalkallo Creek. The Proponent's reply submission set out proposed depths of

[104] D162, paragraph 11
[105] D156
[106] S22, page 4

cover over the pipeline within the Merrifield North PSP, which had been agreed in consultation with Melbourne Water and DoT.

JII Investment submitted the Project will have an unreasonable impact on the surface water and environmental values on the unnamed tributary of Merri Creek near Donovans Lane. The property is within the Lockerbie PSP and the Merri Creek tributary will become a constructed waterway up to 50 metres wide and 2.5 metres deep. The Proponent responded that the pipeline will be installed at sufficient depth of cover to ensure adequate separation from the waterway following upgrade works when the property is developed.

1100 Donnybrook Road Pty Ltd made submissions in relation to the effects of the Project on existing and future drainage arrangements at its site in Donnybrook. The Proponent referred to evidence from Mr Roberts and Dr McCowan that the Project will not change the existing drainage in the area and that drainage for future development of the property will be established under a Melbourne Water development services scheme (DSS).

Dr McCowan noted that the main surface flow path through 1100 Donnybrook Road is effectively a waterway. He advised that '*the crossing of the drainage line should be treated as an additional waterway crossing, with the appropriate environmental management measures in place*'[107].

(iv) Waterway management oversight

Melbourne Water, which will be responsible for issuing 'Works on Waterways' permits under the *Water Act 1989* for the pipeline crossings, did not make a submission to the Inquiry. However, unlike other decision makers, it was not given notice of the EES by DELWP[108]. In this regard, DELWP advised that:

> At the time the notifications under the EE Act were provided, it was considered that the CMA *(Catchment Management Authority)* would be responsible for providing any necessary works on waterways permits ... Thus the relevant CMA was included in the list of decision makers that were given notice rather than Melbourne Water[109].

The CEMP was written on the incorrect assumption that the Port Phillip and Westernport Catchment Management Authority (PPWCMA) is responsible for issuing Works on Waterways permits.

The Proponent advised that Melbourne Water is aware of the Project, it participated in the Technical Reference Group for the Project that oversaw the preparation of the EES, and has been involved in ongoing discussions with the Proponent.

6.4.3 Discussion

(i) Environment Protection Act and Environment Protection Authority guidance documents

The Proponent updated the exhibited EMMs in accordance with the new *Environment Protection Act* and associated regulations and guidance, except for inclusion of specific reference to EPA Publication 1739, which it considered to be 'of marginal relevance'. It submitted that EPA Publication 1739 would be included it in Table 4.2 of the CEMP 'Applicable policies and guidelines', however, this reference was not included in the final day version of the CEMP.

[107] D61, page 46
[108] D145
[109] D145

The Inquiry agrees with the Proponent that the specific subject matter of EPA Publication 1739 is not directly relevant to the Project. However, the Inquiry accepts the EPA's advice that it provides guidance on what is reasonably practicable for the purposes of the GED in relation to managing surface water risks. Therefore, it is a guidance document that the contractor should be aware of, and it is appropriate that it to be included in Table 4.2 of the CEMP as proposed by the Proponent.

(ii) Flooding

The pipeline passes through low lying areas associated with waterways that are subject to inundation. They include a broad, frequently inundated floodplain (more than one kilometre wide) associated with Kalkallo Creek and narrower, more confined floodplains associated with Jacksons Creek, Deep Creek and Merri Creek. Flooding presents a greater risk at the larger waterways: Deep Creek, Jacksons Creek, Merri Creek and Kalkallo Creek. Some of the waterways may be affected by prolonged inundation and potential waterlogging, including Kalkallo Creek, Tame Street Drain and Merri Creek unnamed tributary.

Dr McCowan noted that impacts of Project construction on floodplains could arise in two main ways:

- obstruction of water flow across the floodplain causing increased flood levels
- sediment and construction materials, including fuels and oils, washed downstream and affecting the downstream water quality.

The Inquiry accepts that the risks of the Project in relation to flooding are generally low with the application of the recommended mitigation measures. It accepts Dr McCowan's advice in relation to the timing of higher-risk crossings in summer and autumn, and his prioritisation of the Kalkallo Retarding Basin and Merri Creek. The Inquiry notes that sodic and dispersive soils have been identified as an issue in the Kalkallo Regarding Basin (discussed in Chapter 9), which makes it particularly important for construction to occur in this area during a dry period to reduce risks of erosion and downstream pollution by turbid water.

(iii) Surface water quality

The Project has the potential to affect surface water quality through a number of risk pathways, including stormwater runoff, construction activities in waterways, site dewatering, discharges from trenchless construction and pressure testing of the pipeline, spills (e.g. fuel, oil, chemicals), and erosion of sodic and dispersive soils. The EES assessed residual risks to surface water quality as 'low'.

The initial risk of surface water pollution from erosion of sodic and dispersive soils during construction and operation was assessed as 'medium' but is expected to be mitigated to 'low' through the Sodic and Dispersive Soils Management Plan (EMM GM7) (refer to Chapter 9 for discussion of EMM GM7).

The Inquiry accepts that the risks of the Project to surface water quality, other than as a result of the construction of stream crossings are generally low, subject to the recommended mitigation measures. This is critically reliant on effective management of construction and operation risks associated with sodic and dispersive soils.

(iv) Future development

A number of the waterways in the Project area are in growth corridors and will be modified to enable future development. Submissions were received from the VPA and two landowners regarding impacts of the Project on waterways that will be subject to proposed future modifications, including

waterways in the Kalkallo retarding basins and two unnamed tributaries of Merri Creek. EMM SW10 requires the pipeline detailed design and alignment to be developed in consultation with Melbourne Water in areas within a DSS. This applies to the Kalkallo retarding basin waterways and the tributary of Merri Creek at Donovans Lane. The unnamed tributary at 1100 Donnybrook Road will be reinstated to its existing condition as future drainage arrangements to enable development have not yet been established by Melbourne Water. The Inquiry accepts that this approach is reasonable.

The Inquiry accepts Dr McCowan's recommendation for the drainage line at 1100 Donnybrook Road to be treated as an additional waterway, requiring application of the relevant EMMs.

(v) Waterway management responsibilities

The references to PPWCMA in the CEMP and submissions from the Proponent and DELWP indicate that the role of Melbourne Water in relation to waterway management has been misunderstood. Unlike all other CMAs across Victoria, PPWCMA does not perform waterway management functions for its region. Instead, for the Port Phillip and Western Port region, these functions (including Works on Waterways permits) are performed by Melbourne Water[110]. The Inquiry recommends that the references in the CEMP to PPWCMA be changed to Melbourne Water.

6.4.4 Findings

The Inquiry finds:

- The EES assessment of surface water impacts in relation to water quality, flooding and future development is satisfactory.
- Construction impacts associated with the pipeline will be more problematic than the operational impacts but can be satisfactorily managed through the recommended EMMs.

6.4.5 Recommendations

The Inquiry recommends:

Construction Environment Management Plan

Amend Table 4.2 'Applicable policies and guidelines' to include '*EPA Publication 1739 – Urban Stormwater Management Guidance*' in the list of EPA Publications.

Amend Table 2.3 'Pipeline construction sequence' and Section 2.7 – 'Rehabilitation' to replace '*Catchment Management Authority requirements*' with '*Melbourne Water requirements*'.

6.5 Surface water conclusions

The Inquiry concludes that:

- The surface water impacts are consistent with the evaluation objective and can be acceptably managed through the recommended mitigation measures, subject to further analysis of crossing Jacksons Creek.
- The potential impacts on Jacksons Creek should be addressed through further assessment of alternative options, including HDD or more extensive mitigation measures that might extend beyond the Project works area.
- There are no surface water impacts that preclude the Project being approved.

[110] https://www.ppwcma.vic.gov.au/about/melbourne-water-integration/

7 Groundwater

7.1 Introduction

Groundwater effects are discussed in EES Chapter 8 and Technical Report C. Additional material was provided in TN05, TN11, TN19 and TN36.

No evidence in relation to groundwater was provided.

The relevant Scoping Requirements Report evaluation objectives are:

> **Water and catchment values** – Maintain the functions and values of groundwater, surface water and floodplain environments and minimise effects on water quality and beneficial uses.
> **Biodiversity and habitats**: Avoid and minimise potential adverse effects on native vegetation, listed threatened and migratory species and ecological communities, and habitat for these species, as well as restore and offset residual environmental effects consistent with State and Commonwealth policies. (Aspects related to groundwater dependent ecosystems)

The EES proposed the following EMMs to manage the groundwater impacts of the Project:

- GW1: Minimise dewatering rates and impact to groundwater levels and flows
- GW2: Minimise impact on groundwater bore users
- GW3: Minimise impacts associated with contaminated groundwater and disposal
- GW4: Manage chemicals, fuels and hazardous materials
- GW5: Drilling fluids requirements
- GW6: Implement spoil management procedures
- GW7: Design requirements.

The Proponent proposed revisions to the EMMs GW1, GW3 and GW7 in response to submissions from the EPA. The changes were included in the final documents provided by the Proponent.

Other EMMs relevant to groundwater include EMMs B4 (groundwater-dependent ecosystems), C3, C4, C5, C6 and C9 (contamination and acid sulfate soils), and SW1 and SW4 (groundwater interaction with surface water).

7.2 Key issues

The key issues are:

- The impacts on groundwater levels, flows and quality.
- The impacts on groundwater bores used for water supply.
- The impacts on Groundwater Dependent Ecosystems (GDEs)

7.3 Groundwater impacts

7.3.1 Background

The Project involves sub-surface works associated with the construction of the pipeline. The construction and operation of these works have the potential to interact with groundwater.

The EES describes the assessment of groundwater that was conducted, including:

- establishment of a groundwater study area that extends three kilometres from the pipeline alignment

- desktop hydrogeological assessments and baseline data review
- field investigations including site visits, geotechnical drilling and groundwater monitoring
- characterisation of existing conditions, including establishment of a conceptual hydrogeological model
- simple numerical modelling of potential groundwater drawdown during construction dewatering
- risk-based review of potential impacts
- assessment of groundwater impacts during construction and operation.

The geology of the study area consists largely of Newer Volcanics basalt with smaller areas of Palaeozoic sedimentary and igneous rocks, Tertiary sedimentary formations, and localised Quaternary alluvial and colluvial deposits associated with waterways. The water table aquifers along most of the pipeline route consist of fractured rock aquifers (siltstone, sandstone and basalt) with porous media aquifers (sands, gravels) along drainage lines and waterways, especially Jacksons, Deep, Kalkallo and Merri Creeks.

Groundwater salinity along the majority of the alignment is considered to be between 3,500 milligrams per litre (mg/L) and 7,000 mg/L Total Dissolved Solids, with areas of lower salinity at Deep Creek and from Donovan's Lane to the Wollert Compressor Station. Most groundwater bores in the study area are stock and domestic bores.

The depth of groundwater along the pipeline alignment varies from less than 5 metres below ground level (mbgl) to more than 50 mbgl. The open trench during pipeline construction will generally be 2 metres deep, but will be deeper at specific locations including creek and waterway crossings, entry and exit points for horizontal boring (maximum depth 5 metres), and where required for pipe coverage or clearances for existing and future infrastructure. If the trench or bellholes at entry and exit points for trenchless construction intersect the watertable, dewatering will be required. However, dewatering is not expected to be required for the drilled or augured hole for HDD or horizontal boring and pipe jacking, even if these activities occur below the water table, due to the construction methodology.

In most areas, the pipeline is expected to be above the water table, but the EES identified six areas where groundwater was likely to be present less than 5 mbgl and the Project is likely to interact with the water table aquifer:

- Area 1: Bendigo Railway and the Tame Street Drain
- Area 2: Jacksons Creek
- Area 3: Deep Creek
- Area 4: Donovans Lane and the North East Rail reserve
- Area 5: Merri Creek
- Area 6: Donnybrook Road (east of Merrifield) (KP46.97 to 47.03).

The EES reported that in some sections of the pipeline route, localised perched groundwater may be intersected above the regional water table, but these are expected to be localised and unlikely to yield significant volumes of groundwater.

The EES assessed risks to groundwater from Project construction as 'low' to 'negligible'. Ongoing risks to groundwater during the operational phase of the Project were assessed as 'low'.

The cumulative impact assessment in the EES identified only one project that would potentially have a cumulative impact on groundwater, the Bald Hill to Yan Yean Pipeline. If both projects were

constructed simultaneously, the drawdown area of influence would increase in the area where the projects have a similar alignment (KP40 to 42) but no impacts on registered groundwater users or GDEs are anticipated. The Proponent's preference is for the work to be done at different times to minimise any potential for cumulative impacts.

7.3.2 Submissions

Groundwater issues were not prominent in submissions to the Inquiry. The Proponent did not provide detailed submissions in relation to groundwater and relied on the material in EES Chapter 8 and Technical Report C. The Proponent responded to specific issues raised in the Inquiry's RFI and in submissions as described below.

The Proponent tabled the following additional information as part of its response to specific issues raised in the RFI:

- A report on additional groundwater monitoring information that had been undertaken after the EES studies to confirm 'baseline' groundwater conditions for the Project[111]. This report does not change the findings of the EES.
- The Proponent tabled an email from Southern Rural Water, which confirmed that it did not have any concerns with the Project as the licensing authority and clarified licence requirements for dewatering[112].

The EPA submitted the groundwater EMMs should be amended to apply the *Environment Protection Act*. The Proponent accepted EPA's submission and amended EMMs GW1, GW3 and GW7 in accordance with the EPA's recommendations (as discussed in TN05).

The Animal Justice Party submitted a general concern that potential impacts on groundwater may be of significance for humans, wildlife and the environment. The Proponent responded that the groundwater impacts were assessed in the EES as low to negligible with the implementation of relevant mitigation measures and therefore not of significant concern.

JII Investment submitted the Merri Creek crossing will have impacts, including potential contamination of groundwater. The Proponent responded that the risk of groundwater contamination at this site would be mitigated through EMMs for management of chemicals, fuels and hazardous materials during construction (EMMs C6 and GW4).

7.3.3 Discussion

The Inquiry is generally satisfied that the assessment of groundwater impacts in EES Chapter 8 and Technical Report C are appropriate and accepts that the residual risks are low.

The Inquiry notes that pipeline impacts during construction will be more problematic than during its operation but is satisfied that the EMMs (when amended as proposed) provide the mechanism to satisfactorily address construction impacts.

(i) Groundwater impacts

Existing groundwater users are not expected to be affected by drawdown during construction. There are no registered groundwater bores in the predicted area of drawdown influence, which extends less than 50 metres from the pipeline, however, it is possible that unregistered bores are

[111] TN11
[112] D118

present in this area, or that the drawdown area will extend further than predicted. EMM GW2 provides for management of any affected bores within 60 metres of the pipeline. Southern Rural Water advised the Proponent that it does not have any concerns with the Project as licensing authority.

The EES identified only one EVC, Riparian Woodland, which could be considered a terrestrial GDE. Jacksons Creek and Merri Creek were identified as potential aquatic GDEs. Groundwater drawdown was predicted to occur during construction at the Jacksons Creek and Merri Creek crossing areas, with drawdown influence extending approximately 50 metres from the excavation. However, the overall risk to GDEs was assessed as 'low' based on the localised extent and short duration of drawdown as well as the expected resilience of the affected GDEs.

The Inquiry is generally satisfied with the assessment of risks to GDEs, except in relation to the Jackson Creek crossing, where the situation is complicated by perennial streamflow and the presence of the backwater pool from the ford crossing downstream. The EES does not explain how dewatering at this site would be managed in relation to surface/groundwater interactions. The Inquiry recommends that this issue needs to be addressed as part of the further analysis outlined in Chapter 6.

In regard to Merri Creek, the EES indicates that the nearest potential refuge pool is approximately 100 metres away and recommended a site survey be undertaken in summer to confirm the location of any refuge pools near the crossing[113]. Given assumptions and uncertainties underlying the calculation of the estimated drawdown distance, the Inquiry agrees this would be prudent to inform mitigation measures relating to biodiversity (EMM B4). The Inquiry recommends a survey extent of 150 metres from the edge of the Project area to ensure detection and confirmation of the potential pools reported in the EES.

The EES assessed construction risks relating to groundwater quality as 'low', including mobilisation of contaminated groundwater, or contamination of groundwater by leaks, spills or disturbance and stockpiling of existing contamination spoil. The risk of HDD drilling fluids impacting groundwater quality was assessed as 'negligible' and the Inquiry supports the Proponent's amendment to EMM C9 to require the use of inert and non-toxic drilling fluids.

The Inquiry notes there are some uncertainties with regard to contamination and acid sulfate soils, these are generally manageable by the measures set out in the final day CEMP, except at the Jacksons Creek crossing, where further assessment was recommended in the EES and TN10.

The EES reported that the Jacksons Creek crossing is the closest expected dewatering site in the Project area to a potentially contaminated site (Bulla Tip, 750 metres away). This is a considerable distance further than the 50 metre drawdown area estimated in the EES for construction dewatering. However, it is possible that contaminated groundwater has migrated beyond the boundaries of the contaminated site, but the EES does not assess whether this is the case and if there are any implications for Jacksons Creek. The Inquiry notes that PFAS has been recorded in surface water in Jacksons Creek and the source is currently unknown.

It is expected that groundwater flow paths will not be significantly blocked or altered by the Project, given the relatively shallow trench depth and small pipe diameter compared to the aquifer thicknesses. There is an ongoing possibility of spills or leaks during the operation and maintenance

[113] Technical Appendix A, page 265

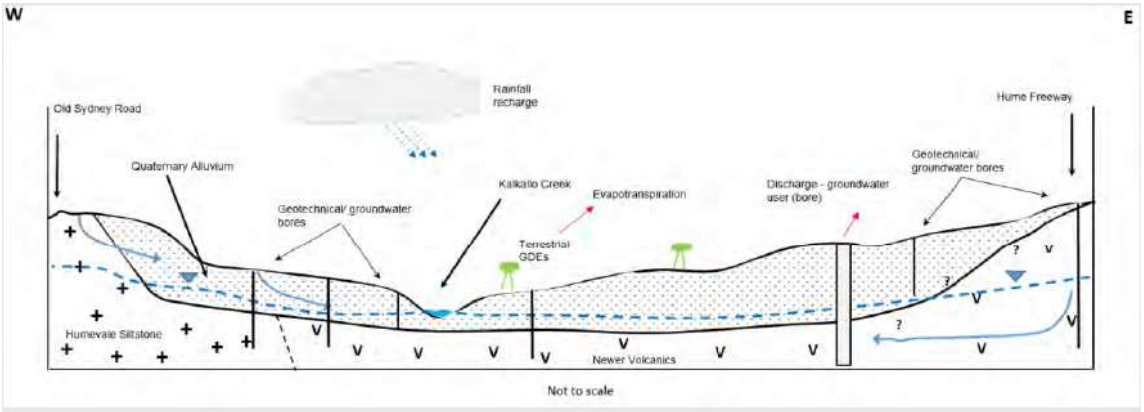
of the pipeline and associated infrastructure, and these are addressed through mitigation measures in the OEMP as set out in EMM C10.

(ii) Provision for uncertainty

The EES and EMF take a risk-based approach to groundwater, prioritising investigations and management measures to focus on six areas where groundwater is most likely to be intersected. The Inquiry considers this to be appropriate, provided that adequate arrangements are in place to manage uncertainty.

Fractured rock aquifers have a high degree of spatial variability. There are also uncertainties in regard to water levels in porous media aquifers. This is a particularly relevant consideration in the Kalkallo retarding basin, where deep trenching (up 3.5 metres cover over the pipeline below the current depth of invert) will be undertaken to make provision for future development under the Merrifield North PSP. The EES regional groundwater assessment showed that the area between KP30.5 and 37 (including the Kalkallo Basin area) has shallow groundwater (< 5 mbgl), whereas monitoring and geotechnical bores for the Project showed that water table is slightly deeper at 6 to 8 mbgl. The conceptual hydrogeological model shows that groundwater is considered to be shallower in the vicinity of Kalkallo Creek, intersecting the creek channel (refer to Figure 10). The EES excluded this area from the priority list of areas where groundwater is likely to be intersected, based on the water table depth in the bore data exceeding 5 mbgl.

Figure 10 Conceptual hydrogeological model presented in the EES for the Kalkallo Basin[114]



The Inquiry's RFI asked the Proponent to describe and explain the proposed response if groundwater was unexpectedly encountered during construction at a shallower depth or in areas not anticipated based on the EES investigations. The Proponent referred to EMMs GW1, GW2 and GW3, and stated these EMMs are adequate to manage both expected and unexpected occurrences of groundwater. However, these EMMs (and GW7) indicate that some degree of planning is required to implement key elements of these measures, including adopting an appropriate construction method that minimises the dewatering period (EMM GW1) and assessing water quality and contamination issues (EMM GW3). The Inquiry notes the CEMP includes specific requirements in relation to the management of unknown contamination (EMM C2). The Inquiry recommends similar requirements be included in relation to unexpected groundwater, to ensure that sufficient

[114] EES Technical Report C, Figure 20

contingency is incorporated into the construction program to effectively manage any unexpected groundwater in accordance with all of the groundwater EMMs.

7.3.4 Findings

The Inquiry finds:

- The EES assessment of groundwater impacts is satisfactory.
- Construction impacts associated with the pipeline will be more problematic than the operational impacts but can be satisfactorily managed through the recommended mitigation measures.

7.3.5 Recommendations

The Inquiry recommends:

Environmental Management Measures

Amend EMM B4 to include the following after the second dot point:

- ***Undertake a site survey during summer (dry conditions) to confirm the location of refuge pools in Merri Creek in the vicinity of the Project area. The survey area should extend 150 metres from the edge of the Project area.***

Include the following new 'Groundwater' EMM:

Managing unexpected groundwater encountered during construction

The following actions are required when unexpected groundwater is encountered during construction:

- ***Cease construction at the unexpected groundwater location and in the near vicinity.***
- ***Review contamination risks in relation to the unexpected groundwater and undertake testing to determine appropriate management and disposal options.***
- ***Undertake assessments for the presence of actual acid sulfate soils and potential acid sulfate soils in formations where such soils could potentially occur, including the Kalkallo retarding basin and other areas with Quaternary floodplain and swamp deposits.***
- ***Identify any groundwater bores that are likely to be affected by dewatering and liaise with the affected bore owners to make appropriate arrangements as required in EMM GW2.***
- ***Assess and manage ground movement risks related to construction dewatering in accordance with EMMs GM2 and GM3.***
- ***Review the construction methodology and change if appropriate.***
- ***Undertake other measures as necessary to meet the requirements of other relevant EMMs, including the groundwater EMMs GW1 and GW3 and the contamination EMMs C2, C3 and C4.***

7.4 Groundwater conclusions

The Inquiry concludes that:

- The groundwater impacts are consistent with the evaluation objective.
- Groundwater impacts can be acceptably managed through the recommended mitigation measures.
- There are no groundwater impacts that preclude the Project being approved.

8 Land stability and ground movement

8.1 Introduction

Land stability and ground movement effects are discussed in EES Chapter 9 and Technical Report D. Additional material was provided in TN12, TN20, TN34 and TN35.

No specific evidence in relation to land stability and ground movement was provided.

The relevant Scoping Requirements Report evaluation objectives are:

> **Biodiversity and habitats** – Avoid and minimise potential adverse effects on native vegetation, listed threatened and migratory species and ecological communities, and habitat for these species, as well as restore and offset residual environmental effects consistent with state and Commonwealth policies.
> **Water and catchment values** – Maintain the functions and values of groundwater, surface water and floodplain environments and minimise effects on water quality and beneficial uses.
> **Social, economic, amenity and land use** – Minimise potential adverse social, economic, amenity and land use effects at local and regional scales.

The EES proposes seven EMMs to manage land stability and ground movement impacts of the Project:

- GM1: Third party asset management
- GM2: Design and construction to be informed by geotechnical and hydrogeological conditions
- GM3: Management of trench stability: support and duration
- GM4: Management of trench erosion, consolidation and swelling
- GM5: HDD trenchless bore management
- GM6: Confirmation of ground risk
- GM7: Preparation and implementation of sodic soil management measures.

The Proponent proposed revisions to the land stability and ground movement EMMs in response to submissions from the VPA, the results of further investigations by the Proponent and editorial changes for clarification. The changes were included in the final documents provided by the Proponent.

Other EMMs relevant to land stability and ground movement include SW1, SW3, SW4, SW5 (surface water) and C8 (management of hydrostatic test water).

8.2 Key issues

The key issues are:

- The impacts on land stability and ground movement.
- The implications of sodic and dispersive soils for Project construction and operation.
- The implications of any ground movement and land stability impacts for existing or approved land uses and infrastructure.

8.3 Land stability and ground movement impacts

8.3.1 Background

The EES defines 'ground movement' as '*smaller scale movements around the pipeline due to open trench construction or trenchless activities*'[115]. It defines 'land stability' as '*larger scale ground movements and the formation of unstable soil or rock masses through either human activity or natural processes*'[116].

The EES describes the assessment of land stability and ground movement that was conducted, including:

- desktop assessments and baseline data review
- review of project-specific field investigations undertaken for other components of the EES, including geotechnical and groundwater data collected for the groundwater component
- characterisation of existing conditions
- risk based review of potential impacts
- assessment of land stability and groundwater impacts during construction and operation.

The EES surface water section presented a separate assessment of erosion in relation to surface water impacts, which is discussed in Chapter 6 of the Inquiry's report.

The Project area is situated on Newer Volcanics basalt plains with ranges of low hills protruding above the plains composed of pre-volcanic basement rocks and Neogene cover units. The topography is generally flat to gently undulating, except for the deeply incised valleys of Jacksons Creek and Deep Creek, which have steeply sloping valley sides. Sodic and dispersive soils are present in the Project area and present a high risk of erosion when disturbed.

The EES summarised existing conditions and key issues for 'reaches' within the Project area with regard to land stability and ground movement. Ground movement risks were identified as being relevant to all reaches, with specific risks depending on local conditions and pipeline construction methodology. Ground movement issues include trench instability, trench ground movement and ground movement from boring, construction dewatering and construction drawdown.

Land stability issues, including slope stability and erosion, were identified as being particularly relevant to moderate and steep slopes in the Jacksons and Deep Creek valleys, undulating slopes on Humevale siltstone in the vicinity of Donnybrook Road, the Kalkallo Basin, and the Merri Creek crossing and wetlands. The presence of dispersive soils was highlighted for the Kalkallo Basin and the area in the vicinity of Donnybrook Road.

Waterway stability and erosion (of declared waterways) was separately assessed in the surface water component of the EES and is discussed in Chapter 6 of the Inquiry's report.

The EES assessed four risk pathways relating to land stability and ground movement as having an 'initial risk' of 'medium' but concluded that 'residual risks' could be reduced to 'low' or 'negligible' with additional mitigation measures. These risk pathways are:

- pipeline construction in proximity to existing slopes causing ground movements, erosion and potential slope instability (construction phase)

[115] EES Chapter 9, page 9-1
[116] EES Chapter 9, page 9-1

- permanent ground and surface water flow changes as a result of excavations causing ongoing erosion (operational phase)
- open trench excavations in unstable ground (granular material) causing instability and wall collapse resulting in disturbance to nearby land and native vegetation
- trenchless pipe installation encountering unexpected poor ground conditions at crossings causing unanticipated asset damage or HDD 'blow out' during construction.

Other risks associated with land stability and ground movement were assessed as 'low' or 'negligible' in the EES.

The EES assessed cumulative impacts of the Project on land stability and ground movement, together with three other planned projects, the OMR/E6, Sunbury Road Upgrade and Bald Hill to Yan Yean Pipeline. It concluded that:

- Cumulative land stability and ground movement effects may arise where the Project intersects with the OMR/E6 and noted the Project will need to be designed and constructed in a way that will minimise any impact.
- Minimal cumulative impacts are expected with the Sunbury Road Upgrade as the pipeline will be constructed using HDD in this area.
- Information on the ground movement risk for the Bald Hill to Yan Yean Pipeline would be required to assess cumulative impacts, and this information is currently unavailable.

8.3.2 Submissions

Submissions were received from the VPA in relation to sodic and dispersive soils, and JII Investment in relation to cumulative impacts of the Project and the OMR/E6. The Proponent responded to specific issues raised in the RFI and in submissions as described below. The Proponent provided detailed responses in relation to sodic and dispersive soils, but otherwise relied on the material in EES Chapter 9 and Technical Report D.

The Proponent tabled the following additional information in response to specific issues raised in the RFI:

- A Sodic Soils Risk Assessment by GHD (2021) based on desktop review and field assessments (TN12).
- Pipeline ROW Water Crossing and HDD Crossing Geotechnical Report - Construction Sciences (24 April 2021) (TN20).

(i) Sodic and dispersive soils

The VPA submitted it had identified the presence of sodic and dispersive soils through preparation of planning scheme amendments in growth corridors. It drew attention to on-site and offsite development impacts associated with these soils, including increased turbidity in receiving waterways with implications for water quality and aquatic ecosystems.

The VPA's submission drew attention to the proposed planning permit requirements in the Beveridge North West and Shenstone Park PSP Urban Growth Zone (UGZ) schedules for the preparation of a sodic and dispersive soil management plan. The VPA subsequently clarified that the specific requirements in these UGZ schedules relating to sodic and dispersive soils do not apply to the Project, but flag the presence of these soils in the area.

The VPA submitted Melbourne Water is the key stakeholder with regard to sodic soils due to the potential adverse impacts on downstream waterways and recommended the Proponent liaise with Melbourne Water on this matter.

The Proponent responded by submitting sodic soils are '*simply an issue to be managed, rather than a reason to not proceed*'[117] and:

> the Inquiry should take the same approach as the C106 Panel in relation to sodic soils: accept that there are risks and proceed on the basis of the best available risk mitigation measures, being a SSMP [Sodic Soil Management Plan] prepared by an appropriately qualified expert[118].

The Proponent advised that following the publication of the EES, further investigations of sodic soils have been undertaken, the proposed requirements in relation to preparation and implementation of sodic soil management measures (EMM GM7) had been revised, and additional information about external oversight of the Sodic Soil Management Plan (SSMP) has been provided.

The VPA's submission at the Hearing indicated this matter was satisfactorily resolved by the changes to EMM GM7 and the CEMP as proposed by the Proponent.

(ii) Cumulative impacts

JII Investment submitted the EES failed to adequately investigate land stability and ground movement effects that may arise from the OMR/E6 (including excavation for the road embankments or from excess ground settlement due to increased surface loading) and the effects of this on landholders and occupants of the land.

The Proponent responded by drawing attention to ongoing coordination between the Proponent and DoT and the proposed coordination deed. It submitted cumulative impacts were assessed in the EES (Chapter 9), which found the cumulative impacts of the Project and the OMR/E6 will be minor.

8.3.3 Discussion

(i) Ground movement

The Inquiry is generally satisfied the assessment of ground movement risks in EES Chapter 9 and Technical Report D is appropriate and accepts risks can be managed such that residual risks are low.

The Inquiry notes pipeline impacts during construction will be more problematic than during its operation but is satisfied the recommended mitigation measures provide the mechanism to satisfactorily address construction impacts on ground movement.

(ii) Land stability

The Inquiry notes the assessment of land stability in EES Chapter 9 and Technical Report D had limitations that were subsequently addressed by the Proponent providing further information in TN12, TN20, TN34 and TN35, including a 'Sodic Soils Risk Assessment' report. The Proponent proposed various revisions to relevant EMMs including substantial revision of EMM GM7. EMM GM7 requires preparation of an SSMP. The Proponent advised the VTS OEMP will be updated to include a SSMP for the operational phase of the Project.

[117] D146, paragraph 131
[118] D146, paragraph 135

Sodic and dispersive soils are the most challenging land stability issue to be addressed by the Project. Regional mapping of sodic soils showed the Project area contains 'dense, dispersive subsoils' and soil testing as part of the EES showed that dispersive soils are present at Jacksons Creek, Deep Creek, Donnybrook Road (west), Merri Creek and Kalkallo Basin. Further investigations included preparation of a dispersion risk map, but GHD noted variability and uncertainty in the soil testing results and advised that '*The presence and severity of dispersive soils may vary significantly over short distances along the alignment*'[119].

The Inquiry agrees with GHD's recommendation that:

> A suitably qualified geologist/soil scientist should undertake a site walkover along the alignment (or at least the potentially dispersive sections) to check for changes in site conditions such as disturbance of ground cover and evidence of active erosion since the previous investigations, which could impact design and construction (e.g. man-made disturbance, change in land use)[120].

The Inquiry notes the VPA drew attention to sodic and dispersive soils in its initial submission and subsequently advised that it was satisfied with the Proponent's response.

The Proponent's changes to EMM GM7 are based on the requirements relating to sodic and dispersive soils management plans in the proposed Beveridge North West PSP UGZ schedule[121]. The Proponent submitted: '*Sodic soil management is not as well understood as, for example, management of acid sulfate soils. There is not much guidance available for management*[122]. The Proponent drew the Inquiry's attention to the discussion of sodic soils in the Mitchell C106 Panel Report, which stated '*sodic soil management plan does 'break new ground*'"[123]. It goes on to state: '*Further substantial work … will be needed to define the content of the soil management plans and more resources will need to be applied by both developers and the responsible authority to prepare and assess these plans*'[124].

The terms 'sodic' and 'dispersive' are used interchangeably in the final day documents, however, not all dispersive soils are sodic and not all sodic soils are dispersive. The proposed Beveridge North West PSP UGZ schedule uses the descriptor 'Sodic and dispersive soils management plan' (SDSMP), rather than 'Sodic soils management plan' and the Inquiry considers this to be more appropriate. Similarly, other references to 'sodic' soils should be changed to 'sodic and dispersive soils' unless the reference is deliberately intended to be limited to 'sodic soils'.

The final day CEMP stated the Proponent will develop, seek approval/acceptance for and implement the '*Sodic Soils Management Plan for acceptance by DELWP as an EMP under the Pipelines Act prior to commencement or* [sic] *works*'[125]. The VPA submitted that Melbourne Water is the key stakeholder with regard to sodic soils due to the potential adverse impacts on downstream waterways. The Proponent advised that discussions with Melbourne Water on this issue have occurred over the past 18 months and are ongoing. The Inquiry recommends that a SDSMP should be prepared to the satisfaction of Melbourne Water as well as DELWP for the following reasons:

[119] TN12
[120] TN12
[121] D147
[122] D146, paragraph 129
[123] Mitchell Planning Scheme Amendment C106 Panel Report, page 73
[124] Mitchell Planning Scheme Amendment C106 Panel Report, page 74
[125] D158, section 9.2.1

- The SDSMP for the Project is likely to 'break new ground' and there would be considerable benefit in having input from Melbourne Water, which has experience in relation to this issue.
- If the SDSMP fails to adequately address erosion risks relating to sodic and dispersive soils, there is potential for harm to water quality and aquatic ecosystems in receiving waterways, affecting their ecological, social and cultural values.
- Melbourne Water has the lead role in delivering the *Healthy Waterways Strategy 2018*, which aims for waterways to be managed sustainably to enhance environmental, economic, social and cultural values.

The Inquiry has considered the revised version of EMM GM7 presented in the final day CEMP and has the following comments in relation to the requirements of EMM GM7:

- The Inquiry questions the risk rating of 'negligible' assigned in the EES to the risk pathway '*Construction dewatering in dispersive soils - Movement of the groundwater table through dispersive soils causing erosion and land disturbance*'. The Inquiry notes the movement of water across and through dispersive soils can result in rill, gully and tunnel erosion. The Inquiry recommends EMM GM7 be amended to expand the SDSMP requirement in relation to drainage to include construction dewatering.
- The International Erosion Control Association Guidelines (Appendix P – Pipelines) draws attention to the roles of both soil science and geotechnical expertise in relation to the identification and management of soil hazards. The proposed 'Sodic and dispersive soils management plan' requirements in the Beveridge North West PSP UGZ schedule include a requirement for a '*Soils investigation, undertaken by a soil scientist*'. The Inquiry recommends the requirement in EMM GM7 for the SDSMP to be developed by '*a suitably qualified professional*' be amended to '*one or more suitably qualified professionals with relevant expertise, including soil science and geotechnical expertise*'.

(iii) Cumulative impacts

JII Investment expressed concern about potential cumulative impacts of the Project with the OMR/E6. The Inquiry accepts the Proponents submission that this issue can be appropriately managed through coordination with DoT including the proposed coordination deed.

(iv) Sites of geological and geomorphological significance

The EES identified five sites of geological and geomorphological significance in the vicinity of the Project area, including sites on Merri Creek, Jacksons Creek, Deep Creek, Bald Hill and Hayes Hill. It concluded that ground movement and land disturbance resulting from the Project posed 'negligible' risk to these sites. The Inquiry accepts this conclusion in relation to four of the sites, which are in the vicinity of the Project area but do not directly intersect it.

The 'Merri Creek Park' site (Victorian Resources Online (VRO) Site 35) is bisected by the Project area. The Project will result in direct disturbance to the site including construction of a trenched pipeline crossing through the site, as well as a temporary access crossing that will be used for about three months for construction access to the Project area north of Merri Creek to the railway crossing. The Inquiry notes the site has already been disturbed by the construction of the existing VNIE pipeline, but the Project will widen the extent of the disturbed area. To protect the values of the site, the CEMP should include requirements for disturbance to the geomorphological value of the site during construction to be minimised to the extent practicable, and to ensure that construction corridor is

rehabilitated with regard to restoring its geomorphological values, not just to ensure stability. This issue is further discussed in Chapter 6.

8.3.4 Findings

The Inquiry finds:

- The assessment of land stability and ground movement impacts presented in the EES and supplementary information provided in Technical Notes by the Proponent is generally satisfactory.
- Construction impacts associated with the pipeline will be more problematic than the operational impacts but can be satisfactorily managed through the recommended mitigation measures.

8.3.5 Recommendations

The Inquiry recommends:

Construction Environment Management Plan

Change '*sodic soil management measures*' to '*sodic and dispersive soil management measures*' in Section 3.4.2.

Change '*Sodic Soils Management Plan for acceptance by DELWP as an EMP under the Pipelines Act prior to commencement or works.*' to '*Sodic and Dispersive Soils Management Plan for acceptance by DELWP as an EMP under the Pipelines Act prior to commencement* of *works*' in Section 9.2.1.

Change '*Sodic Soils Management Plan*' to '*Sodic and Dispersive Soils Management Plan*' in Section 9.2.2.

Change '*Ground Movement Management Plan (including sodic soils)*' to '*Ground Movement Management Plan (including sodic and dispersive soils)*' in Appendix F – Management Plans.

Environmental Management Measures

Amend EMM GM2 to change the third dot point to '*the potential presence of sodic and dispersive soils*'

Amend EMM GM7 as follows:

- **Change the first two sentences to:**

  Develop and implement a Sodic and Dispersive Soils Management Plan (SDSMP). The SDSMP is to be prepared by one or more suitably qualified professionals with relevant expertise, including soil science and geotechnical expertise, prior to the commencement of construction and must include:
  - **Change paragraph 2 '*details of completed soil investigations*' to '*review of completed soil investigations and site walkover by a suitably qualified soil scientist/geologist*'.**
  - **Change paragraph 3 '*The management of drainage at all stages of construction*' to '*The management of drainage and dewatering at all stages of construction*'/**
  - **Insert a requirement that the '*Sodic and Dispersive Soils Management Plan must be prepared to the satisfaction of Melbourne Water and DELWP*'.**

Include the following new 'Ground movement' EMM:

Impacts on the Merri Creek Site of Geological and Geomorphological Significance (VRO Site 35)

Determine appropriate protection and restoration measures for the geological and geomorphological values of the site based on the advice of an appropriately qualified geomorphologist.

Ensure that disturbance to the natural geomorphology of Merri Creek is minimised during construction to the extent practicable, including disturbance from construction of the pipeline crossing as well as the construction and use of the temporary access crossing, through implementation of appropriate measures in:

- ***the detailed design of the Merri Creek crossing***
- ***the construction management plan for the Merri Creek crossing.***

Ensure that rehabilitation of the construction corridor at this site restores the natural geomorphology of the site to the extent reasonably practicable.

8.4 Land stability and ground movement conclusions

The Inquiry concludes that:

- The land stability and ground movement impacts are generally consistent with the evaluation objective, although sodic and dispersive soils present a significant risk that will require management during construction and operation.
- The recommended sodic and dispersive soils mitigation measures, satisfactorily address risks, noting that there is limited guidance available for sodic soil management.
- Land stability and ground movement impacts can be acceptably managed through the recommended mitigation measures.
- There are no land stability and ground movement impacts that preclude the Project being approved.

9 Contamination

9.1 Introduction

Contamination effects are discussed in EES Chapter 10 and Technical Report E. Additional material was provided in TN02, TN10 and TN21.

No specific evidence in relation to contamination was provided.

The relevant Scoping Requirements Report evaluation objectives are:

> **Waste** – Minimise generation of wastes from the project during construction and operation, and to prevent adverse environmental or health effects from storing, handling, transporting and disposing of waste products
> **Water and catchment values** – To minimise adverse effects on water (including groundwater, waterway, wetland, estuarine, intertidal and marine) quality and movement particularly as they might affect the ecological character of the Western Port Ramsar site

The EES proposed 10 EMMs to manage the contamination impacts of the Project:

- C1: Implement soil management measures
- C2: Managing any unknown contamination
- C3: Minimise impacts from disturbance of acid sulfate soil
- C4: Minimise risks from contaminated groundwater
- C5: Minimise risks from vapour and ground gas intrusion
- C6: Manage chemicals, fuels and hazardous materials
- C7: Management of waste streams
- C8: Management of hydrostatic test water
- C9: Management of drilling fluids
- C10: Minimise contamination risks during operation.

The Proponent proposed revisions to the exhibited EMMs in response to submissions from the EPA, matters of clarifications in response to questions from the Inquiry and some editorial changes. The changes were included in the final documents provided by the Proponent.

Other EMMs relevant to contamination include AQ3 (air quality – odorous soils management), EMMs B2 and B11 (biodiversity), GW3, GW4, GW5, GW6 (groundwater) and SW1 (surface water).

9.2 Key issues

The key issues are:

- Disturbance of contaminated soils and groundwater during construction.
- Impacts from disturbance of potential and actual acid sulfate soils.
- Management of contaminants and waste associated with project construction and operation.

9.3 Contamination

9.3.1 Background

The construction of the Project has the potential to encounter contaminated soil and groundwater (including vapour and ground gas) and generate a range of waste materials. Sources of

contamination can be from human activities (including current and former land uses), or can be naturally occurring, such as acid sulfate soils.

The EES describes the assessment of contamination, including:

- establishment of a study area for contamination that includes the Project construction corridor as well as a 500 metre buffer on either side
- desktop assessment and baseline data review using publicly available data sources
- field investigations including site inspections and sampling of soil, surface water and groundwater
- characterisation of existing conditions, considering potentially contaminated land, acid sulfate soils and groundwater
- risk based review of potential impacts
- assessment of contamination impacts during construction and operation.

The existing land uses within the study area were generally considered to have a relatively low potential for soil and groundwater contamination, except for industrial land use, including landfills and fill sites, and areas affected by poor environmental practices such as uncontrolled dumping or storage of waste. Acid sulfate soils have a low likelihood of occurring in the Project area.

Based on land use history within close proximity to the Project area, the EES identified that contaminated soils are most likely to be encountered in the following areas:

- possible former quarry in Beveridge (KP37.5)
- auto wreckers at Diggers Rest (KP9.95 to 10.14)
- Kalkallo retarding basin (KP33 to 35.54 – potential collection point for contamination from catchment)
- Wollert Compressor Station (KP50.78 to 51.045)
- Jacksons Creek crossing
- Merri Creek crossing
- within and immediately adjacent to rail reserves (Sunbury Railway Line at Diggers Rest and railway crossing at Beveridge) (KP8.3 and 41.1).

Other sources of potential contamination were identified as:

- industrial waste dump, Diggers Rest (KP11.3)
- Bulla tip and quarry (KP14.85 to 15.85)
- Landfill site, Bulla (KP15)
- 40 Batey Court Bulla (KP16)
- Tame Street Drain.

The EES noted there remains a low risk of contamination being encountered elsewhere in the Project area, but assessed this risk as being low enough to be managed by the construction contractor as specified in the CEMP and EMM C2.

The EES assessed the residual contamination risks from Project construction as 'low' to 'negligible'. The risk pathway '*exposure to ground gases and vapour*' during construction (risk pathway C7) was given an initial risk rating of 'medium', but the EES reported that this could be mitigated to 'low' by applying the mitigation measures outlined in EMM C5. The other contamination risks associated with Project construction were all assessed as having initial risks of 'low' or 'negligible'. Operational contamination risks were assessed as 'low'. They consisted of leaks or spills and management of waste streams.

9.3.2 Submissions

Contamination issues were not prominent in submissions to the Inquiry. The Proponent did not provide detailed submissions in relation to contamination and relied on the material in EES Chapter 10 and Technical Report E. The Proponent responded to specific issues raised in the RFI and in submissions as described below.

The Proponent tabled the following additional information as part of its response to specific issues raised in the RFI:

- TN02 that outlined the implications of the *Environment Protection Act* for the contamination component of the EES. This identified amendments to EMMs C1, C3, C7, C8, C9 and C10 in relation to the latest EPA guidance documents or to meet the GED.
- TN10 that summarised the findings of the additional contamination investigations undertaken by the Proponent following exhibition of the EES.
- TN21 that responded to questions from the Inquiry, including further amendments to EMMs C1 and C9.

The EPA submitted the contamination management measures (EMMs C1 to C10) should be amended to apply the *Environment Protection Act*, the *Environment Protection Regulations 2021* and supporting standards or guidelines. It recommended EMM C3 be amended to include reference to National Acid Sulfate Soils Guidance. The Proponent accepted the EPA's submissions and amended EMMs C1, C3 and C7, C8, C9 and C10 (as discussed in TN02).

The EPA submitted further soil investigations should be undertaken prior to construction at the Diggers Rest auto wreckers, (KP9.95 to 10.14), the possible former quarry in Beveridge (KP37.5), the Kalkallo retarding basin (KP34 to 35.5), Wollert Compressor Station (KP50.7 to 51.045) and the shallow sediments in Jacksons Creek. The Proponent responded by outlining further contamination investigations undertaken since exhibition of the EES, including at the Diggers Rest auto wreckers, Kalkallo retarding basin and possible former quarry in Beveridge, but excluding the Wollert Compressor Station and Jacksons Creek (TN10).

The EPA submitted that '*consideration should also be given to soil sampling beneath the rail crossings and reserves prior to construction to help inform risk and categorise waste soil produced during horizontal directional drilling*'[126]. The Proponent responded that the HDD entry and exits pits for the railway crossings are anticipated to be located outside of the rail reserves, and therefore sampling to categorise the soil for onsite re-use or offsite disposal is not required.

The Animal Justice Party was concerned that chemical waste from the Project might be a potential contaminant of significant concern for humans, wildlife and the environment. The Proponent responded by drawing attention to the contamination EMMs, including controls for management of chemicals, fuels and hazardous materials (EMM C6), and management of drilling fluids (EMM C9).

The Animal Justice Party submitted the volumes of waste produced by the Project and the volume of landfill should be quantified and effective mitigation measures enacted. The Proponent responded that waste volumes could not be quantified in detail in the EES because waste volumes will differ depending on the contractor and their adopted methodology. It submitted it was expected that much of the spoil will be reused on site in the reinstatement phase of the Project in accordance with relevant EMMs.

[126] S9, page 19

9.3.3 Discussion

The Inquiry is satisfied the assessment of contamination impacts in EES Chapter 10 and Technical Report E are appropriate and accepts that the residual risks are generally low.

The Inquiry notes that pipeline impacts during construction will be more problematic than during its operation but is satisfied that the recommended mitigation measures will provide the mechanism to satisfactorily address construction impacts.

The Inquiry notes the Proponent accepted the EPA's submissions in relation to the application of the new *Environment Protection Act* and industrial waste management requirements and has amended the EMMs accordingly. The EPA was satisfied with the Proponent's response.

(i) Contaminated soils and groundwater

The risks associated with Project construction in relation to contaminated soils and groundwater include:

- disturbance and management of existing contaminated soil and other contaminated materials
- mobilisation of contaminated groundwater
- exposure to ground gases and vapour.

The EES contamination assessment and subsequent investigations (TN10) show that the risks arising from encountering contaminated soils from existing and historical land uses during construction of the Project are low, and that contamination is likely to be limited in extent. The Inquiry notes the EPA's submission and the Proponent's advice regarding additional soil testing, including the need for further testing to confirm the contamination status at Jacksons Creek, which has not been completed. TN10 notes this work is intended to be completed prior to construction, however, given the complexities associated with the Jacksons Creek crossing, the Inquiry recommends that the soil testing at Jacksons Creek should be completed as part of the further investigations for the Jacksons Creek crossing recommended in Chapter 6.

The Inquiry notes the EPA's submission regarding soil testing in the vicinity of railways. The Inquiry considers it would be prudent for soils in the vicinity of the railway lines to be tested, based on the lack of contamination data for these soils and the possibility of contaminant migration from the immediate vicinity of the railway tracks and railway reserve by processes such as surface runoff, wind-blown transport and bioturbation. This testing should categorise the soil for onsite re-use or offsite disposal.

The EES stated the most likely areas of contaminated soil in or near the Project area are located in areas where the water table is expected to be deeper than five mbgl and therefore unlikely to be intercepted during Project construction. Potentially contaminated groundwater is expected to be intercepted at Jacksons Creek and Deep Creek. The groundwater at these sites may be affected by regional groundwater impacts from potential contamination sources including the nearby Bulla Landfill and Hi-Quality Landfill. Preliminary sampling showed elevated concentrations of PFAS in surface water in Jacksons Creek, but PFAS was reported below the laboratory limit in three nearby regional groundwater wells. Further investigations were recommended in the EES, including sampling of shallow groundwater for PFAS at Jacksons Creek, but have not yet been completed. As discussed in Chapter 6, the Inquiry recommends these additional investigations be completed as part of the further investigations of the Jacksons Creek crossing prior to finalising the crossing arrangement.

The final day EMMs set out arrangements for managing unexpected discoveries of unknown contamination in spoil during construction (EMM C2) but did not set out any arrangements for managing the unexpected discovery of groundwater during construction. The Inquiry recommends a new EMM to address unexpected presence of groundwater, which includes requirements to assess and manage unexpected discoveries of potentially contaminated groundwater. This is further discussed in Chapter 7.

Excavations during Project construction could potentially create a pathway for gases and vapours from volatile contamination at depth to migrate up to the surface. The EES identified the Bulla quarry and landfill (KP14.85 to 15.85) as the primary potential source of ground gases, and the Diggers Rest auto wreckers (KP9.95 to 10.14) as another potential source. EMM C5 will be relied upon to manage this risk and to mitigate the risk level from 'medium' to 'low'.

(ii) Acid sulfate soils

The EES investigations included an acid sulfate soil desktop review and limited field sampling, which showed that Potential Acid Sulfate Soils (PASS) and Actual Acid Sulfate Soils (AASS) are unlikely to be present in the Project area. The EES concluded that it was not anticipated an EPA approved acid sulfate soil management plan would be required, although further investigations were recommended for confirmation.

Within the Project area, AASS/PASS are most likely to be found in floodplain and swamp deposits. The EES identified sediment deposits associated with the major waterways (Jacksons Creek, Deep Creek, Merri Creek, Tame Street Drain and the Kalkallo retarding basin) as the areas where AASS/PASS, if present, are most likely to occur.

The EES recommended further assessment should be undertaken prior to dewatering alluvial soils, particularly at Jacksons Creek and Merri Creek. After the exhibition of the EES, further investigations were undertaken at Merri Creek, which led to the conclusion that AASS/PASS were unlikely to be present at this site. Similar investigations were proposed at Jacksons Creek but have not been completed. The Inquiry recommends these investigations at Jacksons Creek be completed as part of the further investigations for the Jacksons Creek crossing recommended in Chapter 6.

The EES concluded further assessment of AASS/PASS at the Kalkallo retarding basin was not required based on the assumption that the Project is unlikely to intercept groundwater at this location. However, testing results reported in the EES for bore WORMBH09 adjacent to Gunns Gully Road (approximately KP35) identified one soil sample at the EPA assessment criterion[127] of 0.03 %S. Changes to pipeline cover and depth in this area in response to submissions mean that the excavations will be deeper than originally anticipated in the EES. The Inquiry recommends that if groundwater is encountered during trench excavation in the Kalkallo retarding basin, construction should cease and further investigations for AASS/PASS should be undertaken before proceeding with any dewatering.

The Tame Street Drain is another site where AASS/PASS are potentially present. The Inquiry recommends further investigations of AASS/PASS be undertaken in the vicinity of the Tame Street drain prior to dewatering. The water table in the vicinity of this area (at the Sunbury Railway Crossing at KP 8.3) is assumed to be around 2 mbgl.

[127] EPA Publication 655 1 'Acid Sulfate Soil and Rock' (2009)

(iii) Contamination and waste from the Project

Waste streams from the Project include construction waste (e.g. excess spoil and rock, and drilling fluids), commercial and industrial waste (e.g. pipelining wastes) and domestic waste. Leaks and spills are a potential contamination source. The risks related to contamination and waste from the Project are considered to be low if managed in accordance with the final day EMMs. The Inquiry notes the Proponent intends to reuse spoil on site in the reinstatement phase of the Project where possible, in accordance with requirements set out in the EMMS, and considers this approach to be appropriate.

9.3.4 Findings

The Inquiry finds:

- Potential sources of contamination of soil and groundwater relating to historical and current land use were identified at several locations along the pipeline alignment.
- Acid sulfate soils (PASS and AASS) are unlikely to be present, but further investigations are recommended at Jacksons Creek as proposed in the EES, as well as at the Tame Street Drain and the Kalkallo Basin if dewatering is required.
- Contamination impacts can be adequately managed by the recommended mitigation measures.

9.3.5 Recommendations

The Inquiry recommends:

<u>Environmental Management Measures</u>

Amend EMM C1 to include the following 'Assessment' requirement:

- ***Complete further testing to categorise soils in the vicinity of the railways for onsite re-use or offsite disposal.***

Amend EMM C3 by inserting the additional dot point requirement:

- ***Complete further acid sulfate soil assessment prior to dewatering at the following locations:***
  - ***Tame Street Drain and floodplain***
  - ***Kalkallo retarding basin.***

9.4 Contamination conclusions

The Inquiry concludes that:

- The contamination impacts are consistent with the evaluation objective.
- Contamination impacts can be acceptably managed through the recommended mitigation measures.
- There are no contamination impacts that preclude the Project being approved.

10 Greenhouse gas

10.1 Introduction

Greenhouse gas (GHG) effects was discussed in EES Chapter 10 and Technical Report H. Additional material was provided in TN06, TN22 and TN29.

Table 7 lists the relevant greenhouse gas evidence that was provided.

Table 7 Greenhouse gas evidence

Party	Expert	Firm	Area of expertise
Proponent	Mr Snow	Oakleigh Greenwood	Energy policy

The relevant Scoping Requirements Report evaluation objective is:

> **Waste** – Minimise generation of wastes from the project during construction and operation, and to prevent adverse environmental or health effects from storing, handling, transporting and disposing of waste products

The EES proposes four EMMs to manage the greenhouse gas impacts of the Project:

- GG1: Construction emissions
- GG2: Normal operation of Wollert Compressor Station
- GG3: Operational emergencies
- GG4: Operational leaks.

Following its further review of the EMMs, the Proponent proposed the following changes to improve consistency with the new GED requirements as outlined in TN06:

- amend GG1 to reduce GHG emissions 'so far as reasonably practicable'
- amend GG2 to minimise GHG emissions 'so far as reasonably practicable'.

These changes are reflected in the final day documents provided by the Proponent.

10.2 Key issues

The key issues are:

- Whether the greenhouse gas emissions for the Project have been appropriately calculated and assessed.
- The acceptability of the Project's projected greenhouse gas emissions.

10.3 Background

The EES predicted the Project would generate the following greenhouse gas emissions:

- Total 50,810 tonnes of carbon dioxide equivalents during construction – the majority from land clearance.
- Total 15,380 tonnes of carbon dioxide equivalents annually during operations – the majority from fuel use at the compressor station.

A key assumption of the greenhouse gas assessment was that the Project would maintain and transfer gas more efficiently across the VTS and not increase consumption beyond existing usage. Compared with existing state annual emissions (using 2018 data), the Project was expected to contribute 0.019 per cent and 0.014 per cent of Victoria's total emissions for construction and operations, respectively.

The EES cited the AEMO Victorian Gas Planning Reports as identifying that the Project would result in a net reduction in state and national emissions of 10,110 tonnes of carbon dioxide equivalents annually. Given this net reduction, the EES concluded the Project provides an emissions benefit compared to the no-project scenario. Despite this, the greatest risk ratings of greenhouse gas emissions were considered 'medium' relating to an 'almost certain' likelihood of 'minor' consequence. A minor consequence was defined as incremental greenhouse gas emissions per annum being below the National Greenhouse and Energy Reporting (NGER) Scheme requirements.

TN18 and TN22 provided revised total greenhouse gas emissions based on the Revision 10 alignment and 500 millimetre diameter pipe as being 40,554 tonnes of carbon dioxide equivalent for construction. This is a reduction of 10,257 tonnes of carbon dioxide equivalent compared to the proposal assessed in the EES. The overall conclusions of the EES were unchanged.

10.4 Submissions

Dr Crosthwaite submitted the EES failed to account for embedded emissions in steel and other materials for the Project. The Proponent responded in TN22 that embodied emissions from construction materials steel and concreate were included in calculations, however other scope 3 emissions were deemed immaterial and therefore excluded from calculations.

The Animal Justice Party was concerned by the greenhouse gas effects of land clearance for the Project and the loss of opportunity for further carbon sequestration from vegetation. The Proponent responded that the greenhouse gas calculations had accounted for impacts of land clearance and that the site would be re-instated with vegetation post construction.

Hume submitted the assessment was misleading as it did not include a triple-bottom line assessment or consider whether the Project would contribute to a rapid decarbonisation of the economy. The Proponent responded that such assessment was outside the scope of the EES.

Whittlesea noted the EES mentions the Project will increase capacity to support future growth in gas supply and submitted the GHG calculations '*need to factor any proposed increases in consumption for the life of the asset'*[128].

The Proponent submitted the proposed changes to EMMs GG1 and GG2 reflect the language of the GED, but do not impose additional requirements to further reduce the risk.

10.5 Discussion

The Inquiry considers the EES appropriately assessed the potential greenhouse gas emissions of the Project. The Inquiry has addressed the consistency of the Project with energy and GHG policy, in the Project rationale in Chapter 4.

The Inquiry considers the Project will contribute marginal impacts to Victoria's greenhouse gas emissions during construction. Assuming it does not lead to an increase in gas usage, it will contribute negligible greenhouse gas emissions during operations.

Although the Project will provide additional capacity to transmit natural gas, the Proponent is not expecting that it will lead to an increase in usage.

The Inquiry accepts the proposed EMM changes to implement the GED.

[128] D17, page 3

10.6 Findings

The Inquiry finds:

- The greenhouse gas emissions have been appropriately calculated and assessed.
- The anticipated greenhouse gas emissions reduction, if achieved, would be marginal.

10.7 Greenhouse gas conclusions

The Inquiry concludes that:

- The greenhouse gas impacts are consistent with the evaluation objective.
- Greenhouse gas impacts can be acceptably managed through the recommended mitigation measures.
- There are no greenhouse gas impacts that preclude the Project being approved.

11 Air quality

11.1 Introduction

Air quality impacts are discussed in EES Chapter 11 and Technical Report G. Additional material was provided in TN03 and TN23.

No air quality evidence was provided.

The relevant Scoping Requirements Report air quality evaluation objectives are:

> **Social, economic, amenity and land use** – Minimise potential adverse social, economic, amenity and land use effects at local and regional scales.
> **Waste** – Minimise generation of wastes from the project during construction and operation, and to prevent adverse environmental or health effects from storing, handling, transporting and disposing of waste products

The EES proposed the following EMMs to manage the air quality impacts of the Project:

- AQ1: Construction dust management
- AQ2: Air quality associated with operation of compressor station
- AQ3: Odours soils management
- AQ4: Operational odour management.

EMM S6 (Consultation plan) is also relevant.

Following its review of the EMMs, the Proponent proposed the following changes to reduce duplication and reflect new requirements of *Environment Protection Act* as outlined in TN03:

- update AQ1 to reflect requirements of new *Environment Protection Act* and to adopt some changes recommended by the EPA
- update AQ2 to reflect requirements of new *Environment Protection Act*
- delete AQ4 as it is already included in section 6.1 of the OEMP.

These changes are reflected in the final day documents provided by the Proponent.

11.2 Key issues

The key issues are:

- The adequacy of the assessment of potential air quality impacts.
- Whether potential air quality impacts will be appropriately managed and are acceptable.

11.3 Background

The EES identified that key air quality impacts during construction will result from dust (PM_{10}) generated by mobile equipment (for example trucks, graders and excavators) and the wind disturbed soil surfaces and stockpiles. Four indicative orientations of the pipeline were considered under worst-case meteorological scenarios and distances required from the edge of the construction corridor to meet the State Environment Protection Policy (SEPP) (Ambient Air Quality) criteria at sensitive receptors, were determined. Required distances ranged from 32 metres to a maximum of 75 metres for open-trench construction.

EMMs provide for real-time dust monitoring to allow reactive management of impacts.

Modelling for the Wollert Compressor Station indicated non-compliance with SEPP (Ambient Air Quality) criteria for Nitrogen dioxide (NO_2) and Particulate matter with a diameter of 2.5

micrometres or less ($PM_{2.5}$), including the diesel engine alternator (DEA) and background conditions. When considered alone (excluding background conditions) and without the emergency DEA generator, all pollutant impacts complied with the relevant criteria. The EES notes the Environment Protection (Scheduled Premises) Regulations 2017 allows for models to exclude the emissions from an emergency DEA.

The EES notes the potential impact area around the Wollert Compressor Station was very small and largely confined to the Proponent's property and would not impact any sensitive receptors.

Greatest residual risk ratings for air quality impacts were 'low' resulting from a 'remote' likelihood and 'moderate' consequence.

The Inquiry requested information about how potential new sensitive receptors would be identified considering the proposed future residential to be built in the vicinity of the pipeline route.

11.4 Evidence and submissions

JII Investment, Hume and the Animal Justice Party were concerned with amenity impacts during construction. It was submitted the proposed construction schedule of 11-hour days offered little respite for nearby residents. JII Investment considered there would be no amenity benefits of co-locating the pipeline with the OMR considering the timing of the projects were vastly different.

Hume was concerned with potential impacts of construction dust on current and future residents within the Merrifield West PSP and submitted the alignment should be relocated to the west of the OMR/E6 PAO between KP32 and 34 to provide a suitable buffer. This is discussed further in Chapter 18.1.

The Animal Justice Party was concerned potential air quality impacts would be detrimental to health and increase costs to the health system.

The Proponent submitted once mitigation measures (including real time monitoring and adaptive management) were implemented, residual impacts to residents would be of minor significance including no health impacts, but potentially causing minor nuisance.

The EPA recommended several changes to the Air Quality EMMs. All changes were adopted by the Proponent with the exception of EPA's recommendation to reduce the maximum speed of vehicles from the current 30 kilometres per hour in AQ1 to 20 kilometres per hour or less near sensitive receptors. The EPA also recommended changes to the proposed monitoring requirements in Table 12 of the CEMP. The Proponent adopted these changes.

Ms Dunstan gave traffic evidence it was important for speed limits to be credible and considered the lower speed limit would create compliance issues. However, she could not provide any mechanical reasons why vehicles could not comply.

The Proponent considered that such a change was vague in terms of 'near sensitive receptors' and otherwise unnecessary, arbitrary and impractical.

11.5 Discussion

The Inquiry accepts the findings of the EES that residual risks to air quality from construction and during operation will be low and is satisfied the proposed EMMs are appropriate.

The Inquiry accepts the submissions of the Proponent that mandating a reduced speed limit to 20 kilometres per hour near sensitive receptors is unnecessary and that any potential significant impacts can be addressed by the adaptive management measures.

The Inquiry recommends the EMMs include a requirement for a review of sensitive receptors to be undertaken prior to construction, to ensure any new sensitive receptors are identified. The Inquiry has adopted the same language as proposed in NV1.

11.6 Findings

The Inquiry finds:

- The potential air quality impacts have been appropriately assessed.
- The proposed EMMs are appropriate and the residual impacts are acceptable.

11.7 Recommendation

The Inquiry recommends:

Environmental Management Measures

Amend EMM AQ1 to add the following introductory requirement at the beginning:

> ***Periodically review sensitive receptor locations to identify any new receptors, having particular regard to new residential development.***

11.8 Air quality conclusions

The Inquiry concludes that:

- Air quality impacts are consistent with the evaluation objectives.
- Air quality impacts can be acceptably managed through the recommended mitigation measures.
- There are no air quality impacts that preclude the Project being approved.

12 Noise and vibration

12.1 Introduction

Noise and vibration effects were discussed in EES Chapter 12 and Technical Report F. Additional material was provided in TN01, TN24 and TN32.

Table 8 lists the noise and vibration evidence that was provided.

Table 8 Noise and vibration evidence

Party	Expert	Firm	Area of expertise
Proponent	Mr Delaire	Marshall Day Acoustics	Noise and vibration

The relevant Scoping Requirements Report evaluation objective is:

> **Social, economic, amenity and land use** - To minimise potential adverse social, economic, amenity and land use effects at local and regional scales.

The EES proposed 10 EMMs (NV1 to NV10) which cover the following general themes:

- Requiring the preparation and implementation of a Construction Noise and Vibration Management Plan (CNVMP)
- Providing further mitigation if applicable criteria exceeded including through:
  - engineering controls
  - increasing the distance of the activity to the sensitive receptor
  - controlling the time of works
  - providing notice of noisy works and a complaints management system
  - consideration of temporary off-site measures including temporary accommodation
- Developing a detailed blast study and impact management plan
- Undertaking condition or dilapidation surveys for buildings subject to high blast charges
- Liaising with nearby project teams to assess cumulative construction noise impacts
- Undertaking all necessary actions to comply with construction noise criteria.

Following its review of the EMMs, the Proponent proposed changes to EMMs NV1, NV2, NV5, NV9 and NV10 to respond to the EPA's submission and reflect new requirements of *Environment Protection Act* as outlined in TN01, and to adopt changes consistent with Mr Delaire's evidence.

These changes are reflected in the final day documents provided by the Proponent.

12.2 Key issues

The key issues are:

- The management of potential construction noise impacts.
- The need to address the requirements of the new *Environment Protection Act*.

12.3 Background

The EES included a desktop assessment of potential noise impacts including identifying likely sensitive receptors from aerial imagery and modelling of predicted impacts. Due to COVID-19 restrictions, baseline data was not obtained, but derived from background levels provided in AS 1055.3:1997 (Acoustics - Description and measurement of environmental noise). This was considered in the EES to be a conservative approach.

Predicted impacts were modelled against these background levels and mitigation measures developed accordingly.

The EES considered potential vibration amenity impacts on sensitive receptors, in addition to the potential for blasting activities to cause structural damage to buildings.

Following the implementation of the EMMs, the residual risk ratings for noise and vibration impacts were assessed as 'low' and 'negligible'.

12.4 Evidence and submissions

The Proponent relied on the evidence of Mr Delaire and submitted that construction noise impacts were acceptable and the EMMs were appropriately drafted.

Mr Delaire considered the identification of sensitive receptors and identification of potential risks had been appropriately undertaken. He undertook some background monitoring and found that actual noise levels varied greatly from the derived background levels presented in the EES. As Mr Delaire's data were obtained during COVID-19 restrictions, he was not confident they were representative of 'normal conditions'. In his evidence, the differences highlighted the need for a comprehensive background noise survey to be undertaken as part of a detailed noise assessment report. The detailed noise assessment report would be undertaken as part of the CNVMP required under EMM NV1.

My Delaire stated that in order to address the GED, the noise assessment report ought to include assessment of all reasonably practicable mitigation measures on noise impacts, including describing the level of attenuation provided and an assessment of the residual noise levels once such measures had been implemented.

Mr Delaire recommended the CNVMP assess:

- sleep disturbance
- cumulative impact of proposed mitigation measures
- potential for character adjustments
- assessment of the environmental value 'human tranquillity and enjoyment outdoors in natural areas'
- application of the GED.

Mr Delaire further recommended the proposed monitoring program be expanded to include locations where construction noise levels were predicted to exceed the nominated noise limit.

JII Investment was concerned with unreasonable amenity impacts noting that construction was to occur for up to 11 hours a day, seven days a week for nine months. Mr Delaire responded that whilst the entire construction schedule was for up to nine months, the construction front would move quickly, at up to 700 metres per day, limiting the impact on any one sensitive receptor.

Mr Delaire was satisfied risks from vibration were appropriately addressed. Submissions and evidence regarding the potential vibration impacts of the Project on quarry buffer zones is discussed in Chapter 15.

The EPA recommended changes to NV5 and NV10 which were addressed by the Proponent's final day version of the EMMs. The EPA recommended the environmental value of *'human tranquillity and enjoyment outdoors in natural areas'* needed to be qualitatively assessed.

Melton City Council (Melton) submitted the EES underrepresented the current level of residential development associated with the Plumpton PSP area and therefore underrated potential impacts on amenity within this area.

In response to questioning from the Inquiry, Mr Delaire gave evidence that:

- It would be relevant for the noise assessment to include identification of sensitive receptors to account for any new sensitive receptors[129] arising from nearby development.
- The noise assessment report in EMM NV2 has a role in assessing the effectiveness of proposed mitigation measures in the context of the noise criteria provided in EMM NV10.
- The ability to mitigate vibration impacts is limited.
- The main effective mitigation for vibration impacts is distance.

12.5 Discussion

The Inquiry accepts the evidence of Mr Delaire and the changes to EMMs put forward by the Proponent in response to his evidence and to the EPA's submission.

The Inquiry considers the wording of EMM NV10 could be improved to provide clear linkages with related EMMs.

In relation to noise, the Inquiry notes the further assessments required by the EMMs and is satisfied that these processes will adequately address potential impacts.

The Inquiry accepts Mr Delaire's evidence that potential risks from vibration have been appropriately addressed.

12.6 Findings

The Inquiry finds:

- Potential construction noise impacts can be acceptably managed.
- The EMF appropriately addresses the requirements of the *Environment Protection Act*.
- Minor amendments to the EMMs, as recommended below, would improve their clarity and operation.
- Potential vibrations risks have been appropriately addressed.

12.7 Recommendations

The Inquiry recommends:

<u>Environmental Management Measures</u>

Amend EMM NV2 to replace the last dash point with:

- ***Assessment of the residual noise levels, in the context of criteria listed in NV10, once all reasonable and practicable noise mitigation controls have been implemented, at affected noise-sensitive receivers and nearby natural areas, in accordance with the Noise Protocol and Environmental Reference Standard respectively.***

[129] "new" since the aerial shots used by the EES to identify nearby sensitive receptors.

Amend EMM NV10 to replace the first two sentences with:

> ***Minimise the risk of harm from noise emissions from construction noise in accordance with the CNVMP by utilising the mitigation measures, where reasonably practicable, listed in EMM NV1. Ensure the following noise levels are not exceeded as far as reasonably practicable:***

12.8 Noise and vibration conclusions

The Inquiry concludes that:

- Noise and vibration impacts from construction are consistent with the evaluation objectives.
- Noise and vibration impacts from construction can be acceptably managed through the recommended mitigation measures.
- There are no noise and vibration impacts that preclude the Project being approved.

13 Cultural heritage

13.1 Introduction

Cultural heritage effects were discussed in EES Chapter 13, and Technical Report I. Additional material was provided in TN14 and TN18.

Table 9 lists the heritage evidence that was provided.

Table 9 Cultural heritage evidence

Party	Expert	Firm	Area of expertise
Proponent	Mr Dalla-Vecchia	Biosis	Cultural heritage

The relevant Scoping Requirements Report evaluation objective is:

> **Cultural heritage** - Avoid, or minimise where avoidance is not possible, adverse effects on Aboriginal and historic cultural heritage values.

The EES proposed the following EMMs to manage the cultural heritage impacts of the Project:

- CH1: Cultural Heritage Management Plans
- CH2: Archaeological sensitive land forms
- CH3: Listed historic heritage sites
- CH4: Unlisted historic heritage sites.

Following its further review of the EMMs and the evidence of Mr Dalla-Vecchia, the Proponent proposed the following changes:

- revisions to CH1
- the deletion of CH2 because it will be addressed prior to the CEMP approval
- the inclusion of a reference to the 'Unexpected Finds Procedure' in CH4.

The exhibited Pipeline Licence Application did not include the 'Unexpected Finds Procedure'. The Proponent provided a copy of the document that is now intended to be included at Appendix I of the CEMP. This is shown in D168.

These changes are reflected in the final day documents provided by the Proponent.

13.2 Key issues

The key issues are:

- The adequacy of consultation with Traditional Owners.
- The status and role of the CHMPs.
- The adequacy of the historic heritage investigations.

13.3 Aboriginal cultural heritage

13.3.1 Background

Two CHMPs are being prepared for the Project in accordance with section 49 of the *Aboriginal Heritage Act* as set out in Table 10. This Act requires where an EES is required, the proponent must, before commencing the works, prepare a CHMP for the area in which the works are to be carried out. The CHMPs will be the principal mechanisms for achieving compliance with the Aboriginal cultural heritage element of the Cultural heritage evaluation objective.

Since the exhibition of the EES, Aboriginal Victoria is now known as First People – State Relations (FP-SR). The Victoria Aboriginal Heritage Council (VAHC) also announced changes to the Registered Aboriginal Party (RAP) boundaries affecting the Project. CHMP 16594 is now within the boundary of the Woi-wurrung Cultural Heritage Aboriginal Corporation (WWCHAC). However, the CHMP will still be evaluated by FP-SR given that pre-existing arrangements remain in place for projects that were commenced prior to the change of RAP boundaries.

Table 10 Cultural Heritage Management Plans

CHMP	Area	Registered Aboriginal Party (RAP)	Sponsor
16593	Pipeline and associated works KP8.29 – 51.045	WWCHAC	APA VTS Australia (Operations) Pty Ltd
16594	Pipeline and associated works KP0 – 8.29	FP-SR	APA VTS Australia (Operations) Pty Ltd

The Proponent advised that:

- Further investigations are being undertaken to inform CHMP 16593, including additional field works. Once completed, there will be further consultation with WWCHAC about harm avoidance, mitigation and/or management measures.
- Draft conditions have been prepared for CHMP 16594 and discussed with FP-SR. They will also be provided to WWCHAC for review.

It is not expected that decisions on draft CHMPs will be finalised until after the Inquiry's report is submitted.

13.3.2 Evidence and submissions

Ms MacKenzie queried the extent and adequacy of consultation and investigations into the possible impacts on Aboriginal cultural heritage. Darebin Climate Action Now raised concerns about the removal and destruction of heritage sites. The Animal Justice Party recommended that impacts on Aboriginal cultural heritage be assessed before the Project proceeded.

Hume submitted the route selection process had not prioritised the views of Traditional Owners and consequently the CHMP process will potentially be constrained in avoiding and minimising cultural significance impacts. Hume cited a situation where avoidance of a heritage site might require significant pipeline realignment and queried how other issues associated with the realignment might be addressed. Hume noted that waterway corridors can contain significant cultural heritage values and queried whether Traditional Owners supported the proposed treatment of these areas. Hume concluded that CHMPs should have been approved prior to the Project proceeding to the EES hearing.

Whittlesea raised various queries about the opportunities to realign the pipeline in the event that significant Aboriginal and historic sites are encountered, the input being provided by RAPs and the treatment of sensitive areas, including waterways and stony rises.

1100 Donnybrook Road Pty Ltd sought clarification from the Proponent about how the CHMP that already applies to its land will integrate with the proposed CHMP and assurance that the existing CHMP conditions will not be compromised by the Project.

Summerhill Road Land Pty Ltd sought copies of any approved CHMPs within the Project area.

The Proponent relied on Mr Dalla-Vecchia's evidence and the further information provided in TN14 that outlined the CHMP process, the investigations that had been undertaken for the two CHMPs and the proposed mitigation measures, including the places that would be impacted. The Proponent outlined the consultation that had been undertaken with the WWCHAC and FP-SR and the further consultation and actions that would be necessary to progress the CHMPs.

13.3.3 Discussion

(i) The consideration of Aboriginal cultural heritage

The Proponent advised that the route selection process considered known areas of cultural heritage sensitivity within the MCA analysis, as well as watercourse crossings. Further, more detailed analysis has been undertaken as part of the CHMP processes, including the extent, nature and significance of any identified Aboriginal cultural heritage. If harm to identified heritage cannot be avoided, then minimisation and mitigation measures will be discussed with the WWCHAC and FP-SR. Mitigation measures could include:

- reviewing construction methodology in proximity to sites, including the use of boring
- narrowing the construction footprint to minimise impacts on sites
- minor route alignments to minimise impacts on sites, subject to assessing other impacts.

The Inquiry notes the selection of the preferred route was informed by a high level assessment of Aboriginal cultural heritage impacts and that further, more detailed analysis has been conducted through the CHMP processes that are underway. The Inquiry understands that further discussions and investigations, particularly in relation to CHMP 16593, are planned, including the treatment of the Merri Creek and Jacksons Creek crossings.

The CHMP processes provide the opportunity for further consultation with the WWCHAC and FP-SR, including the review of mitigation measures to avoid and minimise impacts on Aboriginal cultural heritage. The Inquiry notes the Project cannot proceed without the CHMPs being approved and their conditions met.

The key issue for the Inquiry is whether it can be satisfied the evaluation objective '*Avoid, or minimise where avoidance is not possible, adverse effects on Aboriginal and historic cultural heritage values*' is able to be met. Although this assessment is complicated by the lack of approved CHMPs and/or submissions from the WWCHAC and FP-SR about any unresolved issues, the Inquiry is satisfied processes are in place to advance the CHMPs. The Inquiry is not aware of any impediments or factors that would necessarily preclude the CHMPs being agreed with the WWCHAC and FP-SR in the future.

In forming this view, the Inquiry acknowledges the Hume and Whittlesea submissions about the treatment of waterway crossings, and notes Mr Dalla-Vecchia's advice that the WWCHAC expressed concerns about open trenching of the Merri Creek and Jackson Creek crossings. Mr Dalla-Vecchia advised that discussions with the WWCHAC about the crossing of these waterways and possible mitigation measures are continuing. The Jacksons Creek crossing is discussed in Chapter 6 where the Inquiry raised concerns about various environmental impacts and recommended further investigations be undertaken before the alignment is finalised. That recommendation includes a requirement that the Proponent consult with the RAP as part of that process.

In response to Hume's concern that possible alignment changes in response to Aboriginal cultural heritage issues might raise other issues, the Proponent advised that any proposed changes would require an assessment of any consequential impacts. The Inquiry agrees that an iterative process to address any consequential issues that might arise would be appropriate.

Hume submitted the EES Hearing should be postponed until the CHMPs are approved, however the Inquiry does not believe this is necessary or appropriate. Apart from being inconsistent with its Terms of Reference, the Inquiry is satisfied that the CHMP processes can proceed separately and notes that this has occurred in other EES processes.

On the basis of the material before it, the Inquiry is satisfied the cultural heritage evaluation objective can be met, although it acknowledges further work remains to be completed in order to inform the CHMPs.

(ii) Existing CHMPs

1100 Donnybrook Road Pty Ltd raised various issues about the relationship between the existing CHMP 15612 that applies to its land and proposed CHMP 16593 associated with the Project. These CHMPs will partly overlap, including part of a fenced 'no-go zone' required under CHMP 15612.

Mr Dalla-Vecchia explained that the conditions in CHMP 16593 will be drafted to take account of CHMP 15612, so that it works in conjunction with and does not interfere with any of the existing conditions. He noted, for example, that CHMP 16593 would include a condition that allows for the fenced no-go area to be removed and/or adjusted to accommodate the Project.

In the absence of a draft or approved CHMP 16593 and without having reviewed the existing CHMP 15612, the Inquiry is not able to comment on the extent of any overlap or inconsistency. However, it accepts Mr Dalla-Vecchia's evidence that the two CHMPs will be able to co-exist and this is not an unusual situation.

(iii) Availability of CHMPs

Summerhill Road Land Pty Ltd sought copies of any approved CHMPs within the Project area.

Mr Dalla-Vecchia explained that CHMPs contain sensitive information regarding Aboriginal cultural heritage that cannot be made public. He noted that an approved CHMP can be provided to any owner of land that the Project area crosses.

(iv) Revisions to the Environmental Management Measures

As noted earlier, the Proponent has proposed changes to the cultural heritage EMMs and the inclusion of an Unexpected Finds Procedure as an appendix to the CEMP. The Inquiry supports these changes and inclusions.

13.3.4 Findings

The Inquiry finds:

- The EES has had appropriate regard to Aboriginal cultural heritage values.
- The CHMP processes that are underway provide the mechanism to address detailed and specific impacts on Aboriginal cultural heritage values.
- Further investigations and discussion of Aboriginal cultural heritage with the RAPs is required in order to finalise draft CHMPs.

- The WWCHAC should be consulted as part of the further investigations of the Jacksons Creek crossing.

13.4 Historic heritage

13.4.1 Background

The historic heritage assessment (documented in Technical Report I) identified 30 historic heritage places within the study area and one historic site within the Project area (H7822-2283 [Holden Cobbled Stone Road]). Three sites (within or in proximity to the Project area) were inspected during the preparation of the EES.

H7822-2283 crosses the Project area and is an early roadway, with remnant stone foundation works. It is of local significance and is listed on the Victorian Heritage Inventory.

The EES concluded that H7822-2283 was the only known site that would be affected by the Project and it was unlikely that unknown historic heritage sites exist within the project area. This conclusion was based on inspections along the pipeline route undertaken as part of the CHMP surveys.

13.4.2 Evidence and submissions

Whittlesea submitted that any impacts on dry stone walls within the municipality should considered in light of Council's Dry Stone Wall Policy at Clause 15.03-1L of the Whittlesea Planning Scheme. The Inquiry notes that the EES did not identify any pipeline crossings or impacts on any drystone walls within Whittlesea.

The only site-specific submission related to historic heritage was from JII Investment in relation to 170-200 Donovans Lane, Beveridge. The submission expressed concern that the pipeline would bisect and destroy a remnant dry stone wall that runs diagonally across the north-east corner of the property. (The site is in Mitchell Shire and not subject to the Whittlesea Dry Stone Wall Policy).

Mr Dalla-Vecchia advised the fence was not a recorded heritage site and had not been noted during the survey of this area conducted as part of CHMP 16593. He added there is currently a drystone wall management plan being undertaken for an unrelated project that relates to multiple drystone walls within the property, including the section that will be crossed by the Project. JII Investment confirmed that a management plan is being prepared as part of a residential subdivision application for the land.

Mr Dalla-Vecchia indicated the potential registration of the wall and associated management recommendations cannot be determined until the management plan is completed. His evidence was that EMM CH4 (Unlisted historic heritage sites) and the Unexpected Finds Procedure would provide the process for addressing issues associated with the wall, although he agreed there would be merit in assessing the significance and treatment of the wall before construction commences.

13.4.3 Discussion

The Inquiry is satisfied that the EES assessment of historic heritage impacts is adequate and is based on an acceptable level of analysis and investigation. The Inquiry is satisfied the proposed horizontal bore crossing under H7822-2283 is an appropriate response to this site, although it notes that the treatment of this crossing will require Heritage Victoria approval, consistent with EMM CH3.

In relation to the drystone wall on 170-200 Donovans Lane, the Proponent submitted the Unexpected Finds Procedure would address this issue. However, the Proponent advised it would

be content for the Inquiry to recommend, consistent with Mr Dalla-Vecchia, that the wall be investigated further prior to the CEMP being approved. The Inquiry believes the significance and treatment of the wall should be determined before construction commences and has recommended a new EMM to that effect.

13.4.4 Findings

The Inquiry finds:

- The EES assessment of historic heritage impacts is adequate and based on an acceptable level of analysis and investigation.
- The significance and treatment of the dry stone wall at 170-200 Donovans Lane, Beveridge should be resolved before construction commences.

13.4.5 Recommendations

The Inquiry recommends:

Environmental Management Measures

Include a new 'Cultural heritage' EMM:

> ***Investigate the significance and treatment of the drystone wall that would be intersected by the pipeline at 170-200 Donovans Lane, Beveridge.***

13.5 Cultural heritage conclusions

The Inquiry concludes that:

- Cultural heritage impacts are consistent with the evaluation objective.
- Cultural heritage impacts can be acceptably managed through the recommended mitigation measures.
- Based on the evidence presented at the Hearing, there are no cultural heritage impacts that preclude the Project being approved.

14 Landscape and visual

14.1 Introduction

Landscape and visual effects were discussed in EES Chapter 14 and Technical Report J. Additional material was provided in TN09 and TN25.

No specific evidence in relation to landscape and visual impacts was provided.

The relevant Scoping Requirements Report evaluation objective is:

> **Social, economic, amenity and land use** – Minimise potential adverse social, economic, amenity and land use effects at local and regional scales.

The EES proposed the following EMMs to manage the landscape and visual impacts of the Project:

- LV1 relating to avoidance of tree removal
- LV2 relating to requirements for arborist reports
- LV3 relating to management of construction areas
- LV4 relating to management of light
- LV5 relating to replacement vegetation
- LV6 relating to screening of MLVs
- LV7 relating to planting and remediation.

The Proponent proposed various revisions to the EMMs in order to improve their clarity. The changes were not substantive and were included in the final documents provided by the Proponent.

This chapter should be read in conjunction with Chapter 5 that discusses vegetation removal and reinstatement.

14.2 Key issues

The key issues are:

- The temporary landscape and visual impacts associated with pipeline construction.
- The longer-term landscape and visual impacts of the pipeline easement and associated above ground infrastructure.

14.3 Landscape and visual impacts

14.3.1 Background

The EES described the assessment of landscape and visual impacts, including:

- background investigations
- desktop assessments
- site inspections
- characterisation of existing conditions
- risk based review of potential impacts
- assessment of potential landscape and visual impacts during construction and operation.

This process identified six landscape character areas and assessed potential impacts based on various viewpoints and sensitivities. It separately assessed construction and operational impacts.

The risk assessment identified the initial risk ratings as 'low', except for 'tree removal' which was rated as 'medium'. A further mitigation measure (EMM LV7) was adopted that reduced the residual risk rating to 'low'. The residual risk rating for all risks was assessed as 'low'.

Separate assessments were conducted for the pipeline, MLVs and Wollert Compressor Station upgrade.

14.3.2 Submissions

The Proponent did not provide detailed submissions in relation to landscape and visual impacts and relied on the material in EES Chapter 14 and Technical Report J. It responded to specific issues raised in relevant submissions.

Melton submitted the CEMP should specifically require landscaping works to be reinstated.

The Proponent submitted the EMMs require this to be done in consultation with landowners and that it is also a requirement under the *Pipelines Act*.

JII Investment raised concerns about visual and landscape amenity impacts on the existing dwelling at 170-200 Donovans Lane, Beveridge, including light spill and tree removal.

The Proponent referred to the EES assessment of this general area and submitted that with the application of the EMMs, any visual impacts on this property would be low. The removal of mature trees would be managed through EMM LV1 which requires the avoidance of tree removal where possible and the protection of trees to be retained. EMM LV5 provides for replacement of trees and shrubs that are removed and EMM LV7 requires preparation of planting and remediation plans.

In relation to lighting impacts, the Proponent submitted they would be managed in general accordance with the requirements in AS/NZS 4282:2019 (Control of the obtrusive effects of outdoor lighting) and that lighting would be designed to minimise off-site light spill. These matters are addressed in EMM LV4.

14.3.3 Discussion

The Inquiry is satisfied the assessment of landscape and visual impacts in EES Chapter 14 and Technical Report J are appropriate and accepts the residual risk rating of 'low'.

The Inquiry notes that pipeline impacts during construction will be more problematic than during its operation but is satisfied the EMMs provide the mechanisms to satisfactorily address construction impacts.

The MLVs will generally have low landscape and visual impacts because of their small scale, open nature of construction and locational characteristics. MLV1 will be visible from Holden Road, but will be co-located with an existing MLV. MLV2 is adjacent to Oaklands Road but will be partly screened by existing vegetation along the road reserve. MLV3 is located on Gunns Gully Road and will be the most prominent of the three sites. However, it is within an area that will be developed as part of the Merrifield West PSP and for this reason, its visual prominence is likely to lessen as this area develops.

The Wollert Compressor Station upgrade will have low landscape and visual impacts because of the large scale of the existing facility and its distance from the public realm on Summerhill Road and the nearest dwelling.

In relation to the Melton submission, the Inquiry is satisfied that the relevant EMMs (including B7, B15, SW3, SW4, LV5, LV7, S4, S7, S8 and S14) and the rehabilitation requirements under the *Pipelines Act* (section 145) satisfactorily address the concern about reinstating landscaping.

In relation to the JII Investment submission, the pipeline alignment through this property will principally traverse cleared farming land and the loss of mature vegetation would be limited. The property is within the approved Lockerbie PSP that designates most of the property (including the pipeline route) for 'conventional density residential' development. Future residential development is likely to have a more significant impact on existing vegetation and landscape values than the construction of the Project. The Inquiry assumes the proposed Horizontal Laser Bore under the North East Rail Line (along the eastern boundary of the property) would require night time lighting during construction. This might potentially impact on residential amenity in the immediate area, however, the Inquiry is satisfied the EMMs provide for this to be addressed. The Inquiry notes that this would be a temporary construction impact.

14.3.4 Findings

The Inquiry finds:

- The EES assessment of landscape and visual impacts is satisfactory.
- Construction impacts associated with the pipeline will be more problematic than the operational impacts, but can be satisfactorily managed through the relevant mitigation measures.
- The MLVs and Wollert Compressor Station upgrade will have low landscape and visual impacts.

14.4 Landscape and visual conclusions

The Inquiry concludes that:

- Landscape and visual impacts are consistent with the evaluation objective.
- Landscape and visual impacts can be acceptably managed through the recommended mitigation measures.
- There are no landscape or visual impacts that preclude the Project being approved.

15 Land use

15.1 Introduction

Land use effects were discussed in EES Chapter 15 and Technical Report K. Additional material was provided in TN08, TN13, TN18, TN26 and TN28.

Table 11 lists the land use evidence that was provided.

Table 11 Land use evidence

Party	Expert	Firm	Area of expertise
Proponent	Mr Bromhead	Ratio Consultants	Land use

The relevant Scoping Requirements Report evaluation objective is:

> **Social, economic, amenity and land use** - To minimise potential adverse social, economic, amenity and land use effects at local and regional scales.

The EES proposed the following EMMs to manage the land use impacts of the Project:

- LU1: Impacts to Precinct Structure Plans (PSPs) and growth areas
- LU2: Continuation of existing land uses
- LU3: Impacts to tenure and access
- LU4: Interruptions to roads and railways.

Some of these EMM's refer to or trigger the consideration of EMMs under other themes.

The only change to the exhibited land use EMMs proposed by the Proponent is a minor consequential change to EMM LU2.

15.2 Key issues

The key issues are:

- The extent of any impacts on future urban development, particularly within the Urban Growth Boundary (UGB) and PSP areas.
- Whether the Project will impact on existing or proposed extractive industries and Extractive Industry Investigation Areas (EIIA).

15.3 Future development

15.3.1 Background

The Project would potentially impact on future land use and development by way of:

- the area of consequence (AoC) (also known as the notification area)
- the pipeline measurement length (ML).

The AoC is the area within which the Proponent would seek notification of any proposed sensitive uses to assess whether they are compatible with the pipeline. The AoC for the Project is 65 metres either side of the pipeline, based on the assessment of credible threats. For the purposes of AS/NZS 2885[130], the Proponent considers that the following are sensitive uses:

[130] The Standard for Gas and Liquid Petroleum Pipelines

- aged care facilities
- retirement villages child-care/family day care centres
- cinema based entertainment facilities
- schools or other educational establishments
- prisons/corrective institutions
- hospitals and medical centres
- place of assembly or worship
- higher density residential uses (above 50 dwellings per hectare)[131].

Proposals for sensitive uses would be considered on a case by case basis and potentially through a specific Safety Management Study (SMS) to determine the level of risk and any practical mitigation measures. Depending on the outcome of this process, the Proponent might object to a proposal.

The ML is determined in accordance with AS/NZS 2885 and is used to classify existing and reasonably foreseeable land use adjacent to the pipeline and drives the safety design of the pipeline. The exhibited EES indicated that the ML was 659 metres either side of the pipeline, but this was reduced to 526 metres when the proposed pipeline diameter was decreased from 600 to 500 millimetres. The Proponent advised it was required to monitor land use changes within the ML and any significant and unforeseen intensification of sensitive uses would be assessed to determine whether the location class of the pipeline would change and if additional operational controls were necessary. The Proponent advised that its review of long-term planning in the project area had not identified any problematic land use issues within the foreseeable future.

The Inquiry and some submitters raised queries in relation to 'location classes' and pipeline design. The pipeline is designed to meet the AS/NZS 2885 standards for each location class. The location classes were determined based on current and reasonably foreseeable land use within the ML and are determined in accordance with AS/NZS 2885. TN28 provided explanations and maps of the various location classes, together with construction design standards.

The most likely areas that might be impacted are those within the UGB and identified for future urban development. In order to inform the Inquiry's review of the potential impacts and relevant submissions, it has been useful to document the status of the relevant PSP areas as described in Table 12 and the pipeline location.

Table 12 Precinct Structure Plans

Precinct Structure Plan	Status	Comments
Plumpton	Approved February 2018	Pipeline co-located with existing gas pipeline
Lindum Vale	Approved July 2019	Pipeline co-located with OMR/E6 PAO
Merrifield West	Approved June 2018	Pipeline co-located with OMR/E6 PAO
Merrifield North	At 'pre-commencement' stage	Pipeline will run along future arterial road (Gunns Gully Road)
Lockerbie	Approved June 2012	Pipeline co-located with OMR/E6 PAO
Donnybrook-Woodstock	Approved November 2016	Pipeline co-located with OMR/E6 PAO and existing gas pipeline

[131] TN26, page 3

Shenstone Park	With DELWP for assessment following a Panel Hearing	Pipeline co-located with existing gas pipeline
Northern Quarries	At 'pre-commencement' stage	Pipeline co-located with existing gas pipeline

15.3.2 Evidence and submissions

Melton and Whittlesea raised various safety related land use issues, particularly in relation to development within various PSPs. Melton raised queries related to the classification of land uses, location classes, and the ML (specifically in relation to the Plumpton PSP). Whittlesea submitted the pipeline would affect the Donnybrook-Woodstock and Shenstone Park PSPs and that, as the agent of change, the Project should be located and designed to fit with these PSPs. Whittlesea submitted there should be no change to the ML or further restrictions on the land uses permitted in the PSPs and the pipeline and associated infrastructure should be contained within the existing easement.

The Proponent provided detailed responses to the issues raised by Melton and Whittlesea in its responses to submissions and the relevant TNs, and relied on the evidence of Mr Bromhead who provided a detailed assessment of potential land use impacts along the pipeline route.

In relation to the Whittlesea submission, the Proponent advised the pipeline would be located within an existing pipeline easement and APA owned land at the Wollert Compressor Station. Consequently, there will be no change to the geographic extent of planning controls in existing PSPs. It advised the pipeline would require an additional five metres beyond the existing pipeline easements for temporary construction works and some wider turn-around areas. The Proponent noted it would not be feasible to restrict construction works within the existing easements because of the exclusion zones imposed by working in proximity to two 'live' gas pipelines.

JII Investment submitted the AoC would be an unreasonable constraint on future development of 170-200 Donovans Lane, Beveridge. Mr Cantor represented the submitter at the Hearing and expanded on the initial written submission. He opposed any restrictions on permissible 'sensitive uses[132]' under the applied General Residential Zone[133] and within the AoC. He advised that JII Investment was considering a 'retirement village' as a potential use of the land and noted various material from the Proponent indicated it would likely object to such a proposal. Mr Cantor submitted this was an unacceptable and retrospective restriction on the use of the land.

The Proponent advised it is not seeking to amend existing planning controls within the Lockerbie PSP but will seek to receive notice of applications for permits for sensitive uses. It is likely to object to such uses unless it is demonstrated through a SMS that risks are acceptable. Sensitive uses are therefore less likely to be approved on the land as a result of the Project, although they are not prohibited.

The Proponent noted that none of the uses listed in the JII Investment submission are section 1 uses under the applied zone and submitted these uses are generally anticipated closer to town centres and other locations. Mr Bromhead's evidence expressed a similar view.

[132] As defined in the *Pipelines Act*

[133] The property is within the approved Lockerbie PSP

The Proponent concluded that the Project would impact on the submitter's land, but impacts would not be significant in the context of the location and the applicable controls. It added that any impacts would be '*significantly outweighed*' by the Project's benefits.

15.3.3 Discussion

The Inquiry accepts that the EES and SMS assessments of the AoC, ML, land use classifications and current and reasonably foreseeable land uses have been prepared in accordance with the *Pipelines Act* and AS/NZS 2885. The Inquiry did not receive any submissions or evidence challenging how these requirements had been addressed.

The Inquiry reviewed Mr Bromhead's evidence about possible land use impacts and his assessment of the route through the approved PSPs. In doing so, the Inquiry has had regard to the proposed route, the AoC, ML and the applicable PSP land use designations to assess the nature and extent of any possible impacts. Any impacts are likely to be contained within areas that have been identified for conventional density residential development, open space or some form of infrastructure (including the OMR/E6 PAO and existing gas easements). The Inquiry agrees with Mr Bromhead's evidence that these areas are unlikely to be candidates for the sensitive uses that are of concern to the Proponent and accepts his conclusion that:

> The proposed alignment has appropriately avoided conflict with existing sensitive uses and the operation of the pipeline will not unduly constrain future use of adjoining land[134].

In the event that sensitive uses are proposed within the AoC, the Inquiry notes the Proponent's advice they will be considered on their merits but acknowledges the general presumption that these uses would not be supported. In the case of the JII Investment submission, it seems conceivable, if not likely, that the Proponent would object to a retirement village within the AoC on this land. Although this might impose a constraint on the land, the Inquiry notes Mr Bromhead's evidence about the merits and likelihood of locating a retirement village in this area and that only a relatively small area of the property is within the AoC. It agrees with the Proponent's overarching observation that these limited constraints would be offset by the broader community benefits that would accrue from the Project.

The pipeline passes through areas that are outside the UGB and existing and future PSPs. The land use implications of these sections of the route are discussed in Technical Report K and Mr Bromhead's evidence. The Inquiry accepts the land use impacts in these areas would be acceptable given the current zoning regime and general expectation of limited or lower density development in these areas. Impacts on extractive industry are discussed in Chapter 15.4 and impacts on agriculture are discussed in Chapter 16.

The associated infrastructure (MLVs and Wollert Compressor Station) has been factored into the safety assessment and is expected to have minimal land use impacts. MLV1 is co-located with an existing MLV. MLV2 is outside the UGB, while MLV3 is within the Merrifield North PSP area that is at the 'pre-commencement' stage. The works at the Wollert Compressor Station will upgrade an existing facility and will have minimal, if any, land use impacts.

The Inquiry has reviewed the land use and related EMMs and is satisfied that they are appropriate.

[134] D60, page 61

15.3.4 Findings

The Inquiry finds:

- The EES and SMS have properly determined the AoC and ML.
- The pipeline route will impact on land uses within the UGB and approved and future PSP areas because of the application of the AoC and the potential constraints on establishing sensitive uses within it.
- The land use impacts within these areas will be minimal because of the relatively narrow area within the AoC, and the existing zoning regime and land use designations.
- The impacts on development within the AoC are limited and considered acceptable in the context of the Project's broader benefits.
- The pipeline route will have minimal impact on areas outside the UGB because of the zoning regime and expected land uses and density of development within those areas.
- The MLVs will have limited and acceptable land use impacts.
- The Wollert Compressor Station works will upgrade an existing facility and will have limited, if any, land use impacts.

15.4 Extractive industry

15.4.1 Background

The Project is in the vicinity of various approved quarries, land that is subject to an application for a quarry and EIIAs as shown on Figure 11. The status of these quarries was outlined in TN32 which provided commentary on distances from the pipeline and possible implications arising from the Project.

In summary, the pipeline would be located:

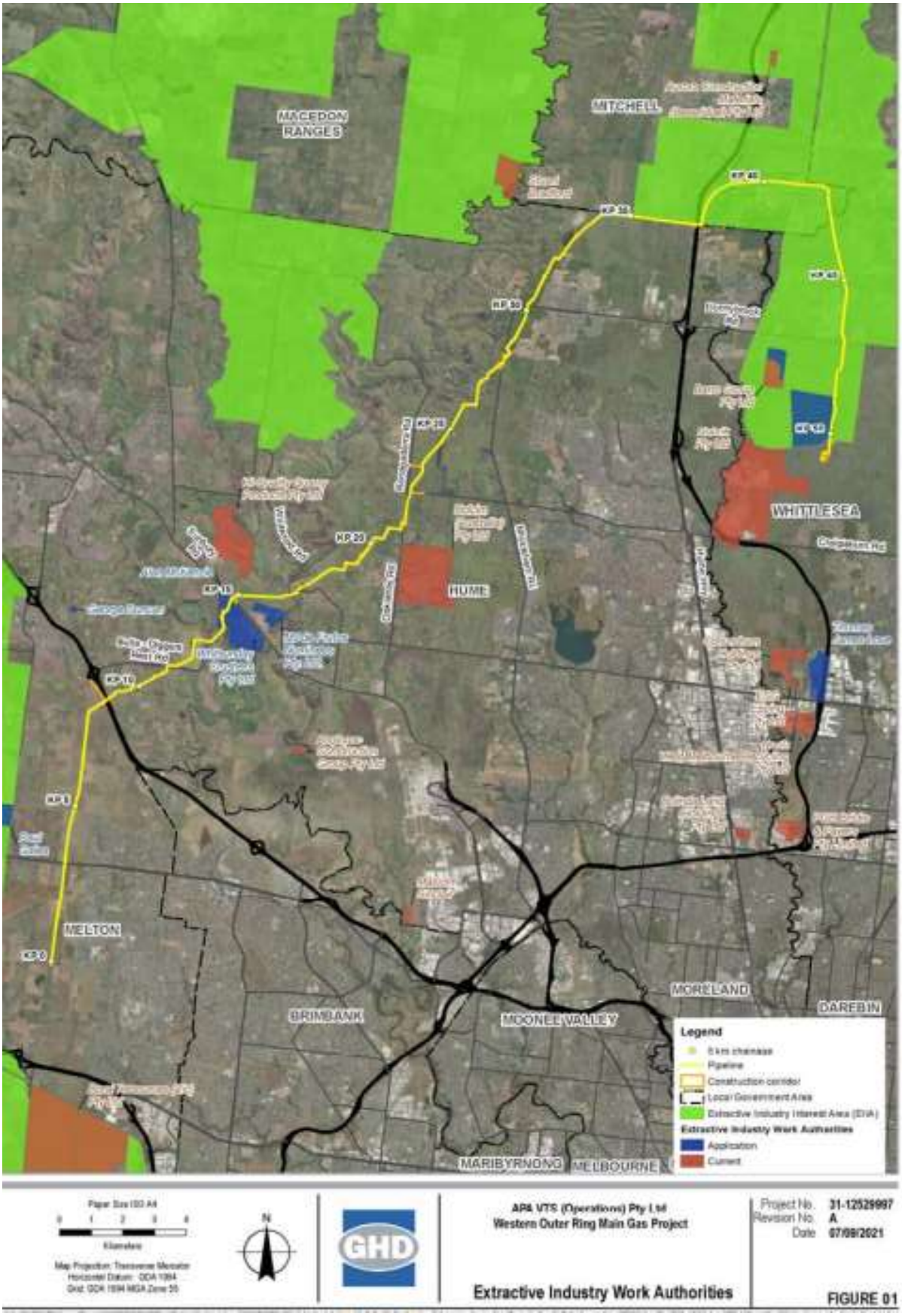
- through one property where a Works Approval application was lodged in 2009
- more than 500 metres from the existing Hi Quality Quarry (WA1123)
- more than 500 metres from a proposed quarry to the south of KP16 (WA6423)
- more than 500 metres from the Holcim Pty Ltd quarry (WA176)
- more than 1.5 kilometres from the operational Barro quarry (WA492) and extension area (WA6437)
- within 30 metres of the former Phillips Quarry (WA6852) property boundary which has planning approval but no current Work Authority/Work Plan.

The pipeline would be adjacent to and traverse an EIIA in the northern and western areas of the route. This section of the pipeline is either co-located with an existing gas pipeline easement or the OMR/E6 PAO.

15.4.2 Evidence and submissions

Summerhill Road Land Pty Ltd queried whether the Proponent had assessed the impact of the 'Phillips/Barro Quarry' rock blasting on existing gas pipelines and the Project.

Figure 11 Quarries and project construction footprint[135]



The VPA noted the pipeline would be in close proximity to two future quarries (one in Merrifield North PSP and one in the Northern Quarries PSP). The VPA submitted there was strong policy support for protecting significant extractive industries and the Project should be designed and routed to provide for future resource extraction. It requested the Proponent discuss protection works with the Department of Jobs, Precincts and Regions. At the Hearing, the VPA advised that these issues had been resolved following discussions with the Proponent.

Whittlesea noted the pipeline would be constructed in close proximity to an approved quarry on Summerhill Road in the Northern Quarries precinct and might be impacted by quarry blasting. Whittlesea queried whether the EES had adequately considered possible blasting impacts and submitted the pipeline should be designed and routed to provide for future extractive operations.

The Victorian Farmers Federation (VFF) (D141) referred to a property owned by a VFF member[136] and advised that it was the subject of a 'works approval' to operate a quarry and would be bisected by the pipeline. The VFF noted strong policy support for the protection of stone resources and submitted the pipeline would preclude quarrying on the property.

The Proponent submitted the development and assessment of pipeline route options had taken into account extractive industry constraints. The Proponent noted the pipeline design had been in accordance with AS/NZS 2885.1 *'which requires the application of design mitigations for known or expected threats to the pipeline. The pipeline has been designed to accommodate the threats from existing quarries to the limitation of the information available from the quarries'*[137].

In response to the Inquiry's RFI, the Proponent provided TN32 that identified existing, approved and proposed quarries, and EIIAs in the vicinity of the pipeline. It described the approval processes for quarries (including the *Mineral Resources (Sustainable Development) Act 1990* and the *Planning and Environment Act* and the operation of quarry buffers and how they had been treated in recent PSPs.

In this context, Mr Bromhead reviewed the pipeline route and identified two 'extractive industry' sites that that would potentially be impacted by the Project:

- the site referred to by the VFF that is the subject of a Works Approval application for a quarry
- the approved Phillips/Barro quarry on Summerhill Road Wollert that is the subject of a planning permit issued in 2011.

In relation to the first site, Mr Bromhead noted that in the absence of various approvals, including a planning permit, there is no certainty that the land can or will be developed for extractive industry.

In relation to the second site, Mr Bromhead noted the pipeline would be co-located with an existing gas pipeline. The permit for the quarry had taken this existing pipeline into account and was subject to a permit condition in relation to blasting. He did not offer a view about whether the proposed pipeline would be similarly protected but highlighted this as an example of how mutual protection can be achieved.

Mr Bromhead acknowledged the pipeline would run adjacent to and within an EIIA but did not believe this precluded the pipeline proceeding. EIIAs identify broad areas of interest, but do not act

135 TN32, Annexure 1

136 The VFF's covering email that provided D141 (received by the Inquiry on 12 October 2021) requested that any material that identified the landowner be redacted for personal reasons. The Inquiry redacted information from D141 and has not specifically identified the property in this report.

137 D114, page 9

to prohibit alternative land uses. The Proponent submitted that EIIAs are not considered to be '*a reasonably foreseeable land use to which the pipeline can or should respond*[138]' and noted that some parts of the EIIA are within areas identified for urban development. Mr Bromhead noted that for much of the route within the EIIA, the pipeline would be co-located with an existing gas pipeline easement or the OMR/E6 PAO.

Mr Lemaire advised the application of AS/NZS 2885 would be adequate for protecting the operation of the relevant quarries.

The Proponent concluded the Project could co-exist with existing and specifically proposed quarries, although potential future quarries could not be reasonably accounted for. Potential future quarries would be the 'agent of change' and as such should respond to the pipeline.

In relation to the property referred to by the VFF, the Proponent provided TN37 that outlined the discussions that had been held with the landowner and various alignment options that had been considered and discussed. The Proponent was aware that a Works Authority application for a quarry had been lodged for the site in 2009 but did not believe that an approval had been issued.

15.4.3 Discussion

The Inquiry is satisfied the EES has adequately considered the Project's potential impacts on extractive industries and resources, and the Proponent has addressed the issues raised in submissions. The Inquiry accepts that the regulatory framework associated with the pipeline and extractive industry provide the mechanism to address safety issues. Notably, there were no submissions received from quarry operators or applicants.

As can be seen from Figure 11, it is evident the pipeline route has for the most part avoided potential conflicts with existing or proposed quarries. Subject to the application of AS/NZS 2885 and appropriate conditions on new quarries, there is no reason to expect that the pipeline would 'sterilise' extractive resources or be broadly incompatible with quarrying in the area.

The Inquiry agrees with the Proponent that the pipeline alignment adjacent to and within an EIIA is acceptable and will have negligible impact on the future development of that resource. Notably, the pipeline is either co-located with an existing gas pipeline easement or the OMR/E6 PAO that already constrains future extractive industry in this area.

In relation to the property referred to by the VFF, the Inquiry notes the background material provided by the Proponent in TN37 that outlined the discussions held with the landowner and the various alignment options considered. Although this property was the subject of a Works Approval application for a quarry in 2009, it is affected by various constraints including the OMR/E6 PAO and a power line easement. The current status of the application is not clear, nor is the potential of the land to accommodate a quarry given these constraints. In the absence of further information and a submission from the landowner, the Inquiry has relied on the material provided by the Proponent and is satisfied the proposed alignment through this property is acceptable. However, it encourages the Proponent to continue its discussions with the landowner to make any alignment refinements that might be warranted.

[138] TN32, page 9

15.4.4 Findings

The Inquiry finds:

- The pipeline will have minimal impact on existing and specifically proposed quarries.
- The pipeline will not significantly constrain future resource extraction in the EIIA.
- The regulatory framework that applies to pipelines and extractive industry provide the processes for addressing safety issues.

15.5 Land use conclusions

The Inquiry concludes that:

- Land use impacts are consistent with the evaluation objective.
- Land use impacts can be acceptably managed through the recommended mitigation measures.
- There are no land use impacts that preclude the Project being approved.

16 Social

16.1 Introduction

Social effects were discussed in EES Chapter 16 and Technical Report L the Project's Social Impact Assessment. A Community and Stakeholder Consultation Report was provided in EES Attachment III. This Report provides a summary of consultation activities undertaken as part of the EES process. A Consultation Plan, required under the *Pipelines Act,* is provided as Attachment 4 to the Pipeline licence application.

No specific social impact evidence was presented, although some social impact issues were discussed in the planning and land use evidence provided by Mr Bromhead.

The relevant Scoping Requirements Report evaluation objective is:

> **Social, economic, amenity and land use** – Minimise potential adverse social, economic, amenity and land use effects at local and regional scales.

The EES proposed 23 EMMs (S1 to S23) which cover the following general themes:

- reducing community disruption by implementing measures to reduce amenity impacts
- minimising property impacts
- managing potential impacts on connectivity and land access
- project consultation and landholder agreements
- local sourcing of workers, supplies and services
- biosecurity controls
- progressive reinstatement of land, access tracks, fences, seeding practices and post construction monitoring with provision of remedial measures if necessary.

Other relevant EMMs include LU3 dealing with compensation and many of the EMMs aimed at minimising amenity impacts.

Consequential changes were made to EMM S1 in response to changes to air quality EMMs as adopted from EPA's submission. These changes are reflected in the final day documents provided by the Proponent. No further changes were proposed to the social EMMs.

16.2 Key issues

The key issues are:

- The extent to which the EES has adequately addressed adverse social and economic effects.
- The adequacy of consultation activities undertaken and proposed in future, including appropriate measures for culturally and linguistically diverse communities.
- The potential impacts on agricultural properties and productivity.

16.3 Social

16.3.1 Background

The *Pipelines Act*[139] requires the Minister to consider potential social and economic impacts of the proposed pipeline.

The Social Impact Assessment assessed the local and regional study areas and focused on four themes:

- landholders and properties intersected by the Project
- residential amenity and character
- transport and access
- community infrastructure facilities.

Key findings were as follows:

- The Project intersects 137 land parcels through Melton, Hume, Mitchell and Whittlesea LGAs.
- Land is predominantly rural with majority of properties being rural residential or agricultural.
- The quiet rural amenity provided by the Project area was a key value appreciated by residents.
- There are a small number of emerging growth areas in Plumpton (KP0 to 3.1) and Mickleham (KP28.5 to 32.6) characterised by new residential development.
- Regionally, the study area is characterised by population growth, which in Hume and Whittlesea has been culturally and linguistically diverse.

Key impacts identified were:

- reductions in land available for rural residential and agricultural uses
- reductions in local amenity affecting enjoyment of private properties and community infrastructure facilities
- intermittent increases in travel time along existing roads where they are intersected by the proposed construction corridor.

All these impacts were identified as temporary and overall residual construction impacts considered to be minor.

The Inquiry requested a consolidated overview of the social and economic effects and a net community benefit assessment.

16.3.2 Submissions

The Proponent made no specific submissions on social impacts, relying instead of the information in the EES, Technical Notes, response to submissions report and response to the Inquiry's RFI. In response to the Inquiry's request for a consolidated overview, the Proponent referred to Mr Bromhead's evidence.

Mr Bromhead gave evidence that although a planning permit was not required, the scoping requirements and section 49 of the *Pipelines Act* required consideration of matters relevant to planning, such as achieving a net community benefit. In his opinion, the Project ultimately would

[139] Section 49

deliver an overall community benefit by ensuring future energy security, increasing capacity to support further growth of gas supply, improved efficiencies and support in transitioning to renewable energy. In addition, he cited a capital investment of $167.5 million and the creation of approximately 500 jobs.

Mr Bromhead gave evidence the pipeline route selection had reduced impacts by co-location within existing easements, where possible, following the OMR/E6 PAO and local roads, and generally locating the pipeline on the edges of PSP areas.

In his opinion, the short-term effects during construction were effectively mitigated via measures proposed in the CEMP.

16.3.3 Discussion

The Inquiry notes the predominant social impacts will be temporary, during construction and primarily related to amenity or land access. Although impacts might be significant on an individual level, overall, it concludes that residual impacts will be minor.

After construction, successful reinstatement of the land will be important to ensure landowners do not have ongoing impacts. The Inquiry is satisfied EMMs S14 to S22 will achieve this.

16.3.4 Findings

The Inquiry finds:

- The EES has appropriately characterised social effects.
- Social effects will be temporary and the implementation of the recommended EMMs will appropriately minimise these effects.

16.4 Consultation

16.4.1 Background

The EES acknowledges there may be temporary impacts to community facilities, such as the Cao Dai Temple in Diggers Rest, which is located within 500 metres of the construction corridor, due to noise generation. As the frontage of this property is intersected by the pipeline, access may be temporarily affected, although this can be managed through the preparation of landowner agreements (EMM S4) and traffic management plans (EMM SA6). The EES notes amenity effects will be highest during trench construction, which is expected to advance at approximately 700 metres per day.

Due to the temporary nature of the impacts, the impact risk rating was considered of 'minor' significance.

The Community and Stakeholder Consultation Report (Attachment III to the EES) indicated the Proponent offered to present to potentially interested groups, including culturally and linguistically diverse groups (with support of cultural leaders). It further indicated the Project team worked with local stakeholders to provide translations of printed material and advertising in specific language publications.

The Consultation Plan provides no detail of specific measures to facilitate consultation with culturally or linguistically diverse communities.

EMM S6 requires the development and implementation of a Project Consultation Plan which must include, amongst other matters, *'the approach for communicating and engaging with vulnerable groups, including community groups and residents that do not speak English. Translation services will be promoted as and where appropriate for specific project communications'.*

16.4.2 Submissions

Melton was concerned with potential impacts on the Cao Dai Temple, a facility that residents rely upon for a sense of belonging and social connection. It submitted the risk rating of 'minor' for this impact was insufficient and should be considered 'moderate'. More specifically, Melton submitted the stakeholder should be consulted with in relation to potential impacts.

The Proponent noted the concerns regarding the Cao Dai Temple and explained the risk rating was a result of the short-term nature of the impact of less than six months. The Proponent considered the rating was appropriate considering access would be maintained throughout.

Melton was concerned the Project communication plans had not adequately addressed local linguistical requirements and submitted that Project communications should be in the most common languages in each area. Council offered support to assist in understanding the local language requirements to facilitate a proactive approach.

The Proponent responded that its land access team had had frequent communication with the affected landholder (and operator of the Temple). The Proponent outlined future actions including making introductions to the construction contractor's representative and producing translated materials for the users of the Temple as agreed with the landowner. The Proponent submitted EMM S6 provided for particular measures to be developed for engaging with vulnerable groups, including residents who do not speak English.

16.4.3 Discussion

The Inquiry accepts the impact risk rating of 'minor' reflects the consequence descriptions provided in the EES. This does not reduce the potential significance of the impact. Due to the nature of the facility as a place of worship, the amenity impacts may be significantly felt on a local level. EMMs related to noise should assist in reducing these amenity impacts.

In relation to access, the Inquiry notes EMM S4 requires the Proponent to seek agreement from the landowner or occupier to manage access. This is a suitable approach.

The Inquiry accepts the Proponent's submission regarding consultation to date and supports the approach outlined in EMM S6.

Melton's submission raised broader 'consultation' issues (beyond the specific Cao Dai Temple example).

There is very little detail in the EES of the approach taken to addressed linguistically diverse communities, other than the general reference in EMM S6. The Inquiry notes that due to COVID-19 restrictions, much of the Project communication was electronic, including website updates, emails and the like. EMM S6 requires the development of a Project Consultation Plan to *'facilitate ongoing consultation with relevant stakeholders throughout the Project's planning and construction'*. This plan is to outline the approach for communicating and engaging with community groups and non-English speaking residents. The Inquiry considers this language is more confined than the '*culturally and linguistically diverse*' reference in the Community and Stakeholder Consultation Report. The Inquiry considers the latter is preferable.

EMM S6 provides *'Translation services will be promoted as and where appropriate for specific project communications'.* The Inquiry considers this requirement seemingly limits translation services to Project communications and does not extend it to assisting with other engagement activities. Accepting Melton's submission that there is a need for a range of languages to communicate with its residents, the Inquiry considers EMM S6 should be strengthened to ensure appropriate translation or other support services are provided to assist stakeholders engage with the Project (for example, to assist in discussions about land access arrangements). The Inquiry notes Melton's offer to assist in understanding local requirements and agrees that Councils are well placed to provide this local insight.

16.4.4 Findings

The Inquiry finds:

- Public consultation associated with the Project has been difficult given the COVID 19 restrictions.
- The EES has appropriately characterised the impact risk associated with the Cao Dai Temple based on to the applied consequence ratings, however impacts might still be significant at a local level.
- The proposed EMMs should be strengthened to ensure a more proactive approach to consulting and engaging with community groups such as the Cao Dai Temple and residents who do not speak English.

16.4.5 Recommendations

The Inquiry recommends:

Environmental Management Measures

Amend EMM S6 to replace the third dot point with:

- ***The approach for communicating and engaging with vulnerable groups, including community groups, culturally and linguistically diverse groups, and residents who do not speak English. The approach should outline circumstances under which translation services will be provided.***

Amend EMM S6 to include the following dot point:

- ***Liaise with municipal Councils, where appropriate, to gain insight into the most appropriate consultation methods for specific communities or community groups.***

16.5 Agriculture

16.5.1 Background

The discussion of agricultural effects in EES Chapter 16 is largely based on the Agriculture Impact Assessment Report included at Appendix D of Technical Report L.

The report provided an estimate of agricultural impacts during the construction phase, including direct impacts on agricultural land within the 30 metre construction corridor (164 hectares) and indirect impacts on broader agricultural enterprises (including impeded access, interrupted management, labour and other costs).

It found that:

- 164 hectares of agricultural land would be temporarily removed from production during the construction phase (approximately 0.06% of agricultural land available in the regional study area).
- Potential direct effects could include land capability, farm infrastructure and biosecurity.
- Potential indirect effects could include impeded access, interrupted management, dust and noise, and reduced agricultural services in the region.
- The most significant agricultural impact of the Project is the temporary removal of land from production.
- The economic impact on agriculture during the construction phase is estimated at $0.2 million (direct and indirect impacts over a 12 month period).
- Once the construction corridor is rehabilitated, normal agricultural production would be able to resume.
- The area of agricultural land required for operations is negligible.

The report noted that approximately 44% of the Project is within the UGB and that any land currently used for agriculture within the UGB will be converted to urban uses over time.

The report discussed the consultation and compensation actions that would be undertaken and provided an assessment of the proposed mitigation measures. It concluded the Project would not have a significant adverse impact on agricultural resources at local or regional scales.

16.5.2 Evidence and submissions

The VFF was concerned that the EES did not include any agriculture specific studies and that the land use and impact assessments were based on various unproved or incorrect assumptions. It submitted the Project's linear easements and access restrictions imposed constraints on farm businesses, including biosecurity, animal welfare, environmental and safety issues. It submitted the EES should be reviewed to ensure the alignment minimises impacts on agriculture and appropriate monitoring, compensation and rehabilitation requirements are included in any future approval.

The VFF submitted the EES should be amended to provide for:

- detailed assessment of the impacts on individual farms and how it has been designed to minimise that impact
- an annual commercial payment to compensate for impacts on farm operations
- a minimum solatium payment of 20% for farm access
- legal and technical support for farmers
- formal review processes for land access/easement arrangements.

The VFF advocated the implementation of the 'Managing Entry to Farm Policy'[140] and highlighted what it believed were various biosecurity, consultation, compensation, rehabilitation and review inadequacies associated with the current regulatory framework. In support of its submission, the VFF highlighted the treatment of a specific farm that would be impacted by the Project[141].

JII Investment Pty Ltd submitted the Project failed to have appropriate regard to the existing agricultural use of the property at 170-200 Donovans Lane, Beveridge.

[140] Agreed to by the VFF Policy Council Meeting 173 1 September 2021

[141] The VFF's covering email that provided D141 (received by the Inquiry on 12 October 2021) requested that any material that identified the landowner be redacted for personal reasons. The Inquiry redacted information from D141 and has not specifically identified the property in this report.

The Proponent referred to the Agriculture Impact Assessment Report at Appendix D of EES Technical Report L and the evidence of Mr Bromhead. It submitted the estimated loss of production was a conservative assessment based on a 12 month construction and rehabilitation period that was likely to be shorter.

The Proponent submitted the land would revert to its previous agricultural use following construction, although it acknowledged that excavating or erecting permanent structures or buildings over the pipeline would be prohibited in accordance with the *Pipelines Act* and pursuant to easement agreements with landowners.

The Proponent outlined the relevant mitigation measures and submitted they would address issues raised by the VFF. These include mitigation measures to:

- Reduce adverse social, economic, amenity and land use impacts on farm operations and businesses during construction (EMM S6 to EMM S23 and EMM LU3).
- Address property specific issues regarding access, stock management and biosecurity (EMM S7).
- Provide for agreements with landholders on fair and reasonable terms (EMM S8).
- Progressively reinstate the work area as soon as reasonably practicable post-construction (EMM S14).
- Address economic impacts to landholders for the reservation of the easement and acquisition of land for the MLVs through compensation agreements (EMM LU3).

The Proponent submitted these mitigation measures require consultation with relevant landholders regarding property-specific management measures, and undertaking reasonable steps to enter into agreements with landholders, including commitments to agreed measures to minimise impacts on landholder activities.

The Proponent outlined the land tenure and compensation requirements for the Project and noted landholders would be entitled to compensation for the acquisition of the easement on their property and the impacts to properties associated with construction, in accordance with the *Pipelines Act* and the *Land Acquisition and Compensation Act 1986* as detailed in EMM LU3.

The Proponent advised it has undertaken extensive consultation with landowners in accordance with the Project Consultation Plan included at EES Attachment 4. It submitted that in seeking to reach compensation agreements, it would include input from relevant external advisers such as land valuers and encourages landholders to obtain independent advice. It would agree to cover reasonable legal and valuation advice expenses incurred by landholders during negotiations.

Mr Bromhead noted the Project would have two types of impact:

- the loss of access and use of land during construction and rehabilitation
- ongoing limitations on development within the pipeline easement.

He noted access and use of the land would not be possible during construction and rehabilitation, but EMM LU3 provides for consultation and compensation to address potential impacts.

He agreed the pipeline would restrict some farming operations and infrastructure but concluded impacts would be relatively confined and would not compromise policy in support of protecting productive agricultural land. He noted a significant proportion of the pipeline would be co-located with existing pipeline easements or the OMR/E6 PAO and would not introduce any significant new constraints on agricultural activity.

16.5.3 Discussion

(i) Agricultural impacts

The Inquiry is satisfied the assessment of potential agricultural impacts in the EES is acceptable and the further analysis sought by the VFF is unnecessary.

Agricultural impacts will be largely confined to the construction phase of the Project when land will be temporarily removed from production. The Agriculture Impact Assessment Report assessed the cost of this disruption at approximately $0.2 million over a 12 month construction period. Although a number of variables might affect this calculation, the Inquiry is satisfied the overall construction impacts will not be significant, although it acknowledges practical impacts will vary from farm to farm.

Operational impacts, such as development restrictions, are not expected to have significant impacts, although this will also vary from farm to farm. For the most part, existing agricultural practices will continue once the pipeline is constructed and the land rehabilitated. The Inquiry notes much of the pipeline route is within the UGB and this land is likely to be converted to urban use in the future. In addition, significant sections of the pipeline are co-located with existing easements and the OMR/E6 PAO that already impact future land use, including agriculture, within these areas.

The Inquiry has reviewed the proposed mitigation measures and is satisfied they will provide appropriate mechanisms to manage potential impacts, including access arrangements, biosecurity and farm management, through consultation with landowners. The mitigation measures provide for the management of these issues to be addressed and formalised through landholder agreements and compensation arrangements.

The Inquiry is satisfied the impacts on agriculture would be limited, and the proposed mitigation measures are appropriate.

In relation to the JII Investment submission, the Inquiry notes this property is within the approved Lockerbie PSP that designates most of the property (including the pipeline route) for 'conventional density residential' development. Given that the land will be developed for residential purposes, any agricultural impacts of the pipeline would be short-term.

(ii) Compensation and consultation

The VFF raised various concerns about the compensation and consultation processes adopted for the Project.

These processes are established under the *Pipelines Act* and the *Land Acquisition and Compensation Act.* Consultation processes were detailed in the EES Consultation Plan Western Outer Ring Main Project November 2020 (and addendum)[142] that was required under the Scoping Requirements Report.

The VFF referred to the impacts on a specific property in support of its submissions, however, that landowner did not make a submission to the Inquiry about these matters, nor did any other landowner.

[142] Available on the DELWP project website

16.5.4 Findings

The Inquiry finds:

- The agricultural impacts of the Project will not be significant.
- The proposed mitigation measures will provide appropriate mechanisms to address agricultural impacts.
- Compensation and consultation processes are established under existing legislation and it is beyond the scope of the Inquiry to review those processes.

16.6 Social conclusions

The Inquiry concludes that:

- Social impacts are consistent with the evaluation objective.
- Social impacts can be acceptably managed through the recommended mitigation measures.
- There are no social impacts that preclude the Project being approved.

17 Safety

17.1 Introduction

Safety effects were discussed in EES Chapter 17 and Technical Report M. Additional material was provided in TN08, TN13, TN18, TN26 and TN28. The Inquiry was provided with the Western Outer Ring Main Detailed Design SMS (D34) in confidence.

No specific safety evidence was presented, although traffic safety issues were discussed in the traffic evidence provided by Ms Dunstan.

The relevant Scoping Requirements Report evaluation objectives are:

> **Energy efficiency, security, affordability and safety** – Provide for safe and cost-effective pipeline connection between the eastern and western sections of the Victorian Transmission System
> **Social, economic, amenity and land use** - Minimise potential adverse social, economic, amenity and land use effects at local and regional scales.

The exhibited EES proposed the following EMMs to manage the safety impacts of the Project:

- SA1: Pipeline, MLV and compressor works safety standards
- SA2: Process control system and automated emergency shutdown systems
- SA3: Fire protection
- SA4: Emergency response plans
- SA5: Bushfire Management Plan
- SA6: Traffic Management Plan.

Following its consideration of submissions and evidence, the Proponent proposed a modified EMM SA6 that is discussed below.

17.2 Key issues

The key issues are:

- The safety of the pipeline and associated infrastructure.
- The adequacy of the traffic impact assessments and the requirements for Traffic Management Plans (TMP).

Safety issues associated with extractive industry are discussed in Chapter 15.

17.3 Pipeline and associated infrastructure

17.3.1 Background

A pipeline licence is required for the Project under the *Pipelines Act* and pipelines are required to be constructed and operated in accordance with that Act and AS/NZS 2885. A Health and Safety Management Plan for construction must be prepared to the satisfaction of Energy Safe Victoria and is included in the Pipeline Licence Application. The existing VTS has an approved Safety Case in accordance with the *Gas Safety Act 1997* and it is proposed that the operation of the Project would be incorporated into the current VTS Safety Case.

As noted, an SMS has been prepared for the Project that addresses the requirements of AS/NZS 2885. The version of the SMS supplied to the Inquiry applies to the Revision 5 alignment and will

need to be updated to reflect the Revision 10 alignment and any other relevant changes that are approved.

The EES includes a risk assessment for matters not specifically addressed in the SMS, including bushfire, blasting, trench stability and vehicle movement risks. The EES assigned these a 'low' residual risk rating and proposes various mitigation measures.

17.3.2 Submissions

The Proponent submitted the safety of the Project is heavily regulated and outlined the various safety approvals that would be required, including the Gas Safety Case.

It highlighted key references in the EES that explained the safety related work done to date and submitted:

(a) all reasonably foreseeable risk categories have been considered and there are no risks that preclude the Project proceeding;
(b) the risk identification and assessment work done to date for the Project is to a standard appropriate to the current stage of the Project; and
(c) existing regulations combined with the CEMP will properly control and mitigate risks associated with the Project, including by requiring more detailed risk assessments as the Project proceeds[143].

The Proponent provided updates on further safety related investigations and design responses in the relevant TNs, including:

- pipeline wall thickness (12.7 millimetres [heavy wall] for sensitive areas and 10.31 millimetres [standard wall] for rural areas)
- pipeline diameter (confirmed to be 500 millimetres)
- route alignment (based on Revision 10)
- location classes (described in TN28).

These changes have not altered the 65 metre AoC either side of the pipeline but have reduced the pipeline's ML from 659 to 526 metres.

There were no overarching submissions in relation to safety, although some submitters raised specific issues related to the land use impacts of the pipeline ML and AoC. These are discussed in Chapter 15.

Other submitters raised issues about the preparation of TMP, elements of which are intended to manage traffic safety issues. These are discussed later in this chapter.

17.3.3 Discussion

The Inquiry notes the extensive work done to date on risk identification and assessment for the pipeline and associated infrastructure. This process will continue as part of progressing the pipeline and safety approvals that are required in accordance with the relevant legislation, regulations and standards.

The Inquiry was not presented with any submissions or evidence that questioned the efficacy of these processes and their outcomes. It is satisfied that the appropriate regulatory processes are in place to properly control and mitigate risks associated with the pipeline and associated infrastructure.

[143] D85, page 15

17.3.4 Findings

The Inquiry finds:

- The safety approval framework and proposed mitigation measures will properly regulate and mitigate risks associated with the pipeline and associated infrastructure.

17.4 Traffic Management Plans

17.4.1 Background

The EES does not include a specific chapter on traffic impacts. It addresses traffic issues across various themes, including safety, social and land use impacts and proposes various EMMs across those themes, including:

- LU4: Interruptions to roads and railways
- SA6: Traffic Management Plan
- S3: Community and residential access and connectivity.

Submissions raised issues about the preparation of a TMP required by exhibited EMM SA6:

> Develop and implement a Traffic Management Plan to manage risks to both workers and the public on the movement of vehicles on public roads and at site access points as per EMM S3.

17.4.2 Submissions

Melton noted traffic impacts were not addressed as a separate theme in the EES and that a Transport Impact Assessment (TIA) had not prepared for the Project. It submitted a TMP should be prepared in consultation with Council officers and be informed by the results of a TIA.

DoT noted the requirement for a TMP but submitted that relevant TMPs should require the approval of the Head, Transport for Victoria. DoT's submission at the Hearing expanded on the State transport infrastructure and projects that the Project might impact on. It submitted the EMM should be more specific about the matters to be addressed in the TMP. The submission included an expanded EMM that detailed the matters DoT believed should be addressed.

The Proponent acknowledged the EES did not deal with transport issues in a single chapter but highlighted the relevant references throughout the EES. The Proponent acknowledged the EES did not include a TIA, but agreed with Ms Dunstan that her evidence report largely performed that function. In that context, Ms Dunstan noted:

> Fundamentally, the construction of the Pipeline does not generate a high volume of traffic, much of the traffic occurs well outside of commuter peak hours and travels in the counter-peak direction. The pipeline will be constructed rapidly (51km in 5 months) and any local impacts will consequently be of limited duration[144].

In relation to the preparation of the TMP, the Proponent included a revised EMM SA6 in the final day documents (D159 and 167) based on Ms Dunstan's evidence and intended to address the concerns raised by Melton and DoT. The revised EMM provides for multiple TMPs to be prepared (as required), consultation with the relevant Council and road authority, approval by the relevant road authority and a list of matters to be addressed.

Following further discussions, the Proponent and DoT agreed on a further refinement to EMM SA6 so that the first bullet point in the EMM would read:

[144] D62, page 75

> Consultation with DoT as early as practicable to identify works that have the potential for a high impact on the road network and measures to manage such impacts[145].

17.4.3 Discussion

The Inquiry does not believe that the lack of a TIA in support of the EES is a concern and agrees with the Proponent and Ms Dunstan, that the matters a TIA might have addressed have been adequately assessed in Ms Dunstan's evidence. Her evidence confirmed that traffic impacts will not be significant and can be managed through TMPs. None of the parties challenged this at the Hearing.

The Inquiry agrees that EMM SA6 would benefit from including specific requirements and is satisfied the revised version provided by the Proponent will address the matters raised by Melton and DoT. The Inquiry supports the further change sought by DoT and referred to above.

The revised EMM SA6 is included in D159 and D167, however the additional dot point change was not included in the final day documents and requires a specific recommendation that is provided below.

17.4.4 Findings

The Inquiry finds:

- The lack of an overarching transport chapter or TIA in the EES is not a concern.
- Traffic impacts will be limited and can be managed through TMPs.
- The revised EMM AS6 provided by the Proponent will provide an appropriate level of guidance for preparing TMPs

17.4.5 Recommendations

The Inquiry recommends:

<u>Environmental Management Measures</u>

Change the first dot point in EMM SA6 to:

- ***Consultation with the Department of Transport as early as practicable to identify works that have the potential for a high impact on the road network and measures to manage such impacts.***

17.5 Safety conclusions

The Inquiry concludes that:

- Safety impacts are consistent with the evaluation objective.
- Safety impacts can be acceptably managed through the recommended mitigation measures.
- There are no safety impacts that preclude the Project being approved.

[145] D162, paragraph 25

18 Site specific and other issues

18.1 City of Hume

18.1.1 Introduction

Hume made submissions in relation to two specific sections of the pipeline:

- between Donnybrook Road and Gunns Gully Road, Merrifield West
- along Parkland Crescent, Mickleham.

18.1.2 Between Donnybrook Road and Gunns Gully Road, Merrifield West

(i) Submissions

At KP32 the pipeline 'doglegs' from the western to the eastern side of the OMR/E6 PAO and enters the UGB, the UGZ4 and land identified in the Merrifield West PSP for 'Conventional Density Residential' development (refer to Figure 12). It then follows the eastern boundary of the OMR/E6 PAO northwards and traverses the Kalkallo Basin until it heads east along the southern boundary of Gunns Gully Road.

Figure 12 Pipeline 'dogleg' at KP32[146]

[146] TN08

Hume opposed this segment of the route and submitted the AoC (65 metres either side of the pipeline) would be 'a significant incursion' into the UGZ4 within the northern part of the Merrifield West PSP.

Hume submitted a purpose of the *Pipelines Act* is to protect the public from environmental, health and safety risks resulting from the construction and operation of pipelines. It argued that '*design responses of increased wall thickness and depth of cover, together with easement and notification, are an inadequate response*'[147], and that a proper risk weighted assessment would support an alignment along the western side of the OMR/E6 PAO rather than the exhibited alignment. Hume highlighted various planning scheme provisions that it believed supported the realignment of the pipeline route in this area.

Hume submitted this segment of the Project should be realigned to the western side of the OMR/E6 PAO to:

(a) accommodate the area of consequence (65m);
(b) provide a buffer distance between the Project and residential development;
(c) avoid interruptions to noise attenuation and shared pathway infrastructure; and
(d) negate the requirement to notify residents of the proximity of the high pressure gas pipeline proximate to their newly developed properties and future dwellings[148].

It noted that if the Project alignment was selected to avoid the OMR/E6 PAO and Gunns Gully Road interchange, an alternative alignment might be adopted that shifted the 'dogleg' north, while remaining to the south of this interchange.

The Inquiry did not receive any submissions about these matters from any landowners.

The Proponent advised the pipeline had previously been proposed to cross the OMR/E6 PAO further north (as sought by Hume), but the exhibited crossing was a requirement of DoT. It noted the crossing is immediately prior to where the 'taper' commences for the planned intersection with Gunns Gully Road and if the crossing was any further north it would potentially conflict with this intersection.

The Proponent submitted the pipeline was designed to co-exist with future residential development in the area and to address safety issues. Further, the AoC would not constrain future 'conventional density residential' development designated in the Merrifield West PSP. Mr Bromhead agreed the AoC would have minimal interface with the PSP and would not constrain future development.

(ii) Discussion

The Inquiry accepts the Proponent's advice the exhibited alignment is required by DoT and that from a road engineering perspective, the proposed crossover site would be simpler and cheaper than a crossover further to the north where the intersection splay progressively increases or through the proposed intersection where future road works will be significantly more complex and extensive.

While the Inquiry acknowledges Hume's concerns about safety, it believes they are overstated and do not warrant a realignment of the pipeline in this area, or the additional cost and complexity that this would entail.

As the Inquiry noted in Chapters 15 and 17, the pipeline will be designed to meet the requirements of AS/NZS 2885.1 and will need to consider the land use designations in the Merrifield West PSP,

[147] D148, paragraph 28
[148] D148, paragraph 40

including the adjacent future residential area. Hume did not explain why compliance with this standard would be 'inadequate' nor did it provide any evidence that an alternative alignment would necessarily provide a better safety outcome.

The Inquiry does not believe that the AoC will unreasonably constrain future 'conventional density residential' development. As discussed in Chapter 15, the limitations on 'sensitive uses' within the AoC are focussed on higher density development and the congregation of people, not conventional density residential development as designated in the PSP and UGZ4.

Hume referred to possible 'interruptions' to proposed noise attenuation measures and a shared path along the eastern side of the OMR/E6 PAO. These are micro planning and design issues that should be considered as detailed design progresses and potentially as part of the coordination deed between the Proponent and DoT as discussed later in this chapter. These are not matters the Inquiry can usefully comment on, given the early stage of the design process.

The Inquiry is satisfied that the proposed alignment in this area is acceptable and that there is no basis for recommending that the pipeline cross the OMR/E6 PAO further to the north.

(iii) Findings

The Inquiry finds:

- The pipeline alignment between Donnybrook Road and Gunns Gully Road, Merrifield West is acceptable.

18.1.3 Parkland Crescent, Mickleham

(i) Submissions

The pipeline alignment between KP26 and 27 diverges from the OMR/E6 PAO and is within the Parkland Crescent road reserve. This area is zoned Green Wedge Zone and the approved Lindum Vale PSP applies to the east.

Hume submitted that the alignment should follow the OMR/E6 PAO (refer to Figure 13).

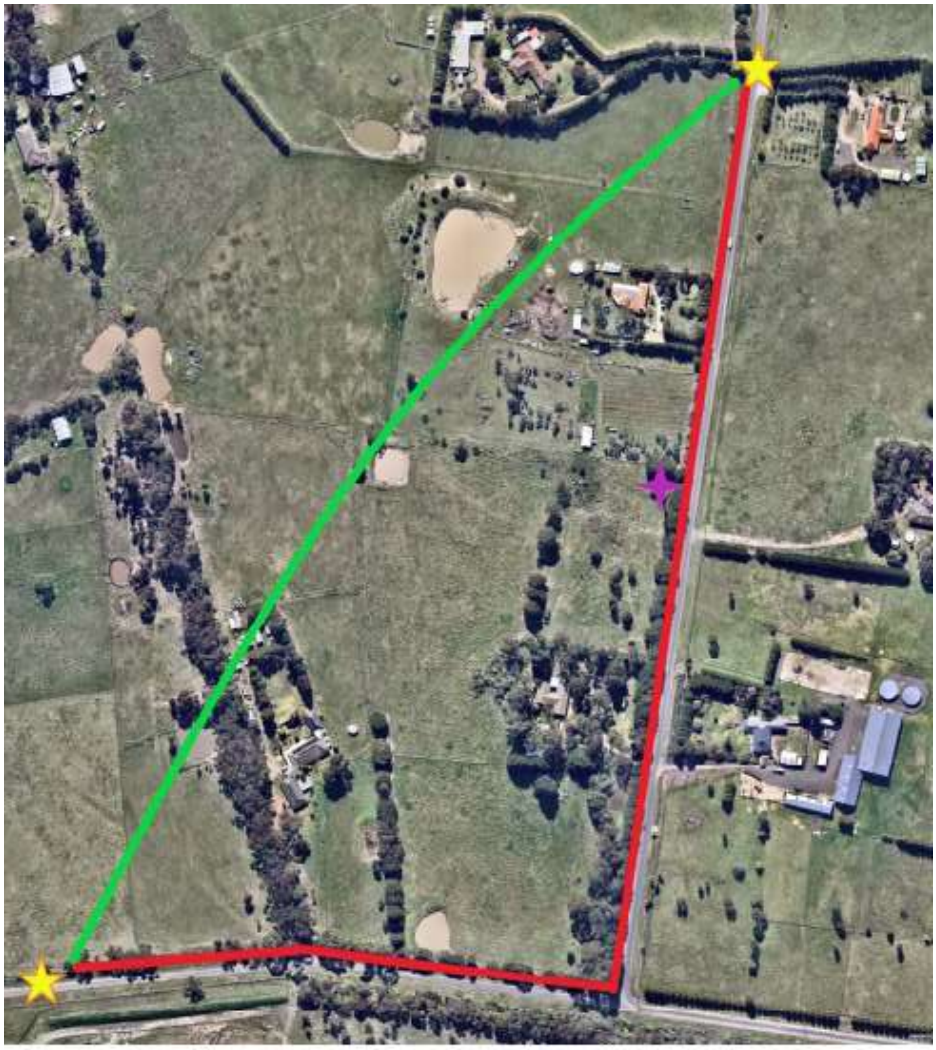
Hume noted that adopting its preferred alignment along the OMR/E6 PAO would result in a shorter pipeline length through this area (approximately 730 metres compared to one kilometre) and the AoC would impact on fewer dwellings (two rather than three).

Hume submitted that '*any perceived short term avoidance of impact to the dwelling at 750 Mt Ridley Road, needs to be balanced against the long-term impact to dwellings at 730 Mt Ridley Road and 740 Mt Ridley Road*'[149], given that the OMR/E6 will require compulsory acquisition of the property at 750 Mt Ridley Road and demolition of the existing dwelling.

Hume submitted the exhibited alignment would impact on access to a telecommunications tower and associated infrastructure, including risk to worker safety. Its preferred alignment would be separated from this infrastructure by approximately 110 metres.

[149] D148, pages 7 and 8

Figure 13 Parkland Crescent, Mickleham[150]



Aerial Photograph B – Parkland Crescent and Mt Ridley Road
- Purple star – telecommunications tower
- Yellow stars KP26 (south) and KP27 (north)
- Green line – alternative direct OMRTC alignment, approximate
- Red line – Project alignment, Option C

Hume concluded that its preferred alignment between KP26 and 27 should be adopted in order to minimise the impact on private land owners, telecommunications infrastructure and Council's road reserve.

The Inquiry did not receive submissions about these matters from any of the affected landowners or the telecommunications provider.

The Proponent submitted the alignment proposed by Hume would involve the pipeline bisecting two residential properties and in close proximity to three residences, '*causing an immediate and significant impact on those properties, and running some distance within the OMR PAO, which would not be supported by DoT*'[151].

[150] D148
[151] D162, paragraph 66

The Proponent advised that the operator of the telecommunications tower had provided a 'letter of no objection' and submitted the tower was not a constraint on routing the pipeline along Parkland Crescent.

The Proponent advised that ecological surveys completed within the Parkland Crescent road reserve had confirmed that no native vegetation or potential habitat exists and submitted that '*a revision of the alignment at this location into private property would likely see impact to native vegetation and habitat*[152]'.

The Proponent concluded the realignment within the OMR/E6 PAO proposed by Hume would not be supported by DoT, given that a feasible alternative exists.

(ii) Discussion

The Inquiry does not believe that Hume has made an adequate case to realign the pipeline route in this area. The Parkland Crescent alignment will result in fewer properties being directly affected and, as a matter of principle, it makes sense to use an existing road reserve rather than encumber private property, particularly lots with dwellings.

The Inquiry notes the operator of the transmission tower did not object to the alignment, and it is not clear on what basis Hume submitted that the Project would create risk to worker safety. There will be short-term construction impacts on access to the facility, but these will not be significant and can be managed.

The Proponent submitted that adopting Hume's alternative alignment would likely impact on native vegetation and habitat. This was not a factor addressed in Hume's submission and although the Inquiry was not presented with any specific material or evidence in support of this proposition by the Proponent, the Inquiry agrees that adopting a revised alignment would require an assessment of other possible impacts, including native vegetation and habitat impacts.

The Inquiry is satisfied the Parkland Crescent alignment is acceptable and there are no compelling reasons for it to recommend an alternative alignment.

(iii) Findings

The Inquiry finds:

- The pipeline alignment through Parkland Crescent, Mickleham is acceptable.

18.2 Victorian Planning Authority

18.2.1 Introduction

The VPA's initial written submission raised various issues that were subsequently discussed and resolved with the Proponent. The only outstanding issue at the time of the Hearing related to the depth and coverage of the pipeline along Gunns Gully Road within the Merrifield North PSP[153] (refer to Figure 14).

The Merrifield North PSP is part the VPA's forward business plan and preliminary technical studies are due to begin shortly.

[152] D162, paragraph 67
[153] D142

Figure 14 Gunns Gully Road, Merrifield North PSP[154]

Gunns Gully Road is intended to become an arterial road and planning is underway to construct an interchange with the Hume Freeway at the eastern edge of the PSP. The EES provided for the pipeline to run along Gunns Gully Road at depths varying between 0.75 and 0.9 metres for a distance of approximately 1.5 kilometres.

18.2.2 Submissions

The VPA submitted it is highly likely the pipeline will conflict with future subdivision infrastructure along Gunns Gully Road, including stormwater drainage pipes, potable water supply, sewerage and telecommunications. The VPA noted the Proponent had agreed to increase the depth of cover to 1200 millimetres but advised the underground services that might conflict with the pipeline are likely to be constructed at a depth of 0.75 to 1.2 metres.

Consequently, the VPA sought a recommendation that the depth of cover be two metres for the area between the Melbourne Water retarding basin and the Hume Freeway (shown in Figure 14 as the area in the blue box). If the pipeline was not constructed at this depth, the VPA contended the Proponent should be responsible for any mitigation costs when resolving future conflicts.

[154] D142

The Proponent outlined the various changes to pipeline depth it had agreed to, including the minimum 1.2 metre depth within all of the PSP and additional depth at seven discrete locations[155]. These increased depths were agreed in consultation with Melbourne Water and DoT, and are located at known future road crossing locations, which the Proponent understands are the key locations where future third party underground infrastructure conflicts (roads and drainage) would most likely occur.

The Proponent submitted that at other locations, the proposed pipeline depth of 1.2 metres will accommodate the foreseeable future construction of roads (at grade, with road base to 500 millimetres below existing natural surface) without the need to relocate the pipeline, although in some instances additional concrete slabbing in the immediate vicinity of the works may be required.

The Proponent submitted other utilities infrastructure that might locate within the Gunns Gully Road reserve should have to respond to the existence of the pipeline (and potentially go under it), but it is likely that this will only be at discrete locations when there are offtakes from the utilities mains.

The Proponent did not support the VPA's position that the pipeline should have a minimum two metre depth of cover to accommodate what it believed would be a small number of locations where the additional depth might be warranted. Instead, the Proponent offered the VPA the opportunity to identify specific locations where additional depth is required by March 2022 and indicated it will provide the required depth at those locations.

The Proponent added that the pipeline will not prevent those infrastructure works proceeding, although it might add to their cost and that, even at two metre depth, pipeline slabbing might be required.

The Proponent concluded:

> There is no reasonable basis on which to say that the pipeline should, at significant cost, respond to unknown future development that is able to respond to the pipeline at a lesser cost. There is virtually no doubt that the pipeline will be constructed prior to development occurring within Merrifield North, given the preliminary stage of investigations on the PSP[156].

18.2.3 Discussion

The VPA did not provide the Inquiry with any detailed technical material or evidence describing the likely use of Gunns Gully Road for the co-location of underground infrastructure, what that infrastructure will consist of, what are its construction and depth requirements or when it is likely to be constructed. Nevertheless, these matters have been discussed between the VPA, the Proponent and other agencies, resulting in number of concessions about the depth of the pipeline, particularly where there has been some certainty about future infrastructure development.

The Inquiry notes these discussions have been productive and supports the Proponent's offer to accommodate additional changes to the pipeline's depth in areas where the VPA can demonstrate a need. The Inquiry prefers this approach, rather than applying a blanket two metre depth as sought by the VPA.

The Inquiry believes that the Project should accommodate and respond to planned and foreseeable infrastructure development, but it would be unreasonable to impose a blanket depth requirement where there is a lack of detailed and available information about other underground infrastructure,

[155] D162, pages 7-9
[156] D162, page 7

and in the situation where the VPA has been invited and given time to identify that infrastructure. The Inquiry notes the gas pipeline might be constructed well before the subdivisional infrastructure is finalised and approved, and in that situation could not be described as the 'agent of change'.

For these reasons, the Inquiry does not agree with the VPA that a blanket pipeline depth of two metres should be required or that the Proponent should necessarily be responsible for any mitigations costs that might arise in the future.

The Inquiry encourages the Proponent to continue its discussions with the VPA and relevant agencies to identify further refinements to pipeline depth along Gunns Gully Road and has included a recommendation to that effect.

18.2.4 Findings

The Inquiry finds:

- The Proponent has sought to identify and accommodate known and planned infrastructure along Gunns Gully Road.
- The need for a blanket two metre pipeline depth along Gunns Gully Road has not been demonstrated.
- The Proponent should continue discussions with the VPA and relevant agencies to identify and accommodate any future infrastructure that would require a greater pipeline depth than currently proposed.

18.2.5 Recommendation

The Inquiry recommends:

Other recommendation

The Proponent should continue discussions with the Victorian Planning Authority and relevant infrastructure agencies to identify any future underground infrastructure along Gunns Gully Road, Merrifield North that would require a change to the pipeline depth. Any relevant infrastructure should be identified by 31 March 2022 and accommodated in the final pipeline design and depth.

18.3 Department of Transport

18.3.1 Introduction

There are extensive interfaces between the Project and various transport corridors and infrastructure, including the OMR/E6 PAO and other reservations, and arterial road and rail corridor crossings.

18.3.2 Submissions

DoT advised that it did not object to the Project, or it being located within reserved transport corridors, provided that it did not adversely affect future transport projects within those corridors. DoT outlined its involvement in a working group with the Proponent and DELWP (Pipeline Regulation Unit) to facilitate the Project while ensuring the appropriate delivery and operation of transport infrastructure. This process resulted in a number of alignment changes and discussions are continuing.

DoT made submissions in relation to the preparation of TMPs (Chapter 17) and a 'coordination deed'.

DoT and the Proponent are working on a coordination deed that '*would establish governance arrangements to facilitate information exchange and cooperation for the equitable co-existence of the pipeline and transport infrastructure projects, and require the Head, Transport for Victoria to approve final (pipeline) design plans and specifications…*[157]'. DoT outlined the importance of the coordination deed and submitted there were three circumstances under which appropriate integration between the Project and transport infrastructure could be achieved:

(a) the Project is shifted out of the OMR/E6 PAO
(b) the coordination deed is executed
(c) a condition of the licence require the licensee to provide evidence of execution of the coordination deed to the Minister before works on the project can commence[158].

The Proponent acknowledged the importance of the coordination deed and advised that although it is not expected to be finalised in the short-term, there was no reason to expect that it cannot be agreed. It had proceeded on the basis that the deed would be finalised prior to construction but did not believe it would be appropriate for the lack of a finalised deed to prevent commencement of the Project. The Proponent submitted that potential delays in finalising the deed and commencing construction might impact on energy supply and security, and this could be compounded if DoT was 'unreasonably slow' in its negotiations. It submitted it would be unusual for an Inquiry to recommend the finalisation of a deed that it had not seen.

In this context, the Proponent submitted the Inquiry should recommend '*that the Minister for Energy consider the status of the Coordination Deed and proposed OMR/Project interface arrangements prior to granting a licence*'[159]. This would enable the Minister to consider any updated information on the status of the deed and the Project's impacts on transport infrastructure prior to granting a licence.

This would provide the Minister with options, such as:

- not granting the licence until the coordination deed is finalised
- including a condition requiring the deed be finalised prior to construction works commencing
- including a condition requiring that a coordinating body be established.

The Proponent concluded this approach would facilitate timely and good faith negotiations and provide a more '*level playing field*''[160].

18.3.3 Discussion

A significant advantage of the Project route is that a large component is co-located with the OMR/E6 PAO, minimising potential land use impacts. However, this co-location brings some significant design challenges, in addition to the design issues associated with the numerous crossings of existing transport infrastructure as outlined by DoT. Although the horizonal alignment of the pipeline route seems to have been largely agreed between the Proponent and DoT, a number of other design issues need to be resolved and are still being discussed. Although the Inquiry was not able to be provided with a draft deed, it is clear the use of this mechanism to formalise how design and construction issues might be addressed is a sensible approach and one the Inquiry supports.

[157] D136, paragraph 38
[158] D136, paragraph 40
[159] D162, paragraph 22
[160] D162, paragraph 24

Both parties agreed on the need for a deed and indicated that although it had not been finalised, negotiations were continuing and there were no reasons to believe that it could not be agreed in the future. The Inquiry accepts the willingness of the parties to resolve any outstanding issues and progress the deed, and notes the key unresolved issue is whether and how the finalisation of the deed might be linked to the Project's approval.

Given the importance of the deed and the matters that it will address, the Inquiry generally agrees with DoT's third option that would require the deed to be finalised (executed) prior to construction commencing, rather than prior to the Project being approved. Based on the advice of the two parties, the Inquiry is confident that the deed can be agreed and does not believe that the Project's approval need be delayed or contingent on this occurring. Linking the execution of the deed to the commencement of the Project's construction, rather than approval, will provide the parties with more time to address the remaining issues.

The Inquiry does not oppose the Proponent's preference for a more open recommendation that would leave the treatment of the deed up to the Minister at the time of approval, but believes it should make a recommendation that reflects the importance of the deed and its view that it should be executed before construction commences.

18.3.4 Findings

The Inquiry finds:

- The proposed coordination deed between the Proponent and DoT is an appropriate mechanism to coordinate the Project's construction with existing and future State transport infrastructure.
- The coordination deed should be agreed between the Proponent and DoT before the Project's construction commences.

18.3.5 Recommendation

The Inquiry recommends:

Other recommendation

The proposed 'coordination deed' between the Proponent and the Department of Transport should be agreed before the Project's construction commences.

18.4 VTS OEMP

18.4.1 Introduction

The EES proposes various mitigation measures that relate to the Project's operation, in addition to those that relate to its construction. Most of the operational mitigation measures would be implemented through existing VTS OEMP management methods that apply throughout the VTS. Some of the operational mitigation measures would require revisions to existing OEMP.

During the Hearing, the Inquiry queried the Proponent about how these revised mitigation measures would be approved and the process for amending the VTS. It noted that some of the changes related to the implementation of the new *Environment Protection Act* and would have broader application beyond the Project.

18.4.2 Submissions

The Proponent outlined the process for amending and updating the VTS OEMP and noted that it is generally updated on a five yearly basis. It is currently scheduled for an update in 2024. It advised the Project would require the VTS OEMP to be amended and that the Project could not proceed until that was done.

The Proponent submitted that all changes proposed to the VTS OEMP to facilitate the Project are appropriate to apply to the entire VTS. It intends to submit an amended OEMP that incorporates those changes and expects those changes to be acceptable to the Minister.

The Proponent acknowledged the Inquiry's concerns about recommending changes to the VTS OEMP and whether doing so would be consistent with its Terms of Reference and the statutory process for amending the VTS OEMP. The Proponent submitted the Inquiry *'is not … in a position to make recommendations about the amendment of the VTS OEMP*[161]*'* but this could be addressed in an appropriately worded recommendation.

It noted *'the structure of the VTS OEMP allows for project-specific requirements to be imposed if necessary, meaning that recommendations for changes to the VTS OEMP can be implemented either as general changes or Project-specific changes*[162]*'*.

The Proponent provided the Inquiry with the following recommendation as a means of addressing this issue:

> That the Minister for Energy require the substance of the recommended OEMP Changes to be implemented in relation to the Project in the VTS OEMP prior to submission of an amended VTS OEMP that accounts for the Project.

18.4.3 Discussion

The operational EMMs are included in D169 which outlines changes that would need to be made to the VTS OEMP. The Inquiry supports these EMMs in relation to the Project (except where otherwise recommended) but has not formed any views about their broader application within the VTS.

How these EMMs are implemented is a matter for the Minister for Energy and the Inquiry makes no findings or recommendations about their broader application within the VTS.

18.4.4 Findings

The Inquiry finds:

- The recommended operational EMMs proposed to be included in the VTS OEMP are supported on a Project specific basis.

18.5 Other issues raised in submissions

18.5.1 JII Investment Pty Ltd

JI Investment Pty Ltd raised various issues that are either specifically discussed or discussed in general terms in earlier chapters of this report. A further submission at the Hearing noted that many issues had been resolved through further discussions with the Proponent and included updates on various matters. It also raised issues associated with costs and responsibilities for various actions.

[161] D146, page 40
[162] D146, page 40

The Inquiry has responded to those matters that are relevant to its considerations and encourages the Proponent to continue its discussions with the submitter in order to address any remaining concerns.

18.5.2 Summerhill Road Pty Ltd

Summerhill Road Pty Ltd raised issues associated with CHMPs and quarrying that are discussed in Chapters 13 and 15. It sought clarification from the Proponent about pipeline crossing works, easement requirements and *Flora and Fauna Guarantee Act* requirements. The Inquiry understands these matters have been resolved with the Proponent.

18.5.3 1100 Donnybrook Road Pty Ltd

1100 Donnybrook Road Pty Ltd raised issues relating to drainage requirements and CHMPs that are discussed in Chapters 6 and 13. It sought clarification from the Proponent about pipeline crossing works, easement requirements, access and *Flora and Fauna Guarantee Act* requirements. The Inquiry understands that these matters have been resolved with the Proponent.

19 Matters of National Environmental Significance

19.1 Background

The Project was determined a 'controlled action' under the Commonwealth under the *Environment Protection and Biodiversity Conservation Act* [163]. The relevant controlling provisions relate to potential impacts on listed threatened species and communities (Section 18 and 18A).

The Victorian EES process is an accredited process for the assessment purposes of the *Environment Protection and Biodiversity Conservation Act* under a bilateral agreement between the Australian and Victorian governments. The Minister's Assessment under the *Environment Effects Act* will inform any approval decision under that Act.

Chapter 18 of the EES and Technical Appendix A set out the listed species and communities considered by the Project. Following targeted surveys and detailed assessments it concludes the Project has the potential to significantly impact the following MNES[164]:

- golden sun moth
- striped legless lizard
- Natural Temperate Grassland of the Victorian Volcanic Plain
- Grassy Eucalypt Woodland of the Victorian Volcanic Plan.

The EES concluded there would be significant impacts on these MNES for the reasons summarised in Table 13.

Table 13 Assessment of Matters of National Environmental Significance

Golden sun moth	The Project will result in the removal of 19.59 hectares[165] of known or assumed golden sun moth habitat. This meets the threshold for a significant impact being the removal of more than 0.5 hectares in a landscape of contiguous habitat of greater than 10 hectares[166]. It is also possible the Project will result in a significant impact due to the reduced area of occupancy for the species at the habitat-area scale. This is considered possible as the ability to recolonise the Project area is not well understood so the habitat must be deemed lost[167].
Striped legless lizard	The Project will result in the removal of 39.92 hectares[168] of known or assumed striped legless lizard habitat. This was considered to meet the threshold for a significant impact as the removal of habitat would potentially: - reduce the area of occupancy of an important population

[163] Referral 2019/8569
[164] Assessments against significant impact criteria are provided in Appendices S to Z of Technical Appendix A
[165] Updated in the revised Ecological Offset Strategy provided in TN16
[166] Technical Report A, Appendix S Table VI
[167] Technical Report A, Appendix U
[168] Updated in the revised Ecological Offset Strategy provided in TN16

	- fragment an existing important population into two or more populations. An important population was identified in one property. The ability for the species to recolonise the Project area post-construction is not well understood. Therefore, the habitat must be assumed lost and fragmented[169].
Natural Temperate Grassland of the Victorian Volcanic Plain	The Project will result in the removal or fragmentation of 4.46 hectares of Natural Temperate Grassland of the Victorian Volcanic Plain[170]. This is considered a significant impact based on the following criteria: - likely to fragment or increase in fragmentation of an ecological community leading to a significant impact - likely to modify or destroy abiotic (non-living) factors - likely to interfere with the recovery of an ecological community.
Grassy Eucalypt Woodland of the Victorian Volcanic Plan	The Project will result in the removal or fragmentation of 2.29 hectares of Grassy Eucalypt Woodland of the Victorian Volcanic Plan[171]. The community was identified at three locations being either side of Craigieburn Road and adjacent to the Wollert Compressor Station. This is considered a significant impact based on the following criteria: - likely to be a significant impact due to reducing the extent of an ecological community - likely to modify or destroy abiotic (non-living) factors - likely to cause a substantial change in the species composition of an occurrence of an ecological community - likely to interfere with the recovery of an ecological community.

Further details of impacts are provided in Chapter 5. It is proposed that the above significant impacts will be compensated through offsets as outlined in Chapter 5.

19.2 Evidence and submissions

Evidence and submissions relevant to these matters are detailed in Chapter 5 (sections 5.6.2, 5.7.2 [golden sun moth and striped legless lizard], 5.4.2, 5.5.2 [threatened ecological communities] and 5.8.2 [offsets]) and are not repeated here.

169 Table 55 of Technical Report A
170 Refer to Table 4 in this report
171 Refer to Table 4 in this report

19.3 Discussion

The Inquiry agrees with the assessment that the Project is likely to result in a significant residual impact to MNES and these matters should be fully offset. Proposed offset measures are discussed in Chapter 5.8.3.

The Inquiry discussed proposed management measures for these matters under State legislation throughout Chapter 5. The Inquiry does not consider any of these measures reduce the need for impacts on MNES to be fully offset.

19.4 MNES conclusions

The Inquiry concludes that:

- The Project will have significant residual impacts on the following MNES:
  - golden sun moth
  - striped legless lizard
  - Natural Temperate Grassland of the Victorian Volcanic Plain
  - Grassy Eucalypt Woodland of the Victorian Volcanic Plan.
- These impacts are acceptable on the basis that:
  - they will be offset in accordance with the *Environment Protection and Biodiversity Conservation Act 1999 Environmental Offsets Policy*
  - the Project will provide broader community benefits associated with energy security.
- MNES impacts can be acceptably managed through the recommended mitigation measures and further approvals that are required.

PART C: PROJECT ASSESSMENT AND APPROVAL

20 Integrated assessment

This chapter brings together the Inquiry's responses to:

- the Terms of Reference
- the Scoping Requirements Report evaluation objectives
- the *Pipelines Act*.

20.1 Response to the Terms of Reference

Clause 31 of the Terms of Reference specifies the matters the Inquiry's report must contain. A summary of the Inquiry's responses and report references are included in Table 14.

Table 14 Summary of Inquiry response to Terms of Reference Clause 31

Terms of Reference	Inquiry response and findings
Analysis and conclusions with respect to specific environmental effects of the Project and their significance and acceptability.	The Inquiry finds the environmental effects of the Project are generally acceptable, subject to applying the recommended mitigation measures, including additional investigations. The Inquiry has concerns about the surface water and biodiversity impacts of the proposed open trench pipeline crossing of Jacksons Creek. The Inquiry has recommended further investigations into whether the crossing can be undertaken with HDD, either at the proposed site or an alternative crossing point that would be more suitable for HDD. If there is found to be no alternative to open trenching, further analysis of likely impacts and further mitigation options for a trenched crossing should be undertaken. The Inquiry has recommended further investigations into the practicality of trenchless construction at other specific locations to further avoid impacts on significant native vegetation and fauna habitat.
Findings on whether acceptable environmental outcomes can be achieved, having regard to legislation, policy, best practice, and the principles and objectives of ecologically sustainable development.	The Inquiry finds that the Project can achieve acceptable environmental outcomes, subject to applying the recommended mitigation measures and undertaking the recommended further work. The Inquiry notes that elements of the exhibited EMF have been revised by the Proponent to reflect the requirements of the new *Environment Protection Act* and the GED. The Inquiry is satisfied these changes are appropriate although there would be merit in monitoring their performance.
Recommendations and/or specific measures that it considers necessary and appropriate to prevent, mitigate or offset adverse environmental effects to achieve acceptable environmental outcomes, having regard to legislation, policy, best practice, and the	The Inquiry is generally satisfied with the 'final day' mitigation measures but has recommended further changes in order to better address specific issues.

principles and objectives of ecologically sustainable development.	The Inquiry has recommended further investigations into the proposed Jacksons Creek pipeline crossing before this element of the Project is finalised. The Inquiry has also recommended further investigations into the practicality of trenchless construction at other specific locations to further avoid impacts on significant native vegetation and fauna habitat.
Recommendations to any feasible modifications to the project (e.g. design, alternative configurations or environmental management) that would enable beneficial outcomes.	The Inquiry is generally satisfied with the Project's design elements, including the pipeline route and associated infrastructure. The Inquiry has recommended further investigations into the proposed Jacksons Creek pipeline crossing in order to achieve better surface water and biodiversity and habitat outcomes. The Inquiry has also recommended further investigations into the practicality of trenchless construction at other specific locations to further avoid impacts on significant native vegetation and fauna habitat.
Recommendations to the structure and specific content of the proposed environmental management framework, including with respect to mitigation and monitoring of environmental effects, contingency plans and rehabilitation.	The Inquiry is satisfied with the structure and content of the EMF, subject to the applying the recommended changes to various mitigation measures.
Specific findings and recommendations about the predicted impacts and residual risks for matters of national environmental significance and their acceptability, including appropriate controls and environmental management.	The Inquiry is satisfied that impacts on MNES are acceptable, while noting that: - the Project will have significant residual impacts on four MNES that will be offset in accordance with the Environment Protection and Biodiversity Conservation Act 1999 Environmental Offsets Policy - the Project will provide broader community benefits associated with energy security.

20.2 Response to the Evaluation Objectives

Clause 5b of the Terms of Reference requires the Inquiry to have regard to the evaluation objectives in the Scoping Requirements Report. Table 15 summarises the Inquiry's findings about the Project's consistency with the objectives and indicates where the relevant discussion can be found in its Report.

Table 15 Response to EES evaluation objectives

Evaluation objective	Response
Energy efficiency, security, affordability and safety: Provide for safe and cost-effective pipeline connection between the eastern and western sections of the Victorian Transmission System.	The Project is consistent with this evaluation objective. The Inquiry is satisfied that the Project rationale is broadly consistent with Commonwealth and State

	energy policy and that it can be safely delivered and operated. (Chapters 4 and 17)
Biodiversity and habitats: Avoid and minimise potential adverse effects on native vegetation, listed threatened and migratory species and ecological communities, and habitat for these species, as well as restore and offset residual environmental effects consistent with State and Commonwealth policies.	The Project is generally consistent with this evaluation objective, although further investigations into the Jacksons Creek pipeline crossing should be undertaken in order to further minimise biodiversity and habitat impacts. The Inquiry has also recommended further investigations into the practicality of trenchless construction at other specific locations to further avoid impacts on significant native vegetation and fauna habitat. (Chapters 5, 6 and 7)
Water and catchment values: Maintain the functions and values of groundwater, surface water and floodplain environments and minimise effects on water quality and beneficial uses.	The Project is generally consistent with this evaluation objective, although further investigations into the Jacksons Creek pipeline crossing should be undertaken in order to further minimise surface water impacts. Sodic and dispersive soils are present in the Project area and the exhibited EMF has been revised by the Proponent to include to include a Sodic and Dispersive Soils Management Plan, which is a new measure in Victoria. (Chapters 6, 7 and 8)
Cultural heritage: Avoid, or minimise where avoidance is not possible, adverse effects on Aboriginal and historic cultural heritage values.	The Project is generally consistent with this evaluation objective, although further investigation of the dry stone wall on 170-200 Donovans Lane, Beveridge and its implications for pipeline construction should be undertaken. Aboriginal cultural heritage is being addressed through the two CHMPs that are being prepared. The Inquiry was not presented with any material or evidence that the CHMPs could not be satisfactorily finalised with the RAPs. (Chapter 13)
Social, economic, amenity and land use: Minimise potential adverse social, economic, amenity and land use effects at local and regional scales.	The Project is generally consistent with this evaluation objective. The Project will have some impacts on future land use and development, mainly associated with restrictions on sensitive uses within the AoC and potential quarrying within the EIIA. These impacts will not be significant and are acceptable in the context of the land use planning framework within the Project area and the broader energy security and cost benefits that the Project will provide. Social, economic and amenity impacts will primarily be temporary and occur during the construction

	phase of the Project. Impacts can be acceptably managed through the EMF. (Chapters 11, 12, 14, 15 and 16)
Waste: Minimise generation of wastes from the project during construction and operation, and to prevent adverse environmental or health effects from storing, handling, transporting and disposing of waste products.	The Project is consistent with this evaluation objective (Chapters 9 and 10)

20.3 Response to the Pipelines Act 2005

The Inquiry's letter of appointment as a panel under the *Pipelines Act*[172] noted the matters that the Minister for Energy, Environment and Climate Change must consider in determining the Application under s49 of the *Pipelines Act*. A summary of the Inquiry's findings and report references is included in Table 16.

Table 16 Response to the Pipelines Act

Considerations	Response
The potential environmental, social, economic and safety impacts of the proposed pipeline.	The Inquiry is satisfied that the potential environmental, social, economic and safety impacts are acceptable, subject to the recommended changes to the EMF and further investigations into the Jacksons Creek pipeline crossing and the potential for trenchless construction at other specific locations to avoid further biodiversity impacts. (Part B)
The potential impact of the proposed pipeline on cultural heritage (including Indigenous cultural heritage).	The Inquiry is satisfied that the potential impacts on cultural heritage are acceptable, subject to the recommended assessment of the drystone wall crossing at 170-200 Donovans Lane, Beveridge. Impacts on Indigenous cultural heritage will principally be addressed through the two CHMPs required under the *Aboriginal Heritage Act*. The Inquiry was not provided with any material or evidence that the CHMPs could not be satisfactorily finalised with the RAPs. (Chapter 13)
The benefit of the proposed pipeline to Victoria relative to its potential impacts.	The Inquiry accepts the Project rationale and is satisfied that the Project will: - improve Victoria's gas network capacity and performance, allowing greater volumes of gas to be efficiently transferred and stored - provide efficiencies in the operation and management of the VTS.

[172] D10, 11 and 12

	The Project will have associated benefits, including reduced greenhouse gas emissions from the operation of the network, potential reductions in the cost of gas, and investment and employment benefits. The Inquiry accepts that the Project will have some disbenefits or adverse impacts, but is satisfied that these will be minimal and can be effectively managed through the recommended mitigation measures and further actions. Although it is difficult to quantify the Project's impacts relative to its benefits, the Inquiry is satisfied that, on balance, there is no reason to recommend that the Pipeline Licence Application not be approved. (Chapter 4)

21 Project approvals

21.1 Key approvals

This chapter responds to the key approvals discussed in Clauses 13 -16 of the Terms of Reference.

21.1.1 Environmental Protection and Biodiversity Conservation Act 1999 (EB)

The EES process is accredited to assess impacts on MNES under the *Environment Protection and Biodiversity Conservation Act* through the Bilateral (Assessment) Agreement between the Commonwealth and State of Victoria (Schedule 1 (part 5) of the Bilateral Agreement).

The EES for the Project was undertaken in accordance with the Bilateral Agreement and there is no separate assessment by the Commonwealth. The Commonwealth Minister or delegate will receive the Minister for Planning's Assessment under the *Environment Effects Act* at the conclusion of the EES process and use it as a basis for deciding on approval of the Project under the *Environment Protection and Biodiversity Conservation Act,* including any conditions the Commonwealth Minister may deem appropriate.

The MNES are discussed in Chapter 19 where the Inquiry concluded that:

- The Project will have significant residual impacts on the following MNES:
  - golden sun moth
  - striped legless lizard
  - Natural Temperate Grassland of the Victorian Volcanic Plain
  - Grassy Eucalypt Ware woodland of the Victorian Volcanic Plan.
- These impacts are acceptable on the basis that:
  - they will be offset in accordance with the *Environment Protection and Biodiversity Conservation Act 1999 Environmental Offsets Policy*
  - the Project will provide broader community benefits associated with energy security.
- MNES impacts can be acceptably managed through the recommended mitigation measures and further approvals that are required.

21.1.2 Pipeline Licence Application

The Inquiry finds that the Project's environmental, social, economic, safety or heritage impacts will be limited and are outweighed by its benefits, subject to implementing the Inquiry's recommendations.

The Inquiry concludes that any impacts arising from the Project do not preclude the Pipeline Licence Application from being approved.

21.1.3 Aboriginal Heritage Act 2006

The *Aboriginal Heritage Act* requires the approval of two CHMPs for the Project before it can proceed. The operation of the Act is discussed in Chapter 3.

The two CHMPs in preparation, but not yet finalised, are:

- CHMP 16593 (Pipeline and associated works - KP8.29 – 51.045)
- CHMP 16594 (Pipeline and associated works - KP0 – 8.29).

On the basis of the material presented to it, the Inquiry concludes there are no Aboriginal cultural heritage issues that preclude the Project proceeding, subject to the CHMPs being approved.

21.1.4 Flora and Fauna Guarantee Act 1988

The *Flora and Fauna Guarantee Act* lists threatened flora and fauna species and communities. A range of listed species are present within the pipeline alignment and their removal from public land will require approval under the *Flora and Fauna Guarantee Act*. The operation of this Act is discussed in Chapter 5.

The Inquiry discusses issues related to the *Flora and Fauna Guarantee Act* in Chapter 5, where it found there are no impediments to approval under this Act, subject to compliance with relevant mitigation measures.

21.1.5 Water Act 1989

Melbourne Water is responsible for managing waterways in the Project area. Under the *Water Act*, Melbourne Water's approval would be required for any works on, over or under a designated waterway, and before the commencement of construction. Consent for minor waterway work would be required for each crossing of a waterway by the Pipeline.

The Inquiry discusses Surface Water and Groundwater in Chapters 6 and 7, where it provides its findings and recommendations. The Inquiry has raised concerns about the proposed 'open trench' crossing of Jacksons Creek and believes that further investigations are required before this element of the Project is finalised. It has also recommended various changes to the mitigation measures. Subject to addressing these matters, the Inquiry finds there are no impediments to approval under the *Water Act*.

Appendix A Inquiry Terms of Reference

Western Outer Ring Main Gas Pipeline Project Inquiry

Version: April 2021

The Western Outer Ring Main Gas Pipeline Project Inquiry is appointed to inquire into, and report on, the proposed Western Outer Ring Main Gas Pipeline Project (the project) and its environmental effects in accordance with these Terms of Reference.

The inquiry is appointed pursuant to section 9(1) of the *Environment Effects Act 1978* (EE Act) as an inquiry.

The inquiry may separately be appointed by the Minister for Energy, Environment and Climate Change as a panel under section 40 of the *Pipelines Act 2005* (Pipelines Act).

Name

1. The inquiry is to be known as the 'Western Outer Ring Main Gas Pipeline Project Inquiry'.

Skills

2. The inquiry members should have the following skills:
   a. biodiversity/ecology (terrestrial and freshwater);
   b. surface water and groundwater; and
   c. land use and statutory planning.
3. The inquiry may seek additional expert advice to assist it in undertaking its role, in particular with respect to:
   a. cultural heritage;
   b. land stability, ground movement and vibration; and
   c. pipeline construction and environmental management systems.
4. The inquiry will comprise an appointed Chair (Inquiry Chair), a Deputy Chair and other members.

Purpose of the inquiry

5. The inquiry is appointed by the Minister for Planning under section 9(1) of the EE Act to hold an inquiry into the environmental effects of the project. The inquiry is to:
   a. review and consider the environment effects statement (EES), submissions received in relation to the project, the predicted environmental effects, and the other exhibited documents;
   b. consider and report on the potential environmental effects of the project, their significance and acceptability, and in doing so have regard to the draft evaluation objectives in the EES scoping requirements and relevant policy and legislation;
   c. identify any measures it considers necessary and effective to avoid, mitigate or manage the environmental effects of the project within acceptable limits, including any necessary project modifications;
   d. advise on how this relates to relevant conditions, controls and requirements that could form part of the necessary approvals and consent for the project;
   e. report its findings and recommendations to the Minister for Planning to inform his assessment under the EE Act.
6. The inquiry may separately be appointed by the Minister for Energy, Environment and Climate Change as a panel under section 40 of the Pipelines Act.

VICTORIA State Government | Environment, Land, Water and Planning

Background

Project outline

7. The project involves construction of 50 kilometres (km) of high pressure gas transmission pipeline within the Melton, Hume, Whittlesea and Mitchell local government areas. The project also includes installation of a new gas compressor and associated process control equipment and pipework within APA's existing gas compressor station site at Wollert. The pipeline would connect the eastern and western sections of the Victorian Transmission System between Plumpton and Wollert, allowing for an increased gas storage at the Iona Underground Gas Storage facility to meet winter peak gas demands.

8. The project's proponent is APA VTS (Operations) Pty Ltd, who is responsible for preparing technical studies, consulting with the public and stakeholders and preparing an EES.

EES assessment process

9. In response to a referral under the EE Act from the proponent, the Minister for Planning determined on 22 December 2019 that an EES was required for the project and issued his decision with procedures and requirements for the preparation of the EES as specified in Attachment 1.

10. The EES was prepared by the proponent in response to the EES scoping requirements issued by the Minister for Planning in August 2020.

11. The EES will be placed on public exhibition for thirty (30) business days. This public comment process is in accordance with the procedures and requirements issued for this EES by the Minister for Planning. The pipeline licence application is included in the exhibited EES documentation on which public submission are being sought.

12. The Department of Environment, Land, Water and Planning (DELWP) Impact Assessment Unit must liaise with the office of Planning Panels Victoria (PPV) and the proponent to agree on the proposed directions hearing and hearing dates to be included on all public notices for the exhibition of the EES.

Commonwealth assessment process

13. Because of its potential impacts on matters of national environmental significance, the project was determined to be a controlled action for the purposes of the *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act) on 21 February 2020. The relevant controlling provision under the EPBC Act is 'listed threatened species and communities' (sections 18 and 18A).

14. Under the bilateral agreement between the Australian and Victorian Governments, the Victorian EES process is serving as the accredited process for the assessment purposes of the EPBC Act. The assessment of environmental effects to be made by the Victorian Minister for Planning will be provided to the Commonwealth Minister for the Environment to inform the approvals decision under the EPBC Act. To assist the Minister for Planning in making his assessment, the inquiry should specifically identify its advice relevant to matters of national environmental significance that may be affected respectively by the project.

Pipeline licence application process

15. The persons appointed to hold an inquiry may separately be appointed by the Minster for Energy, Environment and Climate Change as a panel under section 40 of the *Pipelines Act 2005*. If so, the persons appointed as a panel must act in accordance with the requirements of the Pipelines Act and any specifications in its instrument of appointment.

Other approvals

16. The project may require other statutory approvals and/or consents, as outlined in the EES, including:

    a. an approved Cultural Heritage Management Plan under the *Aboriginal Heritage Act 2006*;
    b. a permit to remove listed flora and fauna under the *Flora and Fauna Guarantee Act 1988*; and

c. approvals under the *Water Act 1989* for works on relevant waterways.

Process

Stage 1 – submissions

17. Submissions on the EES and pipeline licence application are to be provided in writing on or before the close of submissions. Submissions will be collected by the office of Planning Panels Victoria in accordance with the 'Guide to Privacy at PPV' and collected through the Engage Victoria platform. All submissions must state the name and address of the person making the submission.

18. Petitions and Pro-forma responses will be treated as a single submission, and only the first name to appear on the first page of the submission should receive correspondence in relation to the inquiry.

19. All written submissions and other supporting documentation received through the course of the inquiry may be published on-line, unless submitters request that their submission not be publicly available, or where the inquiry specifically directs that the submission or part of it is to remain confidential.

20. Electronic copies of each submission on the EES and pipeline licence application are to be provided to the proponent, relevant local councils, the Registered Aboriginal Party, DELWP Impact Assessment and DELWP Pipelines Regulation.

21. Planning Panels Victoria will retain any written submissions and other documentation provided to the inquiry for a period of five years after the time of the appointment of the inquiry.

Stage 2 – Public Hearing

22. While the inquiry is required to conduct a public hearing, it may request (the Minister for Planning) to undertake a submitter conference as an alternative form of inquiry, if the Inquiry believes that is practical after consideration of the submissions and EES.

23. The inquiry may make other such enquiries as are relevant to undertaking its role.

24. Prior to the commencement of the public hearing, the inquiry will hold a directions hearing and make any directions it considers necessary or appropriate as to the conduct, scope or scheduling of the hearing.

25. The inquiry may inform itself in any way it sees fit, but must review and consider:

    a. the exhibited EES and pipeline licence application;
    b. all submissions and any evidence provided to it by the proponent, state agencies, local councils and submitters;
    c. any information provided by the proponent and parties that responds to either submissions or directions of the Inquiry; and
    d. any other relevant information that is provided to, or obtained by, the inquiry.

26. The inquiry must conduct its hearing in accordance with the following principles:

    a. It will be conducted in an open, orderly and equitable manner, in accordance with the principles of natural justice.
    b. It will be conducted with a minimum of formality and without legal representation being necessary for any party to be an effective participant.
    c. The inquiry process is to be exploratory and constructive, with adversarial behaviour and questioning disallowed and with cross-examination/questioning regulated by the Chair.

27. The inquiry may limit the time of parties appearing before it.

28. The inquiry may conduct its processes when there is a quorum of at least two of its members present, one of whom must be the Chair or Deputy Chair.

29. Recording of the public hearing must be undertaken by the proponent if directed by the Inquiry Chair. If recorded, the audio recording will be provided to PPV as a weblink and would be made publicly available as soon as practicable after the conclusion of each day, or otherwise as directed by the Chair.

30. Any other audio or video recording of the proceedings by any other person or organisation may only occur with the prior consent of, and strictly in accordance with, the directions of the Chair.

Stage 3 – Report

31. The inquiry must produce a written report for the Minister for Planning containing its:

    a. analysis and conclusions with respect to specific environmental effects of the project and their significance and acceptability;
    b. findings on whether acceptable environmental outcomes can be achieved, having regard to legislation, policy, best practice, and the principles and objectives of ecologically sustainable development;
    c. recommendations and/or specific measures that it considers necessary and appropriate to prevent, mitigate or offset adverse environmental effects to achieve acceptable environmental outcomes, having regard to legislation, policy, best practice, and the principles and objectives of ecologically sustainable development;
    d. recommendations to any feasible modifications to the project (e.g. design, alternative configurations, or environmental management) that would enable beneficial outcomes;
    e. recommendations to the structure and specific content of the proposed environmental management framework, including with respect to mitigation and monitoring of environmental effects, contingency plans and rehabilitation;
    f. specific findings and recommendations about the predicted impacts and residual risks for matters of national environmental significance and their acceptability, including appropriate controls and environmental management.

32. The report should include:

    a. information and analysis in support of the inquiry's findings and recommendations;
    b. a list of all recommendations, including cross-references to relevant discussions in the report;
    c. a description of the public process conducted by the inquiry, and a list of those persons consulted with or heard;
    d. a list of all submitters in response to the exhibited EES; and
    e. a list of the documents tabled during the proceedings.

Timing

33. The inquiry should hold a directions hearing no later than 15 business days from the final date of the exhibition period.

34. The inquiry should commence the hearing within 40 business days from the final date of exhibition period.

35. The inquiry must submit its report in writing to the Minister for Planning within 40 business days from its last day of its proceedings.

Minister's assessment

36. The Minister for Planning will make his assessment of the environmental effects of the project after considering the inquiry's report as well as the EES, submissions and any other relevant matters.

37. Planning Panels Victoria will notify submitters of the release of the Minister for Planning's assessment and inquiry report.

Fee

38. The fees for the members of the inquiry will be set at the current rate for a panel appointed under part 8 of the *Planning and Environment Act 1987*.

39. All costs of the inquiry, including the costs of obtaining any expert advice, technical administration and legal support, venue hire, accommodation, recording proceedings and other costs must be met by the proponent.

Miscellaneous

40. The inquiry may apply to the Minister for Planning to vary these terms of reference in writing, at any time prior to submission of its report.

41. The inquiry may retain legal counsel to assist if required.

42. The inquiry may engage additional technical support if required.

43. Planning Panels Victoria is to provide any necessary administrative support to the inquiry.

Richard Wynne

Richard Wynne MP
Minister for Planning

Date: 10/6/21

Appendix B Submitters

No.	Submitter
1	C MacKenzie
2	J Miller
3	B Rich
4	S Ablitt
5	J Brownrigg
6	P Stafford
7	G Hont
8	Summerhill Road Land Pty Ltd
9	Environment Protection Authority Victoria
10	JII Investment Pty Ltd
11	Melton City Council
12	T Forcey
13	Victorian Farmers Federation
14	Grassy Plains Network
15	Hume City Council
16	Friends of the Earth (Melbourne)
17	J Crosthwaite
18	1100 Donnybrook Road Pty Ltd
19	Blueways Land No 1 Pty Ltd (submission withdrawn)
20	Darebin Climate Action Now
21	L Walker
22	Victorian Planning Authority
23	Department of Transport
24	M O'Shea
25	Animal Justice Party
26	City of Whittlesea

Appendix C Hearing participants

Submitter	Represented by
APA VTS Australia (Operations) Pty Ltd	Alexandra Guild (counsel) who called expert evidence on: - energy policy from Jim Snow (Oakleigh Greenwood) - land use planning from William Bromhead (Ratio Consultants) - cultural heritage from Aaron Dalla-Vecchia (Biosis) - biodiversity (fauna) from Kelly Dalton (GHD) - biodiversity (flora) from Jen Comber (GHD) - biodiversity from Christopher Dunk (Nature Advisory) - traffic from Charmaine Dunstan (Traffix Group) - noise and vibration from Christophe Delaire (Marshall Day Acoustics) - surface water from Ashley Roberts (GHD) - surface water from Andrew McCowan (Water Technology)
Minister for Planning	Daniel Banfai (DELWP Impact Assessment Unit)
Minister for Energy, Environment and Climate Change	Don Hough (DELWP Pipeline Regulation Unit)
Environment Protection Authority Victoria	Peter Tziotis
Department of Transport	Tim Power (White and Case)
Victorian Planning Authority	Megan Taylor and Bryce Kilian
Victorian Farmers Federation	Lisa Gervasoni
Darebin Climate Action Now	Jim Crosthwaite
Jim Crosthwaite	
Grassy Plains Network	Adrian Marshall and Bonnie Gelman
Hume City Council	Stefan Fiedler (Russell Kennedy Lawyers)
JII Investment Pty Ltd	Chris Cantor (Maddocks Lawyers)
Tim Forcey	

Appendix D Document list

Version 7: 3 November 2021

No.	Date	Description	Presented by
1	10/06/21	Terms of Reference	Minister for Planning
2	19/0821	Hearing notification letter	Mr Kirsch, Inquiry Chair
3	"	Guide to the Public Hearing	"
4	"	Zoom User Guide	"
5	24/08/21	Request to be heard letter	Ms Lee, Hall & Wilcox for the Proponent
6	27/08/21	Request for Information cover letter	Mr Kirsch
7	"	Request for Further Information	"
8	02/09/21	Letter confirming request to be heard details	Mr Power, White & Case for the Department of Transport
9	"	Letter confirming request to be heard details	Mr Strates, Dominion Property Group for Summerhill Road Land Pty Ltd & 1100 Donnybrook Road Pty Ltd
10	03/09/21	Panel appointment of Mr Kirsch	Mr Kirsch
11	"	Panel appointment of Ms Bell	"
12	"	Panel appointment of Ms Brizga	"
13	"	Letter filing further request to be heard details	Ms Lee
14	"	Request for further information response table	"
15	06/09/21	Email advising how parties can obtain access to the pipeline mapping tool	"
16	"	Withdrawal of submission	Ms Brewer, Marshal Planning for Blueways Land No.1 Pty Ltd
17	07/09/21	Correspondence [Late Submission]	Mr Saisanas for the City of Whittlesea
18	08/09/21	Directions and Timetable (v1)	Mr Kirsch
19	'	Email filing Operational Environment Management Plan	Ms Lee

No.	Date	Description	Presented by
20	"	Operational Environment Management Plan	"
21	13/09/21	Letter filing technical notes	Ms Lee
22	"	Technical Note No. 01 - EP Act update re Noise and vibration - Response to RFI 95 and 96	"
23	"	Technical Note No. 02 - EP Act update re Waste and Contamination - Response to RFI 73, 79, 83 and 84	"
24	"	Technical Note No. 03 - EP Act update re Air Quality - Response to RFI 93	"
25	"	Technical Note No. 04 - EP Act update re Surface Water - Response to RFI 49-52	"
26	"	Technical Note No. 05 - EP Act update re Groundwater - Response to RFI 58	"
27	"	Technical Note No. 06 - EP Act update re Greenhouse Gas	"
28	"	Technical Note No. 07 - EP Act update re Biodiversity and Habitats	"
29	"	Technical Note No. 08 - Pipeline alignment design changes - Response to RFI 3, 5 and 6	"
30	"	Technical Note No. 08 (Attachment 1) - Amended Mapbook Part 1	"
31	"	Technical Note No. 08 (Attachment 1) - Amended Mapbook Part 2	
32	"	Technical Note No. 09 - Mainline valve site design amendments	"
33	"	Technical Note No. 13 - Safety Management Study - Response to RFI 112	"
34	"	Confidential - Technical Note No. 13 (Attachment 1) - WORM Detailed Design SMS Workshop Report - 28 July 2021 (Provided to the Inquiry in confidence and available to other parties subject to signing a confidentiality agreement)	"
35	"	Confidential - Confidentiality agreement - Safety documents (TN13)	"
36	16/09/21	Timetable (version 2)	Mr Kirsch
37	17/09/21	Email filing day 1 unaccompanied site inspection itinerary with Google Maps link	Ms White for the Proponent
38	"	Day 1 unaccompanied site inspection itinerary	"
39	"	Technical Note No. 19 - Groundwater - Response to RFI 54-57	Ms Lee
40	"	Technical Note No. 22 - Greenhouse Gas - Response to RFI 85, 86 and 88-90	"
41	"	Technical Note No. 23 - Air Quality - Response to RFI 92	"

No.	Date	Description	Presented by
42	"	Technical Note No. 24 - Noise and Vibration - Response RFI 94 and 97	"
43	"	Technical Note No. 25 - Landscape and visual - Response to RFI 104	"
44	"	Email to all parties providing link to Engage Victoria	Ms Thomas of PPV
45	21/09/21	Request for still images of Jacksons and Merri Creek with the Proponent's response	Mr Kirsch
46	"	Still image of Jacksons Creek 1	Ms White
47	"	Still image of Jacksons Creek 2	"
48	22/09/21	Email filing RFI response and technical notes	Mr Truong, Hall & Wilcox for the Proponent
49	"	Request for Further Information Response Table	"
50	"	Technical Note No. 12 - Sodic soils investigations and response to RFI 61, 64 and 65	"
51	"	Technical Note No. 14 - Cultural Heritage - Response to RFIs 100 and 103	"
52	"	Technical Note No. 18 - Assessment of pipeline design changes and response to RFI 3	"
53	"	Technical Note No. 20 - Land Stability and Ground Movement - Response to RFI 60, 66-68 and 81	"
54	"	Technical Note No. 26 - Land Use - RFIs 105-108 and 110	"
55	"	Technical Note No. 28 - Safety - Response to RFI 113-115	"
56	"	Technical Note No. 29 - Pipeline design - Response to RFI 4, 7, 8, 16, 17, 35, 38, 47 and 87	"
57	"	Technical Note No. 30 - Surface water - Response to RFI 43	"
58	"	Technical Note No. 32 - Vibration & Land Use - Responses to RFIs 98, 99 & 109 and to Submissions	"
59	"	Email filing expert witness statements	"
60	"	Planning Land Use Evidence - Mr William Bromhead	"
61	"	Surface Water Evidence - Mr Andrew McCowan	"
62	"	Traffic Evidence - Ms Charmaine Dunstan	"
63	"	Cultural Heritage Evidence - Mr A Dalla-Vecchia	"
64	"	Energy Policy Evidence - Mr Jim Snow	"
65	"	Noise & Vibration Evidence - Mr Christophe Delaire	"
66	"	Email filing further expert witness statements	"
67	"	Surface Water Evidence - Mr Ashley Roberts	"

No.	Date	Description	Presented by
68	"	Flora and Fauna Evidence - Ms Kelly Dalton and Ms Jen Comber	"
69	23/09/21	Biodiversity and Habitats Evidence - Mr Chris Dunk	"
70	27/09/21	Technical Note No. 11 - Groundwater - Groundwater monitoring update (Part 1 of 2)	"
71	"	Technical Note No. 11 - Groundwater - Groundwater monitoring update (Part 2 of 2)	"
72	"	Technical Note No. 33 - Jacksons Creek construction timing	"
73	30/09/21	Opening Submission	Mr Hough, Principal Pipeline Regulation (DELWP)
74	"	Email advising both 1100 Donnybrook Road Pty Ltd and Summerhill Road Land Pty Ltd will withdraw from participation in the Hearing process	Mr Strates of Dominion Property Group
75	"	Technical Note No. 10 – Waste Contamination - Additional investigations and response to RFI 77	Mr Truong
76	"	Technical Note No. 15 - Biodiversity assessment of pipeline alignment changes (Part 1 of 3)	"
77	"	Technical Note No. 15 - Biodiversity assessment of pipeline alignment changes (Part 2 of 3)	"
78	"	Technical Note No. 15 - Biodiversity assessment of pipeline alignment changes (Part 3 of 3)	"
79	"	Technical Note No. 16 - Updated Ecological Offset Strategy	"
80	"	Technical Note No. 21 - Waste and Contamination - Response to RFI 69-72, 74-76, 78, 80 & 82	"
81	"	Technical Note No. 31 - Biodiversity and Habitats - Response to RFI 18, 21, 22 and 25	"
82	"	Updated RFI Response Table - 30 September 2021	"
83	"	Technical Note No. 34 - Sodic Soils - Response to RFI 62 and 63	"
84	"	Response to Submissions - 30 September 2021	"
85	"	Part A Submission	"
86	"	Day 1 Version - Construction Environment Management Plan Introduction (Final 30.9.21) (Tracked) (MS Word)	"
87	"	Day 1 Construction Environment Management Plan Appendix H - EMMs only (tracked)	"
88	"	Day 1 Version - Operational Environment Management Measures (VTS OEMP) (MS Word)	"

No.	Date	Description	Presented by
89	"	Day 1 Version Construction Environment Management Plan Appendix H (EMMs only) (MS Word)	
90	01/10/21	Submission	Mr Banfai, DELWP Impact Assessment Unit
91	"	Email filing amended version of document 87	Ms Lee
92	"	Email filing documents 93-95	Mr Truong
93	"	Project Overview Presentation	"
94	"	Presentation of Jim Snow	"
95	"	Updated Environmental Line List (Appendix G of CEMP) - 1 October 2021	
96	"	Timetable (version 3)	Mr Kirsch
97	04/10/21	Expert witness declarations for: - Mr Jim Snow - Mr Aaron Dalla-Vecchia - Ms Jen Comber - Ms Kelly Dalton	Mr Truong
98	"	Presentation of Mr Bromhead (Land Use)	"
99	"	Amendment to the Pipeline Application dated 27 August 2021	"
100	"	Presentation of Mr Dalla-Vecchia (Cultural Heritage)	"
101	"	Email filing unredacted version of Technical Report I (Cultural Heritage) provided in confidence	"
102	05/10/21	Presentation of Ms Dalton and MS Comber (Biodiversity)	Mr Truong
103	"	Presentation of Mr Delaire (Noise)	"
104	"	Letter to the Proponent detailing questions the Inquiry asked on Day 1	Mr Kirsch
105	"	Addendum to Witness Statement of Chris Dunk	Mr Truong
106	"	Presentation of Chris Dunk	"
107	"	Directions Letter and Timetable (version 4)	Mr Kirsch
108	"	Attachment 1 – Jacksons Creek & Tributary	"
109	"	Attachment 2 – Merri Creek	"
110	"	Video conferencing declaration forms	Mr Truong
111	06/10/21	Email filing drone footage (provided to the Inquiry in confidence)	Ms Lee
112	"	Email requesting the Proponent respond to further issues missed in document 84	Ms Badina for Melton City Council

No.	Date	Description	Presented by
113	"	Email responding to document 112	Ms Lee
114	"	Response to Submissions Report	Mr Truong
115	"	Table of further RFI Responses	"
116	"	Technical Note No.37 - Pipeline alignment through 525 Sunbury Road, Bulla	"
117	"	Technical Note No.15 - Biodiversity assessment of pipeline alignment changes – revised 5 October 2021	"
118	"	Email from Southern Rural Water regarding groundwater impacts	"
119	"	Screen shot map of Native Vegetation Mapped Jacksons Creek A4P	"
120	"	Screen shot map of Native Vegetation Mapped Merri Creek A4P	
121	09/10/21	EPA's comments on the Proponent's CEMP Introduction and Appendix H	Ms Shade, Environment Protection Authority Victoria
122	"	EPA's comments on Day 1 Version - CEMP Introduction	"
123	"	EPA's comments on Day 1 Version CEMP Appendix H (EMMs only)	"
124	"	Presentation to Inquiry - Dr Andrew McCowan	Mr Truong
125	"	Presentation to Inquiry - Mr Ash Roberts	"
126	11/10/21	Presentation to Inquiry – Ms Charmaine Dunstan	Mr Truong
127	"	Technical Note No. 36 - Groundwater - Response to RFI 123 and 124	"
128	"	Technical Note No. 35 - Sodic Soils - Response to RFI 121, 122 and 125	"
129	"	Submission	Mr Forcey (S12)
130	"	Presentation slides	"
131	"	Email advising Melton City Council is withdrawing from appearing at the Hearing	Ms Badina
132	12/10/21	Grassy Plains Network presentation	Mr Marshall
133	"	Letter to Proponent requesting further information	Mr Kirsch
134	"	Combined presentation on behalf of Darebin Climate Action Now and Mr Crosthwaite	Mr Crosthwaite
135	"	Email to Department of Transport requesting further information	PPV
136	"	Department of Transport Submission	Mr Power

No.	Date	Description	Presented by
137	"	Department of Transport Presentation	"
138	"	Code of Practice for the Management of Infrastructure in Road Reserves	"
139	"	Email advising of delay in circulating submission	Ms Taylor, VPA
140	"	Email requesting clarification of notification from DELWP	PPV
141	"	Victorian Farmers Federation submission	Ms Gervasoni
142	"	Victorian Planning Authority submission	Ms Taylor
143	"	Victorian Planning Authority presentation	"
144	"	Response to RFI of 12 October – item 1 being an email and figure	Ms Lee
145	"	Response to Inquiry's query	Mr Banfai
146	13/10/21	Closing submission	Mr Truong
147	"	UGZ Schedule 3 in relation to Amendment C106	"
148	"	Submission	Mr Fiedler, Russell Kennedy Lawyers for Hume City Council
149	"	Email forwarding advice from Animal Justice Party it will no longer present at the Hearing	Mr Kirsch
150	"	Email to parties advising that the Hearing will conclude and drafting session will be held on 14 October 2021	"
151	"	Email to the EPA regarding a question of clarification	"
152	"	JII Investments submission	Mr Cantor of Maddocks
153	"	Current plan of subdivision for JII's land	"
154	"	Permit conditions for sodic and dispersive soils	Ms Taylor, VPA
155	"	Updated submission for Hume City Council with requested bore logs	Mr Fiedler of Russell Kennedy
156	14/10/21	Response of the EPA to document 151	Ms Shade
157	"	Final day version - Appendix H- EMMs (as a mark-up of Document 89) recording all parties requested changes and Proponent's response	Ms Lee
158	"	Final day version - CEMP – introduction sections – marked-up and showing comments explaining changes and response to other party requests	"
159	"	Final day version - Appendix H – clean version	"
160	"	Final day version - OEMP Table of updates	"

No.	Date	Description	Presented by
161	"	Final day version – CEMP Appendix H compared to Chapter 19 EMM tables (MS Word)	"
162	"	Reply submissions	"
163	"	Response to Inquiry questions at Day 5 of the Hearing	Mr Power
164	"	Updated version of document 144	Ms Lee
165	"	Site numbers spreadsheet – SGGS sites blue triangle (attachment to document 164)	"
166	"	Site numbers spreadsheet – SIGFEAT orange square attachment to document164)	"
167	"	Final Day CEMP Appendix H (clean) compared to Ch19 EMM tables (clean)	"
168	"	Final Day CEMP - Introduction (clean)	"
169	15/10/21	Final Day Version - Operational EMMs (MS Word) (clean)	Mr Truong
170	14/10/21	Email to Grassy Plains Network requesting identification of specific areas of preferred HDD construction	Mr Kirsch
171	18/10/21	Email filing document 171	Mr Marshall for Grassy Plains Network
172	"	Submission in response to document 170	"
173	"	Email to all parties directing comments on document 172 to be filed by 22 October 2021	Mr Kirsch
174	19/10/21	Response to further information provided by the Grassy Plains Network in document 172	Ms O'Shea (S24)
175	22/10/21	Response to Grassy Plains Network additional submission (document 172)	Ms Lee
176	26/10/21	Email responding to documents 171 and 174	Ms Lee

Appendix E Responses to Terms of Reference

Clause 32 of the Terms of Reference specifies the matters the Inquiry's report should include. Table 17 identifies those requirements and where they are addressed in the report.

Table 17 Inquiry's responses to Terms of Reference Clause 32

Relevant clause	Terms of reference requirement	Relevant report reference
32a	Information and analysis in support of the Inquiry's findings and recommendations.	Parts A and B
32b	A list of all recommendations, including cross references to relevant discussions in the report.	All recommendations are provided following the Executive Summary and included in the relevant report chapter. Cross references by recommendation number are provided in Table 18 (below).
32c	A description of the public process conducted by the Inquiry, and a list of those persons consulted with or heard.	Chapter 1 and Appendices B and C
32d	A list of all submitters in response to the exhibited EES.	Appendix B
32e	A list of the documents tabled during the proceedings.	Appendix D

Clause 32b of the Terms of Reference requires a list of recommendations, cross referenced to relevant discussions in the report. This is provided in Table 18.

Table 18 Cross references between recommendations and discussions

Recommendation Number	Relevant report chapter
Construction Environment Management Plan	
Recommendation 1	Chapter 5
Recommendations 2 and 3	Chapter 6
Recommendations 4-7	Chapter 8
Environmental Management Measures	
Recommendation 8	Chapter 11
Recommendations 9 and 10	Chapter 5
Recommendation 11	Chapter 7
Recommendations 12-16	Chapter 5
Recommendations 17 and 18	Chapter 6
Recommendation 19	Chapter 5
Recommendations 20 and 21	Chapter 9

Recommendation 22	Chapter 13
Recommendations 23-25	Chapter 8
Recommendation 26	Chapter 7
Recommendations 27 and 28	Chapter 12
Recommendations 29 and 30	Chapter 16
Recommendation 31	Chapter 17
Recommendations 32-36	Chapter 6
Environmental Line List	
Recommendation 37	Chapter 6
Operations Environment Management Plan	
Recommendation 38	Chapter 6
Ecological Offset Strategy	
Recommendations 39 and 40	Chapter 5
Other Recommendations	
Recommendation 41	Chapter 18
Recommendation 42	Chapter 18