



EES chapter 16 - Environmental management framework

Warburton Mountain Bike Destination

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16.0 Environmental management framework

This chapter presents the environmental management framework (EMF) that has been developed for Warburton Mountain Bike Destination. The purpose of this EMF is to provide a transparent framework to manage the environmental effects identified in the Warburton Mountain Bike Destination environment effects statement (EES) in order to meet statutory requirements, protect environmental values and meet stakeholder expectations.

The EMF addresses the following elements of the EES Scoping Requirements:

- The context of required approvals and consents, including any anticipated requirements for related environmental management plans, whether for project phases or elements
- The existing or proposed environmental management system to be adopted
- Proposed organisational responsibilities, accountabilities and likely resourcing arrangements for environmental management during construction and operation
- A register of environmental risks associated with each phase of the project which is to be maintained during project implementation
- The environmental management measures proposed in the EES to address specific issues, including commitments to mitigate adverse effects and enhance environmental outcomes and timing of implementation – the measures presented could include a set of environmental protocols/thresholds that would be applied when identifying the final alignments of the tracks within the final corridors identified through the EES process
- Arrangements for management of and access to baseline monitoring data, to ensure the transparency and accountability of environmental management and to contribute to the improvement of environmental knowledge
- The framework for management of illegal track building, other environmental incidents or emergencies.

The monitoring program for each environmental aspect relevant to the project, including proposed objectives, indicators and monitoring requirements (including parameters, locations and frequency). Justification needs to be provided for any aspects where monitoring is not proposed. The EMF should consider the need for monitoring (at least):

- Biodiversity (including MNES) values;
- Noise, vibration, dust and emissions to air;
- Public health and safety;
- Runoff, erosion and sediment control;
- Solid and liquid waste;
- Aboriginal cultural heritage values;
- Historic heritage values;
- Traffic and road management measures;
- Disruption of and hazard to existing infrastructure;
- Socio-economic conditions and land use values;
- Landscape and visual values; and
- Project area rehabilitation.
- The EMF would outline internal and external auditing and reporting requirements to review and continuously improve the effectiveness of environmental management and to ensure compliance with statutory conditions.
- The EMF would set the scope for later development and review of environmental management plans for construction and operation (including rehabilitation) phases of the project.
- The EMF would outline a program for community consultation, stakeholder engagement and communications for the project, including opportunities for local stakeholders to engage with the proponent and a process for complaints recording and resolution.

16.1 Introduction

Within this EES, the Yarra Ranges Council has made numerous commitments regarding measures to monitor and control the potential environmental effects of the Warburton Mountain Bike Destination. Additionally, each of the primary approvals for the project may come with a set of conditions to be met during project implementation. The primary approvals that may have attached conditions are:

- Approval of the proposed action under the EPBC Act by the Commonwealth Minister for the Environment
- Approval of amendments to the Yarra Ranges Planning Scheme to facilitate the use and development of the project under *Planning and Environment Act 1987* by the Minister for Planning.
- Approval for works within a National Park under the *National Parks Act 1975* by the Minister for Energy, Environment and Climate Change.
- Approval for works on a waterway under the *Water Act 1989* by Melbourne Water
- Approval of a Cultural Heritage Management Plan (CHMP) under the *Aboriginal Heritage Act 2006* by the Wurundjeri Woi-wurrung Cultural Heritage Aboriginal Corporation.

The EMF proposed by Yarra Ranges Council responds to the Council's Environment Strategy 2015-2025 and builds on the management processes currently in place at the Council. The vision contained in the Environment Strategy is presented in Figure 16-1 below.

We are dedicated to making Yarra Ranges a place of thriving communities, at home in healthy landscapes.

This vision for our environment has three elements: our place in healthy landscapes; thriving communities; and a sense of home.



Our place, our healthy landscapes

This element includes our place within our community and our environmental assets such as the diversity of landscapes, waterways, plants and animals.



Thriving communities

This element represents the choices and opportunities we have in relation to these assets and resources, and includes the way local economies and communities respond to, and work with, our environment.



My home

This element is about the way each one of us lives with, and belongs and responds to, our environment.

Figure 16-1 Yarra Ranges Council Environment Strategy Vision

As relevant, the EMF addresses specific requirements of AS/NZ/ISO 14001:2016 Environmental management systems – Requirements with guidance for use (AS/NZS, 2016). The EMF is given effect through the Planning Scheme Amendment and the associated Incorporated Document (see EES Attachment VI). The key elements of the EMF are presented in Figure 16-2 below. The Incorporated Document requires that Development Plans, a Construction Environmental Management Plan (CEMP), an Operations Environmental Management Plan (OEMP) and an Offset Management Plan be approved prior to project implementation. The CEMP and OEMP would be supported by other plans and on the ground procedures.

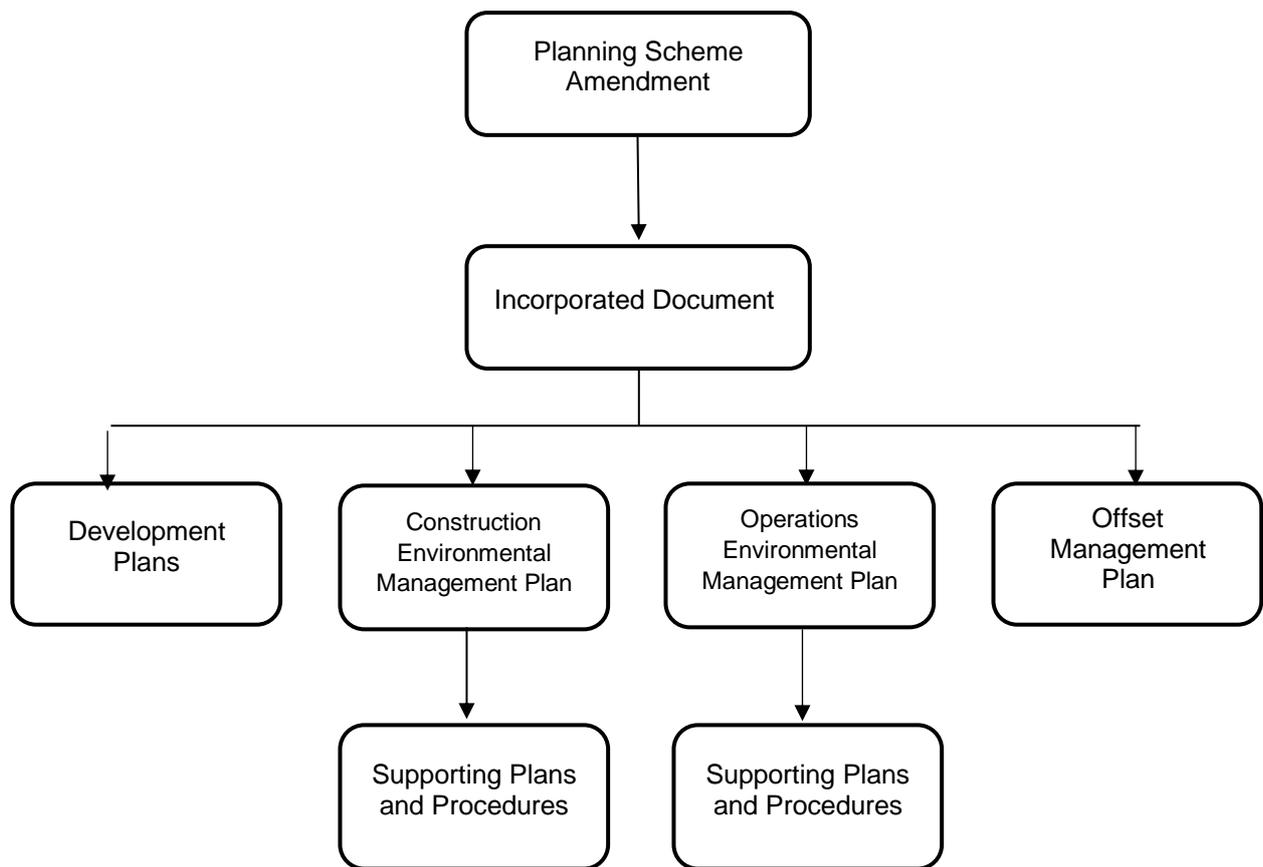


Figure 16-2 Key elements of the EMF

At project level, the CEMP and the OEMP are the primary mechanisms proposed for environmental management during project implementation. The draft CEMP and draft OEMP exhibited with the EES would be updated after primary approvals have been obtained to incorporate any modifications to mitigation measures and the relevant approvals conditions. In accordance with the Incorporated Document associated with the planning scheme amendment, the CEMP and OEMP would require approval of the Minister for Planning before the commencement of the project construction and operation phases respectively. The CEMP and OEMP would be periodically reviewed and updated during project implementation as set out in those documents.

Additionally, an Offset Management Plan (OMP) would be developed after primary approvals, building on the Offset Strategy detailed in Attachment IV Biodiversity Offset Strategy and Plan. Other management plans may be required as conditions of primary approvals (for example a transport management plan) although these could equally be incorporated into the CEMP or OEMP as appropriate.

16.2 Roles and responsibilities

Yarra Ranges Council Environment Strategy Vision sets out Council's commitment to pursuing best practice in environmental performance. The Environment Strategy Vision presented in Figure 16-1, sets out the priorities for Yarra Ranges Council operations generally, and these equally apply to the planning and construction of development projects.

Ultimate responsibility for environmental performance of the Warburton Mountain Bike Destination rests with the Yarra Ranges Council Chief Executive Officer. Day to day implementation of the CEMP, OEMP and the OMP for the project is the responsibility of the Yarra Ranges Council Warburton Mountain Bike Destination Project Manager. The responsibilities of Yarra Ranges Council personnel for environmental management are summarised in Table 16-1 below. The roles and responsibilities of other personnel (i.e. contractors, independent auditors) are described in the CEMP and OEMP.

Table 16-1 Responsibilities of Yarra Ranges Council personnel

Role	Responsibilities
Yarra Ranges Council CEO	<ul style="list-style-type: none"> • Overall responsibility for environmental management for the project • Provision of adequate Yarra Ranges Council resources to support effective environmental management
Yarra Ranges Council Warburton Mountain Bike Destination Project Manager	<ul style="list-style-type: none"> • Overall implementation of the CEMP and OEMP • Ensuring that environmental obligations are specified in contract arrangements with construction contractors. • Oversight of environmental management performance of contractors involved in project construction • Establishment of environmental auditing and reporting processes • Facilitation of environmental training for Yarra Ranges Council personnel involved in project construction • Periodic reviews of the CEMP and OEMP and approval of updates to the CEMP and OEMP.
Yarra Ranges Council environmental representative	<ul style="list-style-type: none"> • Establishment of environmental monitoring programs and review of monitoring data • Maintaining the environmental risk register for the project • Implementation of stakeholder engagement during project construction including liaison with regulatory agencies and land managers • Implementation of an environmental audit program to verify compliance with the CEMP and OEMP • Investigation and close out of environmental incidents and complaints • Notifying the Registered Aboriginal Party or appropriate Victorian government agencies in the event of an unexpected find
Yarra Ranges Council maintenance crew	<ul style="list-style-type: none"> • Trail inspections and maintenance during operation • Responsible for recording trail conditions and corrective actions required

Yarra Ranges Council is partnering with experienced mountain bike trail developers, for the construction of the Warburton Mountain Bike Destination. These appointed contractors would be responsible for ensuring that construction works are carried out in accordance with the CEMP and that any subcontractors they engage also comply with the CEMP. These obligations for contractors would be specified in tender documents and contracts for contracted services in relation to project construction and operation.

Yarra Ranges Council would be responsible for management of the Warburton Mountain Bike Destination during its implementation phase. Accordingly, Yarra Ranges Council would monitor and control environmental issues associated with the project in accordance with the OEMP.

Yarra Ranges Council would put in place governance to oversee environmental management during construction and operation. Central to this governance is consultation with land managers, in particular Parks Victoria and DELWP and regular reporting to the Project Reference Group. Another critical element is the auditing of environmental performance and compliance with the CEMP, OEMP and OMP throughout project implementation as set out in Section 16.4.416.4.4.

Parks Victoria, DELWP and relevant land managers would be advised of updates to the CEMP and OMEP when they occur, would be provided with audit reports, and would have the opportunity to engage in briefings on construction progress and trail network operations.

16.3 Environmental management

16.3.1 Risk register

The EES assessment framework included a risk assessment step to prioritise issues for the purposes of impact assessment (see **EES chapter 5 – Assessment Framework**). This risk assessment has been used to form the risk register for the project, which is presented in the CEMP and OEMP for the construction and operations phases of the project respectively. The risk register is a tool that would be used to avoid, mitigate, minimise, and monitor environmental risks throughout project implementation as set out in the CEMP and the OEMP. As part of periodic environmental performance verification reviews required under the CEMP or OEMP and where new information including monitoring data enhances understanding of an issue, the risk register would be updated accordingly.

16.3.2 Mitigation and contingency measures

In response to the risk assessment and the subsequent impact assessment presented in the EES, Yarra Ranges Council has proposed environmental management and contingency measures to address specific issues, including commitments to mitigate adverse effects and enhance environmental outcomes. These measures, arising from the specialist impact assessments and outlined within the impact assessment chapters of the EES are presented in Section 16.3.3 and Section 16.3.4. The mitigation and contingency measures contained in these sections are also incorporated into the CEMP and OEMP for the construction and operations phases of the project respectively.

16.3.3 Construction mitigation and contingency measures

Table 16-2 Biodiversity and habitats construction mitigation and contingency measures

Mitigation measure ID	Timing	Mitigation and contingency measures
General		
BM01	During construction	<p>Independent auditing</p> <p>Objective: To ensure environmental objectives and approval conditions are met</p> <p>Undertake independent auditing of trail construction against environmental objectives and approval conditions. Independent auditors would have power to stop work / use of trails should the project be non-compliant.</p> <p>A suitably qualified ecologist would be present during micro-siting and construction activities in sensitive areas.</p>
BM02	Prior to commencement of construction	<p>Update environmental issues on GIS</p> <p>Objective: To ensure all trail alignments and environmental issues are updated</p> <p>All trail alignments and all known site-specific environmental issues would be incorporated into the GIS platform which would be accessible by construction crew on-site at all times.</p>
BM03	Prior to commencement of construction	<p>Procedures for demarcating environmental values</p> <p>Objective: To ensure no-go zones and environmental values are demarcated</p> <p>Follow procedures for flagging of the final trail alignment and demarcating environmental values to be avoided e.g., 'no-go zones' during works. Biodegradable tape would be preferentially used with any other non-biodegradable markers removed from site.</p>
BM04	Construction	<p>Management of potential impacts to biodiversity values</p> <p>Objective: To ensure environmental objectives and approval conditions are met</p> <p>The CEMP sets out the requirements and processes for the project with regards to the management of potential impacts to biodiversity values. Follow the CEMP monitoring, reporting, auditing, and complaint management processes.</p>
BM05	During construction	<p>Natural materials</p> <p>Objective: To minimise the use / removal of natural materials from the site</p> <p>Minimise use / removal of natural materials such as rocks, woody debris, fallen timber, organic litter during construction of trails. Natural materials would not be collected from outside of the trail construction area. Any material removed must be retained on-site nearby.</p>
BM06	During construction	<p>Chemicals, fuel and waste management</p> <p>Objective: To avoid and manage the potential for spills</p> <p>Implement standard controls for chemicals, fuel and waste management including procedures for spill containment and clean-up as per SWM10.</p>

Mitigation measure ID	Timing	Mitigation and contingency measures
BM07	Prior to commencement of construction	<p>Environmental induction</p> <p>Objective: To minimise risks to biodiversity by providing an induction on biodiversity values for construction workers</p> <p>Compulsory in-person environmental induction and assessment for construction phase workers. Induction to cover all biodiversity values present in the project area. An environmental advisor with appropriate ecological qualifications would be appointed to assist with inductions and to provide ecological advice throughout the course of the project.</p>
BM08	Construction	<p>Emergency Management Plan</p> <p>Objective: To manage fire risks from the project</p> <p>An Emergency Management Plan would be implemented. The plan would include measures to manage fire risk from project activities including compliance with any requirements under the Forests (Fire Protection) Regulations 2014 for construction and operational activities in Fire Protected Areas.</p>
BM09	During construction	<p>Landform stability</p> <p>Objective: To maintain landform stability and avoid / minimise landslips, erosion and sedimentation.</p> <p>Measures to maintain landform stability include the following:</p> <ul style="list-style-type: none"> • Incorporate management measures outlined in GTM01, GTM02 & GMT03 • Rock armoured surfaces to be constructed on steep gradients to minimise erosion as per GTR03 • Rock walls and / or retaining walls constructed from local rock where possible to stabilise steep slopes and batters (rock is not to be collected from surrounding areas) • If a retaining wall is required in a remote location, it would be brought in by helicopter where necessary to avoid surface impacts beyond the trail impact area • Remediation of areas where landslips and/or erosion and sedimentation could occur as a result of the trail.
BM11	Construction	<p>Existing tracks</p> <p>Objective: To minimise erosion and sedimentation issues associated with existing tracks</p> <p>Existing vehicle roads and tracks e.g. Cemetery Track to be incorporated into the trail network. Upgrades associated with incorporating these tracks would reduce existing erosion and sedimentation issues.</p>
BM12	Construction	<p>Existing trails</p> <p>Objective: To minimise erosion and sedimentation issues associated with existing trails</p> <p>Existing mountain bike trails in the vicinity of Mount Tugwell would be incorporated into the trail network. Upgrades associated with incorporating these trails would reduce existing erosion and sedimentation issues.</p>
BM13	During construction	<p>Trail closure</p> <p>Objective: To minimise erosion and sedimentation issues or safety hazards associated with extreme weather</p> <p>Trail closure during periods of extreme weather as per SWM15 and in accordance with the Emergency Management Plan and any additional directions required under the Forests Act.</p>

Mitigation measure ID	Timing	Mitigation and contingency measures
BM14	Prior to commencement of construction	<p>Micro-siting – existing contours</p> <p>Objective: To minimise soil disturbance issues through following existing contours</p> <p>Pre-construction trail micro-siting in accordance with the existing contours, to make the most of the existing terrain and minimise the need for significant excavation or soil disturbance.</p>
BM16	Construction	<p>Biodiversity observations</p> <p>Objective: To collect relevant data on biodiversity finds</p> <p>Document and deal with biodiversity finds, including to collect relevant data for:</p> <ol style="list-style-type: none"> 1) Significant flora observations 2) Significant fauna observations 3) Nests / burrows / roosts used by native fauna 4) Injured / killed / displaced / trapped fauna 5) GDEs, seeps / springs and associated vegetation communities / species. <p>Observations of the above would be entered into the GIS platform and records of significant flora, significant fauna and threatened ecological communities would be periodically uploaded to the VBA.</p> <p>Where there is potential for harm of threatened species, works would be stopped until the risk of harm has been removed.</p>
BM17	At construction completion	<p>Vegetation regeneration</p> <p>Objective: To allow vegetation regeneration within the construction footprint</p> <p>Allow and assist native vegetation to regenerate within construction footprint to a 30 to 60 centimetre wide tread width.</p>
BM19	Prior to and during construction	<p>Vegetation removal</p> <p>Objective: To avoid removal of vegetation to the minimum extent possible</p> <p>Removal of vegetation would be to the minimum extent required, according to variable trail construction footprint which is a function of slope class. Accidental / excessive clearing would be remediated through assisted regeneration or additional offsets.</p>
Pests, weeds and pathogens		
BM20	Construction	<p>Pest animal program</p> <p>Objective: To manage pest animals</p> <p>The project would support existing pest animal programs conducted by working with public land managers. Support would be implemented for the entire life of the project i.e. as long as the trails remain in use.</p>
BM22	Construction	<p>Weed management program</p> <p>Objective: To manage weeds</p> <p>A comprehensive weed management program would be implemented along and in the immediate vicinity of trails. The program would be developed in consultation with land managers and would continue for as long as the trails remain in use.</p>
BM23	Prior to commencement of construction	<p>Environmental induction - weeds</p> <p>Objective: To minimise risks to biodiversity by providing an induction on high threat environmental weeds for construction workers</p> <p>Construction staff trained as part of site induction to identify high threat environmental weeds within the project area and to implement procedures to minimise risk of spread. Training would include distribution of fact sheets, Yarra Ranges Weed ID guide and CaLP Act obligations.</p>

Mitigation measure ID	Timing	Mitigation and contingency measures
BM24	During construction	<p>Ground surface disturbance</p> <p>Objective: To avoid disturbance to the ground surface in areas known to contain invasive weeds and pathogens (including Myrtle Wilt) wherever possible</p> <p>In high risk areas a suitably qualified ecologist would accompany trail crew to identify weed species and key areas to avoid. High risk areas would be mapped prior to construction.</p>
BM25	During construction	<p>Hygiene protocols</p> <p>Objective: To minimise impacts to biodiversity by implementing hygiene protocols</p> <p>Implement appropriate hygiene procedures for weeds / pathogens throughout the trail alignment.</p>
BM26	Prior to commencement of construction	<p>Environmental induction - pathogens</p> <p>Objective: To minimise risks to biodiversity by providing an induction on pathogens for construction workers</p> <p>Construction staff trained as part of site induction to identify signs of plant pathogens e.g. Myrtle Wilt and to implement procedures to minimise risk of spread.</p>
BM28	During construction	<p>Fill material quality</p> <p>Objective: To minimise introduction of weeds and pathogens</p> <p>Any fill material introduced to the site must be certified clean and be weed and pathogen free and exhibit similar properties to natural soils e.g. pH, drainage, texture. In addition, any fill material introduced to the State Forest would be undertaken according to DELWP FFM procedures. Fill areas would be monitored for germination of weeds.</p>
BM29	During construction	<p>Minimise fill material</p> <p>Objective: To minimise the introduction of fill material</p> <p>Minimise the introduction of fill material for the construction and ongoing management of the trail.</p>
BM30	Prior to construction	<p>Environmental induction - pests</p> <p>Objective: To minimise risks to biodiversity by providing an induction on pest animals for construction workers</p> <p>Construction staff trained as part of site induction to identify pest animals and signs of their presence to inform pest management program e.g. locating traps near feral cat sightings. This data would be recorded in the GIS platform for the project.</p>
Aquatic ecosystems		
BM31	During construction	<p>Waterway crossings</p> <p>Objective: To minimise impacts to aquatic ecosystems by elevating crossings</p> <p>All waterway crossings are to be elevated by installing small bridges on raised pedestals either side of the waterway. All other waterway crossings would involve bridges or boardwalks where deemed appropriate. These structures would ensure that any water and sediments are absorbed along the trail edge and not draining into the waterway.</p>
BM32	Prior to commencement of construction	<p>Micro-siting – waterway crossings</p> <p>Objective: To minimise impacts to aquatic ecosystems by narrowing crossing locations</p>

Mitigation measure ID	Timing	Mitigation and contingency measures
		Trail micro-siting to identify narrowest practicable crossing location where waterway crossing required as per SWM01.
BM33	During construction	<p>Works on waterways</p> <p>Objective: To minimise impacts to waterways during construction</p> <p>Construction of all waterway crossings, whether permanent waterways or intermittent, must follow Melbourne Water requirements for works on waterways & crossings and is to be supervised and certified by a suitably qualified person.</p>
BM35	During construction	<p>No-go zones – waterways</p> <p>Objective: To avoid impacts to waterways during construction</p> <p>All waterways are designated no-go zones during construction unless works are required directly in / adjacent to waterway.</p>
BM36	During construction	<p>Yarra River works</p> <p>Objective: To avoid impacts to the Yarra River during construction</p> <p>No instream works within Yarra River to minimise disturbance and alterations to existing conditions.</p>
BM37	During construction	<p>Timing of construction – waterways</p> <p>Objective: To minimise impacts to waterways during construction</p> <p>Works in proximity to waterways would not occur during wet months (e.g. June – September) unless conditions are such that land degradation and surface water management problems can be avoided or appropriate mitigation measures implemented. Where practicable, all waterway crossings would be constructed during no or low flow conditions.</p>
BM38	Prior to commencement of construction	<p>Micro-siting – wet boggy ground</p> <p>Objective: To minimise impacts to water dependent ecosystems by avoiding wet or boggy ground</p> <p>Micro-siting to avoid areas of wet or boggy ground where possible, including areas where vegetation changes suggest such conditions may be present (i.e. thickets, sedges, rushes, mosses etc.)</p>
BM39	During construction	<p>Wet or boggy ground</p> <p>Objective: To minimise impacts to water dependent ecosystems by rock armouring or elevating the trail</p> <p>Where wet or boggy ground is present and unavoidable, use suitable rock armouring to harden and reinforce the trail or elevate trail using boardwalk or another appropriate engineered/design solution.</p>
Cool Temperate Rainforest (CTR) / Cool Temperate Mixed Forest (CTMF)		
BM40	Prior to commencement of construction	<p>Micro-siting – CTR / CTMF</p> <p>Objective: To avoid and minimise impacts to CTR / CTMF</p> <p>Trail micro-siting in consultation with a suitably qualified ecologist to avoid where possible and minimise the final trail alignment through CTR / CTMF and avoid areas showing signs of Myrtle Wilt.</p>
BM41	Prior to commencement of construction	<p>Micro-siting – Myrtle Wilt</p> <p>Objective: To avoid spread of Myrtle Wilt pathogens</p> <p>Micro-siting to avoid areas showing signs of Myrtle Wilt.</p>
BM42	During construction	<p>Disturbance to Myrtle Beech</p> <p>Objective: To minimise impacts to Myrtle Beech</p>

Mitigation measure ID	Timing	Mitigation and contingency measures
		Where areas containing Myrtle Beech cannot be avoided, minimise disturbance within the drip line of all Myrtle Beech trees using a design/engineered solution.
BM43	Prior to commencement of and during construction	<p>Pruning of Myrtle Beech</p> <p>Objective: To minimise pruning impacts to Myrtle Beech</p> <p>Where pruning or wounding of Myrtle Beech trees and / or roots is likely to occur trail crews would be trained in pruning methods and application of anti-fungal agents to prevent the spread of Myrtle Wilt.</p>
BM44	During construction	<p>Fill material – CTR / CTMF</p> <p>Objective: To minimise impacts to CTR / CTMF</p> <p>No imported fill material (including gravel, rock and soil) is to be used within CTR / CTMF.</p>
BM45	Prior to commencement of construction	<p>Environmental induction – CTR / CTMF</p> <p>Objective: To minimise impacts to Myrtle Beech, CTR and CTMF by providing an induction for construction workers</p> <p>Construction phase staff trained as part of site induction to identify Myrtle Beech, CTR and CTMF.</p>
BM46	During construction	<p>Maintaining ground surface gradients within CTR / CTMF</p> <p>Objective: To minimise changes to existing ground surface gradients within CTR / CTMF</p> <p>No machinery excavation is to be undertaken within CTR / CTMF. Where soils are damp and boggy, trail must be elevated using boardwalk or another appropriate engineered/design solution.</p>
BM47	During construction	<p>Hand building trails within CTR / CTMF</p> <p>Objective: To minimise trail construction impacts within CTR / CTMF</p> <p>Trail construction and maintenance is to be undertaken using hand tools only within CTR / CTMF.</p>
BM48	Prior to commencement of construction	<p>Micro-siting – Myrtle Beech drip line</p> <p>Objective: To avoid and minimise impacts to Myrtle Beech individuals</p> <p>Micro-site to avoid the drip line of Myrtle Beech including scattered individuals outside of mapped CTR / CTMF.</p>
Groundwater dependent ecosystems		
BM49	During construction	<p>Management of GDEs</p> <p>Objective: To minimise impacts on GDEs</p> <p>Implement measures outlined in GWM01 to manage potential impacts to GDEs / seeps / springs.</p>
BM50	Prior to commencement of construction	<p>Environmental induction – GDEs</p> <p>Objective: To minimise impacts to GDEs by providing an induction for construction workers</p> <p>Construction staff trained as part of site induction to identify GDEs, seeps / springs and associated vegetation communities / species.</p>
Leadbeater's Possum (LBP)		
BM51	Prior to commencement construction	<p>Environmental induction – LBP</p> <p>Objective: To minimise impacts to LBP by providing an induction for construction workers</p>

Mitigation measure ID	Timing	Mitigation and contingency measures
		Construction staff trained as part of site induction to identify high quality LBP habitat indicators. Training would include distribution of fact sheets including notes and photos.
BM52	During construction	<p>LBP habitat management</p> <p>Objective: To minimise removal of vegetation within suitable LBP habitat</p> <p>Removal of vegetation within suitable Leadbeater's Possum habitat would be subject to the following constraints:</p> <ol style="list-style-type: none"> 1) In the National Park no removal of trees, including mid-storey trees, with > 10 cm DBH, 2) In State Forest where there is a stand of single age <i>Eucalyptus</i> sp. and mid-storey (i.e. regrowth following bushfire), trees < 20 cm DBH may be removed, 3) No removal of dense stands of montane thickets (comprising Bottlebrush <i>Callistemon</i> spp. and / or Tea-tree <i>Leptospermum</i> spp.) anywhere in the project area. Minor pruning of these species may occur at the edges of these thickets.
BM53	Prior to commencement of and during construction	<p>Micro-siting – LBP</p> <p>Objective: To avoid and minimise impacts to LBP habitat</p> <p>Supervision and guidance by a suitably qualified ecologist would be provided during the construction phase within LBP habitat to identify any additional potential LBP habitat and assist with micro-siting.</p>
Mount Donna-Buang Wingless Stonefly (MDBWS)		
BM54	Prior to commencement of construction	<p>Micro-siting – MDBWS</p> <p>Objective: To avoid and minimise impacts to MDBWS habitat</p> <p>Micro-siting to align trail as close as possible to the verge of Mount Donna Buang Road as per SWM01 within potential range of MDBWS.</p>
BM55	During construction	<p>Construction timing – MDBWS</p> <p>Objective: To avoid impacts to MDBWS critical life cycle stages</p> <p>Construction of the trails within potential range of Mount Donna Buang Wingless Stonefly is to be undertaken between December and February to avoid disruption to critical life cycle stages.</p>
BM56	During construction	<p>Minimise habitat disturbance – MDBWS</p> <p>Objective: To minimise impacts to MDBWS habitat</p> <p>Any work within the potential range of the species must minimise habitat disturbance e.g. soil compaction and sedimentation by elevating the trail to cross waterways, bogs, damp areas or seasonal drainage lines within the mapped suitable habitat zone. Any elevated trail must be constructed to maintain natural light levels.</p>
BM57	During construction	<p>Sediment management from Mount Donna Buang Road – MDBWS</p> <p>Objective: To minimise impacts to MDBWS habitat</p> <p>Construction of the trails within potential range of MDBWS would be managed to decrease sediment from Mount Donna Buang Road or surrounds flowing into the adjacent springs downstream of the road as per SWM07.</p>
BM58	During construction	<p>Minimise sedimentation – MDBWS</p> <p>Objective: To minimise impacts to MDBWS habitat</p> <p>Minimise sedimentation into permanent or ephemeral waterbodies within potential range of the species through appropriate procedures for erosion and sedimentation as per SWM02.</p>
BM59	During construction	<p>Minimise pollution – MDBWS</p>

Mitigation measure ID	Timing	Mitigation and contingency measures
		<p>Objective: To minimise impacts to MDBWS habitat</p> <p>Within potential range of MDBWS, minimise pollution from trail construction that can soak into soil, through implementing appropriate procedures for leaks / spills as per SWM02 & SWM10.</p>
BM60	During construction	<p>Minimise groundwater impacts – MDBWS</p> <p>Objective: To minimise impacts to MDBWS habitat</p> <p>Ensure trail construction does not interrupt flow rate of ground water within or upslope of potential range of the species.</p>
BM61	Prior to commencement of construction	<p>Environmental induction – MDBWS</p> <p>Objective: To minimise impacts to MDBWS by providing an induction for construction workers</p> <p>Construction phase staff trained as part of site induction to identify MDBWS habitat indicators. Training would include distribution of fact sheets including notes and photos.</p>
Other significant flora and fauna		
BM62	During construction	<p>Habitat trees</p> <p>Objective: To minimise impacts to habitat trees</p> <p>No removal of existing habitat trees unless deemed hazardous in which case treatment of these trees would be discussed with land manager, arborist and ecologist e.g. habitat pruning of tree. Any hazardous tree considered for removal would be assumed to be a habitat tree unless deemed otherwise.</p>
BM63	During construction	<p>Habitat for epiphytic / lithophytic species</p> <p>Objective: To minimise impacts to suitable habitat for epiphytic / lithophytic species</p> <p>Minimise disturbance to suitable habitat for epiphytic / lithophytic species e.g. avoid use of boulders covered with bryophytes and / or ferns.</p>
BM64	Prior to the commencement of construction	<p>Environmental induction – significant flora</p> <p>Objective: To minimise impacts to significant flora by providing an induction for construction workers</p> <p>Construction staff informed as part of site induction regarding potential presence of significant flora species (including epiphytic / lithophytic species) in order to minimise risk of damage to species or suitable habitat.</p>
BM65	Prior to the commencement of construction	<p>Environmental induction – rare or threatened flora</p> <p>Objective: To minimise impacts to rare or threatened flora by providing an induction for construction workers</p> <p>Construction staff trained as part of site induction to identify rare or threatened flora. Training would include distribution of fact sheets including notes and photos.</p>
BM66	Prior to the commencement of construction	<p>Micro-siting – significant flora</p> <p>Objective: To avoid and minimise impacts to significant flora</p> <p>Micro-siting of the final trail alignment in high risk areas to avoid significant flora in consultation with a suitably qualified ecologist on-site during a seasonally appropriate period for the target species. High risk areas would be identified through mapping.</p>
BM67	During construction	<p>Native vegetation removal</p> <p>Objective: To minimise removal of native vegetation</p>

Mitigation measure ID	Timing	Mitigation and contingency measures
		<p>Native vegetation (trees including mid-storey species) removal is subject to the following constraints:</p> <ol style="list-style-type: none"> 1) No trees (including mid-storey trees) with DBH > 10 centimetres are to be removed in the National Park (unless condition 3) applies). 2) Within State Forest trees < 20 centimetres DBH in single age stands of <i>Eucalyptus</i> spp. and mid-storey (i.e. regrowth following bushfire) may be removed. 3) Excluding areas of suitable habitat for Leadbeater's Possum, any small dead trees (< 20 centimetres DBH) within 2 metres of the trail may require removal if significant defects are identified. Such trees would be felled and kept nearby as habitat logs (coarse woody debris).
BM68	Prior to the commencement of construction	<p>Environmental induction – trees</p> <p>Objective: To minimise impacts to trees by providing an induction for construction workers</p> <p>Construction staff trained as part of site induction in tree protection methods, SRZ and root protection methods and identification of hazardous trees.</p>
BM69	Prior to the commencement of and during construction	<p>Micro-siting – trees</p> <p>Objective: To avoid and minimise impacts to trees</p> <p>Minimise impacts to trees through micro-siting and adequate implementation of sympathetic mitigation measures.</p>
BM70	During construction	<p>Recording of tree impacts</p> <p>Objective: To record potential impacts to trees</p> <p>Capture relevant data where direct tree impacts are possible, where tree root protection is required, or where hazardous tree removal or excessive pruning is required.</p>
BM71	Prior to the commencement of construction	<p>Micro-siting – dense vegetation</p> <p>Objective: To avoid and minimise impacts to dense vegetation</p> <p>Trail micro-siting to avoid existing stands of dense vegetation, particularly mid-storey vegetation between 1 to 5 metres in height, wherever possible.</p>
BM72	During construction	<p>Large trees</p> <p>Objective: To avoid impacts to large hollow-bearing canopy trees</p> <p>All large hollow-bearing canopy trees (dead and alive) are to be retained with no substantial works encroachment that would compromise the health and viability of such trees</p>
BM73	During construction	<p>Construction hours</p> <p>Objective: To avoid and minimise disturbance to fauna</p> <p>No construction activities at night.</p>
BM74	Prior to the commencement of construction	<p>Micro-siting – borrows / nests / roosting sites</p> <p>Objective: To avoid and minimise impacts to native fauna burrows / nests / roosting sites</p> <p>Microsite final trail alignment to avoid, minimise and appropriately buffer any burrows / nests / roosting sites for native fauna identified during construction activities. This includes, but is not limited to:</p> <ol style="list-style-type: none"> 1) Lyrebird display mounds, 2) Forest owl nesting or roosting sites, 3) Platypus burrows, 4) Curve-tail Burrowing Crayfish and Tubercle Burrowing Crayfish burrows, 5) Ground-dwelling native fauna burrows e.g. wombat 6) Rocky outcrops with cracks and crevices

Mitigation measure ID	Timing	Mitigation and contingency measures
		7) Research sites e.g. LBP monitoring plots. Any burrows / nests / roosting sites for native fauna would be mapped to GIS platform as per finds procedure outlined in BM16.
BM75	During construction	Slow-start construction measures Objective: To enable fauna time to disperse Construction activities, particularly in proximity to the Yarra River or sensitive areas within Yarra Ranges National Park, to use slow-start construction measures to enable both aquatic and terrestrial fauna time to disperse.
BM76	During construction	Fauna entrapment Objective: To avoid and minimise impacts to fauna from entrapment Any structures that could trap fauna must be covered, checked and an egress point provided.
BM77	During construction	Noise, vibration and air quality management Objective: To avoid and minimise impacts to biodiversity from noise, vibration and air quality Management of potential impacts from noise, vibrations and air quality as outlined in NM01 to NM06 and AM01 to AM07. In addition to these measures, project activities should minimise amount of equipment / machinery in use at any one time to reduce intensity of noise, vibrations and / or reduced air quality.
BM78	Prior to commencement of construction	Environmental induction – fauna habitat Objective: To minimise impacts to fauna by providing an induction for construction workers Construction staff trained as part of site induction to identify signs of native fauna habitation including, but not limited to: 1) Lyrebird display mounds 2) Roosting or nesting sites for forest owls 3) Platypus burrows 4) Habitat indicators for Curve-tail Burrowing Crayfish and Tubercle Burrowing Crayfish 5) Burrows used by ground-dwelling fauna e.g. wombats. Training would include distribution of fact sheets including notes and photos.

Table 16-3 Surface water, groundwater and geotechnical hazards, construction mitigation and contingency measures

Mitigation measure ID	Timing	Mitigation and contingency measures
Surface water		
SWM01	Prior to commencement of construction	Undertake micro-siting prior to construction Objective: Appropriate selection of waterway crossing method to protect downstream values <ul style="list-style-type: none"> Avoid crossing if practical Install an elevated structure (i.e. bridge or boardwalk) where Water Act definition of a waterway is met (defined bed and banks and/or natural channel fed by spring or absorbent soil). Install rock armouring when gully is present but no other indication of waterway as per Water Act definition, or if there is signs of wet/unstable soil or changes to vegetation that signal higher water concentration that is likely to impact trail surface stability.

Mitigation measure ID	Timing	Mitigation and contingency measures
		<p>Review all crossing points identified by the Surface Water Impact Assessment which do not have a crossing type assigned. As required in sensitive areas, as per the micro-siting procedure, the line of the proposed tracks is to be walked by an ecologist, a tree specialist and a geomorphologist.</p> <p>The existing conditions of the waterway at the crossing point would be fully documented as per Water Act definition. Take geo-referenced photographs of crossings that intersect the VicHydro waterway layer (where no evidence of a waterway is observed at the crossing point).</p> <p>Melbourne Water can attend regular site inspections before, during and after construction to confirm that all waterways have been appropriately identified.</p> <p>Where multiple crossings are located within a small area, there may be risk of greater disturbance than for a single crossing – care must be taken to ensure the solution minimises the cumulative effects.</p>
SWM02	During construction	<p>Erosion and sediment controls</p> <p>Objective: To minimise erosion and sedimentation impacts to waterways</p> <p>Follow EPA publications:</p> <ul style="list-style-type: none"> • EPA publication 1894 Managing soil disturbance • EPA publication 1895 Managing stockpiles • EPA publication 1896 Working within or adjacent to waterways • EPA publication 1897 Managing truck and other vehicle movement <p>Soil and sediment management:</p> <ul style="list-style-type: none"> • Identify suitable locations for material stockpiles (if required) prior to construction and ensure appropriate sediment controls are in place prior to stockpiling. Stockpiles would be located away from waterways and protected from prevailing wind. • Plan construction works to provide for the progressive and timely stabilisation and rehabilitation of disturbed areas as required. • Balanced cut and fill construction is to be used wherever possible. No spoil is to be spread down slope, minimising damage to adjacent vegetation below the trail. • Where the trail runs alongside a waterway, excavated spoil material should not be placed such that it enters the waterway or impedes natural drainage. • Rock armouring to be used on the entry and exit to any low-level bridges or boardwalks and on some steep sections of trail chutes and may be used on sections of boggy ground. • Topsoil would be retained in stockpiles on any cleared areas not required for construction of the trail tread or batter slopes. Materials would be reused on the site where possible. • In areas of high erodibility soils cut batters must be near vertical, and where possible retained by logs or rock facing. Site by site assessment on the requirement for retaining walls would be required. Batters would be stabilised appropriately to reduce potential slippage and erosion. Appropriate silt control mechanisms would be applied where necessary to control and minimize scour and silt movement. • Upon achieving practical completion of a trail, the trail is to remain closed for a period of 4-12 weeks (depending on weather, time of year and other variables) to allow for 'curing' of the trail surface. All sediment control measures (i.e. silt fences) to remain in place during this curing period. • Cut batters to be less than 2 m in vertical height • Silt fences to be installed on all grade reversal outlets within 50 m of a waterway where access allows. • All trails to comply with International Mountain Bicycling Association trail construction guidelines, especially:

Mitigation measure ID	Timing	Mitigation and contingency measures								
		<ul style="list-style-type: none"> - The Half Rule - 10% Average Guideline - Maximum Sustainable Trail Grades - Grade Reversals - 5% outslope as appropriate <ul style="list-style-type: none"> • Maintain all erosion and sediment controls in effective working order as required throughout the construction period. • Vehicle entry and exists would be via designated areas only. • Identify all designated 'no go zones' on the plans. • Construction activities creating any soil disturbance to cease during extreme rainfall events (i.e. greater than 25 mm in 24 hours). • Materials stockpiled on-site would be stored in a designated storage location with silt fencing on down slope areas where the stockpiles are within 30 m of a waterway. • Coir logs or silt fences would be maintained on slopes below bare soil areas at drainage flow path outlets, where it is within 30 m of a waterway. • Ensure all temporary erosion and sediment controls are removed and relevant notifications undertaken at the completion of works or when sufficient ground cover for stabilisation is achieved. <p>Waterway Crossings</p> <ul style="list-style-type: none"> • Where a waterway crossing is required, identify the narrowest practicable location. • Low level bridges must be designed to cope with peak flows for the catchment they are located in and must not impede flow in any way. • Low level bridges must be Building Code of Australia (BCA) compliant. • Approaches to waterway crossings should as much as possible be at right angles to the waterway and minimise the length of track within the immediate riparian zone. • Rock armouring to be used as appropriate on either side of bridge/boardwalks to prevent soil being carried onto the bridge/boardwalk. • Works near waterways should be scheduled appropriately. For example, works should be timed to coincide with periods of low flow and completed quickly. Works should be stopped if conditions are not suitable, such as during and after heavy rain. • Any removal of fallen timber within the waterway must be to the minimum extent necessary and any material removed must be retained on-site, downstream from the crossing point. <p>Drainage</p> <ul style="list-style-type: none"> • If areas of erodible soils are found in trail surface, the area must be armoured with rock, gravel or low erodibility soils (also see GTM02 and GTM03). • Drainage must be installed on approaches to waterway crossings so that where possible a 30 m buffer of vegetation is achieved to act as a filter strip. • All drainage must direct water onto vegetation and not exposed fill material. • Unless the trail tread is out-sloped (i.e. it drains to the lower side of the track) and no table drain is required on the upper side, cross drains/water bars/grade reversals must be installed at no greater distance apart than shown below: <table border="1" data-bbox="646 1899 1265 2051"> <thead> <tr> <th data-bbox="646 1899 901 1944">Trail gradient</th> <th data-bbox="901 1899 1265 1944">Maximum drain spacing</th> </tr> </thead> <tbody> <tr> <td data-bbox="646 1944 901 1984">1-5%</td> <td data-bbox="901 1944 1265 1984">70 m</td> </tr> <tr> <td data-bbox="646 1984 901 2024">6-10%</td> <td data-bbox="901 1984 1265 2024">40 m</td> </tr> <tr> <td data-bbox="646 2024 901 2051">11-20%</td> <td data-bbox="901 2024 1265 2051">30 m</td> </tr> </tbody> </table>	Trail gradient	Maximum drain spacing	1-5%	70 m	6-10%	40 m	11-20%	30 m
Trail gradient	Maximum drain spacing									
1-5%	70 m									
6-10%	40 m									
11-20%	30 m									

Mitigation measure ID	Timing	Mitigation and contingency measures		
		<table border="1" data-bbox="647 282 1267 322"> <tr> <td data-bbox="647 282 903 322">>20%</td> <td data-bbox="903 282 1267 322">20 m</td> </tr> </table> <p>Monitoring of trails under active construction:</p> <ul data-bbox="587 389 1430 510" style="list-style-type: none"> • Daily visual inspections of works site and all erosion and sediment control devices. • Inspection of all erosion and sediment control devices following significant rainfall events. <p>Corrective actions to control erosion:</p> <ul data-bbox="587 568 1430 878" style="list-style-type: none"> • Repair/maintain existing drainage, erosion and sediment control devices. • Clean up or rehabilitate any impacts and exposed areas. • Install additional erosion and sediment control devices where issues have been identified. • Consider the deployment of alternative erosion and sediment control devices where issues have been identified with the existing devices. • Ensure all personnel involved in the deployment and maintenance of erosion and sediment control measures are appropriately trained in their use and deployment. • Communicate changes with all relevant staff. <p>Drinking Water Catchments</p> <ul data-bbox="587 936 1430 1088" style="list-style-type: none"> • Ensure adequate portable toilets are available to construction crews, particularly in drinking water catchments, and that these toilets are maintained appropriately • Daily pre-start risk assessment and education of construction crew about works in a drinking water catchment. 	>20%	20 m
>20%	20 m			
SWM03	Prior to commencement of construction	<p>Streamside buffers</p> <p>Objective: To provide adequate buffer to minimise sedimentation of waterways</p> <ul data-bbox="587 1218 1430 1335" style="list-style-type: none"> • Apply a 20 m streamside buffer to minor waterways running parallel to track (<60 ha catchment) • Apply a 30 m streamside buffer for larger waterways running parallel to track (>60 ha catchment) 		
SWM04	During construction	<p>Use of tracking machines</p> <p>Objective: Avoid direct and downstream impacts to waterways during construction</p> <ul data-bbox="587 1464 1430 1671" style="list-style-type: none"> • Follow EPA publication 1897 Managing truck and other vehicle movement • Works would be scheduled to avoid tracking machines through waterways which contain water at all times. • Temporary bridges would be used during construction to traverse waterways, so that there is no need to take the machines through the waterway itself. 		
SWM05	During construction	<p>Elevated crossing design</p> <p>Objective: Appropriate crossing design to protect downstream values</p> <p>A 'Works on Waterways Permit' / 'Consent for Minor Waterway Work' would be obtained from Melbourne Water as appropriate and elevated crossing designs would be installed in accordance with permit requirements, including the following:</p> <ul data-bbox="587 1912 1430 2087" style="list-style-type: none"> • The minimum deck height of crossings would be set above the top of bank by at least 0.3 m. The final deck heights at each location would be determined based on hydraulic assessment and designed in accordance with the stated SWM02 mitigation measures. • The typical elevation indicates minimum raising of the profile at either side of the channel and encroachment within the channel of supports and 		

Mitigation measure ID	Timing	Mitigation and contingency measures
		<p>rock retaining wall. Bridge abutments would be positioned beyond the channel shoulder and there would be no restriction in channel cross section.</p> <ul style="list-style-type: none"> • If required by Melbourne Water, rock work protection is to extend underneath, upstream and downstream of the bridge to protect the waterway. Protection upstream and downstream would be proportionate to scale of impact. Minimum 0.5 m either side of deck profile unless agreed with Melbourne Water. • Drawings would consider Melbourne Water crossing guidelines and specify rock beaching and erosion protection requirements on the crossing drawings. Minimum rock sizes would be determined based on hydraulic flow conditions and shear forces expected to be encountered at these sites.
SWM06	During construction	<p>Water quality monitoring of waterways</p> <p>Objective: To monitor effectiveness of mitigation measures</p> <p>A waterway monitoring program would be developed in consultation with Melbourne Water. The key potential stressor to waterways for the project is sedimentation and therefore turbidity is the key metric of interest. In addition, monitoring of macroinvertebrates would provide evidence of any longer-term project effects. Subject to consultation outcomes with Melbourne Water, the monitoring program would have the following key features:</p> <ul style="list-style-type: none"> • Monitoring scopes in alignment with the ANZG (2018) guidelines for water quality monitoring (covering such aspects as spatial extent, parameter selection, scale, duration, frequency, cost effectiveness of the monitoring program) • Macroinvertebrate monitoring in selected waterways to provide evidence of any longer-term effects. <p>The monitoring program would cover the construction and operations phases of the project and be 'adaptive' – i.e. be responsive to the results to optimise the monitoring effort. During construction and operation, the following principal activities would be undertaken, subject to consultation with Melbourne Water.</p> <ul style="list-style-type: none"> • Twice daily monitoring would be undertaken upstream and downstream of waterway crossing construction where water is present at the time of construction. This monitoring would include visual observation and measurements using a handheld turbidity meter. Observations and measurements would be recorded. • Should monitoring indicate that corrective or remedial actions are required at a construction site, actions would be undertaken by the construction crew or Yarra Ranges Council (e.g., installation of hay bales, coir logs or star pickets to minimise sediment movement). The corrective actions would be recorded, including the location of the actions taken. • Macroinvertebrate monitoring would be undertaken in accordance with EPA Publication 604.2 Guideline for Environmental Management: Rapid bioassessment methodology for rivers and streams prior to and during the construction phase (and then in the early stages of the operations phase). The monitoring event prior to construction commencement would establish background conditions. Monitoring would be undertaken at sites in the Yarra River upstream and downstream of tributaries which may be impacted by the project and in selected tributaries which have the highest risk of impact (tributaries with a high number of crossings: Britannia, Four Mile and Scotchmans Creeks).
SWM07	During construction	<p>Adhere to Stonefly no-go zones</p> <p>Objective: To avoid water quality or hydrological changes to Stonefly habitat</p>

Mitigation measure ID	Timing	Mitigation and contingency measures
		<ul style="list-style-type: none"> Avoid track placement in identified stonefly no-go zones Establish no-go zones in the vicinity of Sites WP1 and WP2 (as identified by Tsyrlin, 2019)
SWM08	During construction	<p>Design and construction of trail heads</p> <p>Objective: To avoid sedimentation impacts to surface water values</p> <p>Follow EPA publications 275, 1893 and 1896(particularly for trail head at golf course) to reduce erosion risk to Yarra River.</p>
SWM10	During construction	<p>Spill management</p> <p>Objective: Minimise the likelihood and impact of a spillage and establishing controls to contain and clean-up</p> <ul style="list-style-type: none"> Follow EPA publication 1698 Liquid storage and handling guidelines (EPA 2018) Australian Standard AS 1940- Storage and handling of flammable and combustible liquids to be adhered to. All storage and transport of chemicals would be undertaken in accordance with the relevant Australian standards. Current safety data sheets (SDS) would be kept on-site wherever hazardous materials are being stored. A register of all chemicals and SDS for these chemicals would be held on-site. Spill kits would be present on-site during these works. All personnel would be trained in spill response procedures and in the use of spill kits. If a spill occurs works would stop immediately, and emergency procedures enacted if required. All regulated and hazardous waste would be stored in a bunded area as far as practical from the waterways. The quantity of materials being stored on-site would be minimised. Machinery would be used and serviced as per manufacturer's instructions. Vehicles would not be washed down on-site. Plant would not undergo maintenance or cleaning where contaminants could be released to any waters. Machinery would be refuelled at locations where the risk of environmental harm in the event of a spill is minimised, as specified in the refuelling protocol. Refuelling of machinery would conform with the following: <ul style="list-style-type: none"> Occur away from waterways (at least 10 metres) Fuelling activity to be supervised at all times Hoses to be fitted with a stop valve at the nozzle end Machinery would be maintained to minimise the leakage of oil, fuel, hydraulic and other fluids. During the servicing of machinery, the Contractor would use management measures to capture and contain oils, fuels, hydraulic and other fluids so as to minimise contamination of the servicing area. Surface coating treatments would be undertaken in a manner that avoids or minimises release of chemicals to the environment and contact with the public. Unless otherwise stated in the contract, no pre-coating of aggregates shall be conducted on-site. Toilet facilities utilised would be the existing park facilities. An additional port-a-loo facility would be maintained and used on-site, with the amenity maintained, transported and used on-site in accordance with manufacturers' and suppliers' specifications. All waste material would be removed from the site before removing any erosion and sediment control measures. All hazardous materials would be removed from site and disposed of appropriately.

Mitigation measure ID	Timing	Mitigation and contingency measures
SWM11	During construction	<p>Design of septic systems</p> <p>Objective: Minimise the likelihood and impact of elevated nutrient and pathogen loading to surface water</p> <p>Septic systems would be designed consistent with Yarra Ranges Council / land manager codes.</p>
Groundwater		
GWM01	Prior to and during construction	<p>Spring management</p> <p>Objective: Identify springs and establish appropriate treatments to protect groundwater and down-gradient discharging environment.</p> <p>Prior to construction, record evidence of spring activity, location, quantification of flow and quality (if possible), photographic record etc, to establish a baseline in spring activity.</p> <p>Daily inspection of the trails and current work area would be undertaken during construction to identify new spring activity, which may have resulted from bench excavations that exposed new spring eyes, or springs that weren't flowing due to prevailing climate conditions. Where identified the springs need to be documented and characterised.</p> <p>Where identified, trail micro-siting, or trail treatments, e.g. armouring, may be required to control erosion. Treatments are documented in the micro-siting procedure and SWM01, SWM02 and SWM09. Where a new spring has emerged as a result of the excavations, or unexpectedly through climate variation, an assessment would be made regarding:</p> <ul style="list-style-type: none"> • Potential treatments to control sedimentation and erosion • Impact to behaviour of nearby springs, and need for treatment, e.g. diversion of discharge to same area. <p>When treated, inspection and maintenance are undertaken during the remainder of the construction phase to assess effectiveness of the treatment.</p>
GWM02	During construction	<p>Spill management</p> <p>Objective: Minimise the likelihood and impact of a spillage and establish controls to contain and clean-up.</p> <p>Implement measures to manage risks associated with storage and handling of hazardous substances and spill / control / clean-up measures as per SWM10.</p>
GWM03	Prior to commencement of construction	<p>Design of septic systems</p> <p>Objective: Minimise the likelihood and impact of elevated nutrient and pathogen loading to groundwater.</p> <p>New septic facilities would be sited and designed consistent with Yarra Ranges Council / land manager codes and SWM11.</p>
GWM04	Prior to commencement of construction	<p>Contamination assessment</p> <p>Objective: To identify (and manage) contamination prior to its disturbance by construction.</p> <p>A Phase 1 Environmental Site Assessment will be undertaken for those areas where a potentially contaminating land use (existing or historical) has been identified, and where structures require excavations greater than 2 m below the surface.</p> <p>In the unlikely event that the Phase 1 Environmental Site Assessment identifies that the project will intersect with potentially contaminating materials, a Phase 2 Detailed Site Investigation will be undertaken to manage any contaminated materials.</p>
Geotechnical hazards		

Mitigation measure ID	Timing	Mitigation and contingency measures
GTM01	Prior to commencement, during and at completion of construction	<p>Slope stability management</p> <p>Objective: Reduce and manage the occurrence of slope instability during excavation works for trail construction.</p> <ul style="list-style-type: none"> • Plan construction works to provide for the progressive and timely stabilisation and rehabilitation of disturbed areas as required • Rock armouring to be used on some steep sections of trails • Site by site assessment on the requirement for retaining walls would be required • Batters would be stabilised appropriately to reduce potential slippage and erosion • Cut batters to be less than 2 m in vertical height • Construction activities creating any soil disturbance to cease during extreme rainfall events • Works near waterways would be scheduled appropriately. For example, works would be timed to coincide with periods of low flow and completed quickly. Works should be stopped if conditions are not suitable, such as during and after heavy rain • Avoid excessive excavation when working near waterways or gully systems • Inspection of completed sections of the trail would be undertaken following heavy rainfall events to observe potential slope failures of newly formed batters. • If a large scale failure has occurred which has resulted in significant damage to the trail and natural landform, an inspection would be undertaken by a geotechnical specialist to assess the risk and remediation measures.
GTM02	Prior to commencement and during construction	<p>Slope stability management - vegetation</p> <p>Objective: Reduce and manage the occurrence of unstable soil and erosion caused by vegetation removal.</p> <ul style="list-style-type: none"> • Vegetation removal would be limited to what is required within the construction corridor • The trail route would be designed to avoid large trees so that removal is not necessary • Where unstable, soft soil is exposed through vegetation removal, rock armouring can be used to promote stability and limit erosion.
GTM03	During construction	<p>Trail formation management</p> <p>Objective: Reduce and manage the risk of poor trail formation resulting in ineffective drainage leading to instability and erosion</p> <ul style="list-style-type: none"> • Ensure trail tread is compact • Use rock armouring to protect areas of the trail subject to erosion • Use of raised embankments to promote effective drainage where the trail is flat • Preferred method of drainage from the trail is grade reversal and out sloping trail head but culverts and water bars may be used from time to time • All drainage must direct water onto vegetation and not exposed fill material • Trail design and construction is to minimise any changes to surface water flows • Periodic inspections of the trail following heavy rainfall events to assess the effectiveness of the trail drainage and observe areas subject to erosion or unfavourable water flow downslope of the trail. Remediation to prevent further impact would be required.
GTM04	Prior to commencement	<p>Rockfall hazard management</p> <p>Objective: Reduce and manage the risk of rockfalls below or above the trails</p>

Mitigation measure ID	Timing	Mitigation and contingency measures
	and during construction	<ul style="list-style-type: none"> Removal of loose boulders from the batter face during construction. These can be used as rock armouring at the base of the batter slope Loose material should be removed from any exposed rock faces adjacent to the trail during construction A geotechnical inspection of exposed rock faces with a height >2 m to assess the need for permanent rockfall protection such as rockfall mesh Ensure that boulders placed on the out slope as part of the construction process are secure and not likely to roll down the slope.

Table 16-4 Historic heritage and Aboriginal cultural heritage construction mitigation and contingency measures

Mitigation measure ID	Project phase	Mitigation and contingency measures
MM- HM01	Prior to commencement, during and at completion of construction	<p>CHMP management conditions</p> <p>Objective: To avoid or minimise impacts on Aboriginal cultural heritage</p> <p>Comply with all management conditions and contingencies of CHMP 15276.</p> <p>Management measures (not confirmed at this stage) are likely to include inductions to construction crews undertaking ground-disturbing works, compliance checks before, during and after the project construction. The CHMP also includes contingency plans in the case of unexpected finds.</p>
MM- HM02	Prior to commencement of construction	<p>Intangible cultural heritage</p> <p>Objective: To avoid or minimise impacts on intangible Aboriginal cultural heritage</p> <p>Complete the Cultural Values Recording report.</p>
MM- HM03	Prior to commencement and during construction	<p>Historic heritage sites – Victorian Heritage Inventory (VHI)</p> <p>Objective: To avoid or minimise impacts on VHI sites</p> <p>To mitigate potential harm to VHI sites, the following protocol must be followed:</p> <ul style="list-style-type: none"> Flag or mark where works are restricted to protect places or sites, including no-go zones. Limit works to the removal of vegetation if possible. This must be inspected by a suitably qualified and experienced archaeologist after vegetation clearance is complete. If limiting works to vegetation clearance is not possible the second preference is to build up the ground over the VHI site extent. Sourcing of earth for this purpose is subject to the same mitigation measures referred to in this table. If ground-disturbing works are proposed within the bounds of VHI sites, consent approval would be obtained from HV prior to their commencement.
MM- HM04	Prior to commencement and during construction	<p>Heritage overlay sites</p> <p>Objective: To avoid or minimise impacts on HO sites</p> <p>An amendment to the Planning Scheme is currently in preparation that, if approved, would satisfy the requirement for a planning permit for Heritage Overlays.</p> <p>Where an area of archaeological potential has been identified within the bounds of a Heritage Overlay, the mitigation strategies for 'Unknown historic heritage sites and identified areas of archaeological potential' still apply (HM05).</p>

Mitigation measure ID	Project phase	Mitigation and contingency measures
		If archaeological features are uncovered during works within a Heritage Overlay, HM05 applies.
MM- HM05	Prior to commencement and during construction	<p>Unknown historic heritage sites and identified areas of archaeological potential</p> <p>Objective: To avoid or minimise impacts on unknown historic heritage sites and identified areas of archaeological potential</p> <p>To mitigate possible impact to unknown historic sites and identified areas of archaeological potential, the following protocol would be followed. The Areas of Archaeological Potential and Points of Archaeological Potential are shown in the project ArcGIS.</p> <p><i>Inductions</i></p> <p>All workers involved in developing the trail must undertake a heritage induction prior to commencing works. This induction would be presented by a suitable experienced and qualified archaeologist. The induction would include the following topics:</p> <ul style="list-style-type: none"> • A brief history of the area and types of sites that are present • The existence of the EES and the management conditions • Landforms and artefacts that may be present that would indicate an archaeological site • The contingency measures that need to be followed in the case of an unexpected find <p><i>Areas of Archaeological Potential</i></p> <p>Areas of identified archaeological potential would be subject to the following protocol.</p> <ul style="list-style-type: none"> • All works must be conducted according to the micro-siting procedure • Limit works to the removal of vegetation if possible. This must be inspected by an archaeologist after vegetation clearance is complete • If works cannot be limited to vegetation removal and ground-disturbing works must take place, the works must be supervised by an archaeologist • If archaeological features are uncovered during works, the contingency protocol must be followed. <p><i>Point of Archaeological Potential – Tramway</i></p> <ul style="list-style-type: none"> • All works must be conducted according to the micro-siting procedure • Limit works to the removal of vegetation if possible. This must be inspected by an archaeologist after vegetation clearance is complete • If works cannot be limited to vegetation removal and ground-disturbing works must take place, the works must be supervised by a suitably qualified and experienced archaeologist • If archaeological features are uncovered during works, the contingency protocol must be followed <p><i>Contingencies</i></p> <p>The following contingency measures would be undertaken if archaeological features or artefacts are found during construction works.</p> <ul style="list-style-type: none"> • Stop works if archaeological features are uncovered during construction works • Recording the features/artefacts by a suitably qualified and experienced archaeologist • Using the micro-siting procedure to realign the trail if possible • Submission of a site card to Heritage Victoria (HM03 would then apply) • Abide by all conditions on HV site card

Table 16-5 Traffic and transport mitigation and contingency measures

Mitigation measure ID	Project phase	Mitigation and contingency measures
MM-TP1	Prior to commencement and during construction	<p>Traffic Management Plan (TMP)</p> <p>Objective: To minimise traffic impacts</p> <p>Prior to the commencement of construction (excluding preparatory works), a TMP would be developed and implemented to minimise disruption to existing land uses, traffic, car parking, on-road public transport, pedestrian and bicycle movements and existing public facilities during construction. The TMP would be developed in consultation with the relevant road management authorities and would include:</p> <ul style="list-style-type: none"> • A program to monitor impacts of construction activities on all modes of transport. Where monitoring identifies adverse impacts, practicable mitigation measures would be developed and implemented • Consideration of cumulative impacts of other major projects occurring concurrently in the local area • Route options for construction vehicles travelling to and from the construction sites, recognising sensitive receptors and minimising the use of local streets where practicable • Pre-construction on-site checks to assess route options for safety and clearance to potential obstructions, such as wires, structures and trees for oversize and/or overmass (OSOM) vehicles • Survey to document the condition of pavements and other road infrastructure such as bridges and culverts prior to construction commencement for roads that are not B-Double approved including: <ul style="list-style-type: none"> - Mayer Bridge - Dammans Road - Old Warburton Road - Mount Bride Road • Measures to minimise disruption due to road and lane closures including limiting the number and duration of road closures and planning closures to occur outside of peak traffic periods. Temporary alternative routes would be identified during road closures to maintain local access to properties. Warburton Highway and Old Warburton Road would not be closed at the same time and no more than one road closure would occur each day to minimise any impact. Road closures must consider emergency situations such as bushfire season. Management measures would include detours as required for the following roads: <ul style="list-style-type: none"> - Warburton Highway - Old Warburton Road - Dammans Road • Management of Lilydale-Warburton Rail Trail partial closure by maintaining connectivity for road and footpath users in accordance with relevant design standards and in consultation with landholders and other relevant third parties • Localised and temporary speed limit reduction for personnel and construction vehicles in the vicinity of works sites • Traffic management measures including localised and temporary speed limit reduction and signage as appropriate

Mitigation measure ID	Project phase	Mitigation and contingency measures
		<ul style="list-style-type: none"> • Traffic management and controllers to restrict vehicles entering Mayer Bridge during heavy vehicle movements • Traffic management measures to manage the risk associated with heavy vehicles, including over dimensional vehicle movement • Consultation with PTV and private bus operators to inform them of transport changes anticipated as a consequence of construction • Measures, developed in consultation with emergency services to ensure emergency services access is maintained, especially during any public road closures • Provision of safe access points to laydown areas and site compounds • Provision of segregated access points for construction vehicles and public vehicles where appropriate • Protocols to give the community and other stakeholders adequate notice of any anticipated changes to transport conditions • Specified working hours and the periods within which heavy goods vehicles can access the works sites and deliveries made • Minimisation of dirt and debris on roads by measures such as street sweeping, covering vehicle loads and vehicle cleaning • Minimisation of the need to transport waste from the site by reuse of materials wherever possible. <p>The TMP would include specific measures for discrete components or stages of the works as appropriate. The above list is indicative and further measures may be identified during the development of the TMP.</p>
MM-TP2	During and at completion of construction	<p>Stakeholder communication plan</p> <p>Objective: To minimise traffic impacts on stakeholders through consultation</p> <p>Prior to commencement of the construction works and any temporary road or lane closures, stakeholder consultation should be carried out and advanced notice given to affected residents, businesses or industries and emergency services. This includes measures such as letter notification to inform residents and businesses of upcoming works and road closures. Stakeholder engagement and communications strategies should be established in the TMP to be prepared for the project. Stakeholders may include Councils, road authorities, bus operators, business operators and residents among others.</p> <p>At the end of the construction phase, a close-out meeting between Yarra Ranges Council and relevant road authorities (VicRoads and DELWP) should occur to discuss and manage the restoration of roads to prior existing (or improved).</p>
MM-TP4	At completion of construction	<p>Improvement works</p> <p>Objective: To avoid or minimise road infrastructure impacts</p> <ul style="list-style-type: none"> • The need for construction restoration of the road pavement, bridges, and culverts within the study area would be assessed and where required assets would be restored to the existing or better than existing condition if damage has occurred. The need for restoration would be based on pre and post construction surveys. • The road surface conditions along Cemetery Track and Edwardstown Road would be surveyed pre and post construction and restored to existing condition or better where required

Mitigation measure ID	Project phase	Mitigation and contingency measures
		<ul style="list-style-type: none"> Subject to the results of the Road Safety Audits undertaken at various locations in the study area, improvements may be required prior to project opening.

Table 16-6 Land use, noise, air quality and visual construction mitigation and contingency measures

Mitigation measure ID	Stage	Mitigation measure
Land use		
LP01	Prior to and during construction	<p>Minimising amenity impacts</p> <p>Objective: To avoid or minimise land use impacts</p> <p>Minimise amenity impacts through the proposed measures and consultation with affected landowners and stakeholders.</p>
Noise		
NM01	During construction	<p>Managing noise and vibration from construction activities</p> <p>Objective: To manage construction noise and vibration in accordance with Section 4.3.3 of EPA Publication 1834.</p> <p>Develop a plan to manage noise during construction in consultation with the EPA, including the following general good practice techniques:</p> <ul style="list-style-type: none"> Undertake preparatory work off-site where there is low potential for impacting people (e.g. formwork, cutting or prefabrication of materials off-site prior to transporting to the construction site) Connect to the electricity grid as early as possible to avoid the use of diesel generators Restrict areas where mobile plant can operate so that it is away from people who could be affected by noise Locate site vehicle access and waiting areas away from people who could be affected by noise Plan vehicle movements to avoid manoeuvres and idling at location nearest to nearby people Minimise the number of noise-emitting equipment in use at once Use quieter equipment or methods. This may require considering: <ul style="list-style-type: none"> buying or leasing quieter equipment avoiding metal-to-metal and metal-to-stone contact installing mufflers reducing throttle and turning off equipment when not in use placing things down rather than throwing educating drivers to use driving practices that minimise noise Use low-noise saw blades Use electrical equipment rather than equipment driven by a diesel generator Use low-noise emitting generators Use effective alternatives to 'beeper' alarms (e.g. broadband alarms, proximity sensors) Avoid using reversing alarms by designing site layout to avoid reversing (e.g. drive-through for parking and deliveries) Maintain equipment by: <ul style="list-style-type: none"> inspecting regularly and maintaining equipment to ensure good working order checking machines with enclosures, including doors and door seals and that the door closes properly against seals maintaining air lines on pneumatic equipment so they do not leak Maintain vehicles by: <ul style="list-style-type: none"> considering good working conditions of mufflers

Mitigation measure ID	Stage	Mitigation measure
		<ul style="list-style-type: none"> - securing loose parts that may rattle • Limit noise caused by people on-site by: <ul style="list-style-type: none"> - avoiding yelling and shouting on-site (note: if people on-site need to shout to hear each other over the site ambient noise, it is possible the noise level may be putting their hearing at risk) - minimising the use and volume of any electrical amplified sound-reproducing equipment, for example radios, stereos, televisions or public address systems. • Plan transport and haulage routes to minimise the number of trucks/vehicles. Where there are large numbers of truck movements, consider truck route and truck waiting protocols (e.g. engines on/off and restart requirements) • Implement substitute methods taking into consideration: <ul style="list-style-type: none"> - alternatives to rock-breaking work methods, such as hydraulic splitters for rock and concrete, hydraulic jaw crushers, chemical rock and concrete splitting, and controlled blasting such as penetrating cone fractures. The suitability of alternative methods should be considered on a case by case basis, including what potential risks they involve - alternatives to diesel and petrol engines and pneumatic units, such as hydraulic or electrical generator located away from nearby people. • In terms of vibration, any works that are required to be undertaken within the safe working distances should be assessed further. • Include a review program for verification that the described good practice measures are in place and adhered to, and managed in accordance with EPA publication 1834.
NM02	During construction	<p>Baseline noise monitoring</p> <p>Objective: To undertake noise monitoring prior to construction if works are planned to occur outside of normal working hours to confirm the applicable noise criteria and respond to exceedances.</p> <p>Noise monitoring would be undertaken at the nearest noise sensitive residential properties to any out-of-hours works.</p> <p>A response plan would be developed to manage potential impacts if nominated criteria are exceeded, including:</p> <ul style="list-style-type: none"> • Actions taken to rectify the exceedance • Actions to minimise risk of reoccurrence • Name of the person(s) responsible for undertaking the required actions • The duration of the monitoring would be determined by a suitably qualified acoustic consultant.
NM03	During construction	<p>Helicopter noise</p> <p>Objective: To minimise noise impacts from helicopters</p> <p>Helicopters may be required for the construction of long bridge spans at the Yarra River and Old Warburton Road bridges and have the potential to cause adverse noise impact to the local community.</p> <p>The following mitigation measures have been developed with reference to Section 4.3.2 of EPA 1834 and Section 16 of EPA Publication 1254.2:</p> <p><u>Community consultation</u></p> <ul style="list-style-type: none"> • Residents and community stakeholders that may be impacted would be informed at least 24 hours prior to the event of helicopter operations being conducted to support bridge construction works. • Works notification may include letter drops, specific notifications and individual briefings.

Mitigation measure ID	Stage	Mitigation measure
		<ul style="list-style-type: none"> All noise complaints would be investigated and monitoring undertaken where necessary. <p><u>Hours of operation:</u></p> <ul style="list-style-type: none"> Helicopters would only be used during normal working hours as defined in EPA Publication 1834 (Monday to Friday 7am to 6pm, Saturday 7am to 1pm).
Air quality		
AM01	Construction	<p>Dust suppression</p> <p>Objective: To minimise air quality impacts from dust</p> <p>Implement dust suppression at construction areas as required using water sprays, water carts or other devices on unpaved work areas, spoil and aggregate stockpiles during the loading and unloading of dust generating materials</p>
AM02	Construction	<p>Restrict vehicle movements</p> <p>Objective: To minimise air quality impacts from dust generated from moving vehicles and plant</p> <p>After arrival at the project site, vehicles, plant and equipment would remain within the construction footprint and on designated roads and tracks</p>
AM03	Construction	<p>Cover construction loads</p> <p>Objective: To minimise air quality impacts from loss of loads</p> <p>Cover construction vehicles with potential for loss of loads (such as dust or litter) when using public roads</p>
AM04	Construction	<p>Monitoring of weather conditions</p> <p>Objective: To minimise air quality impacts during extreme weather conditions generating dust</p> <p>Monitor weather conditions for extreme heat and/or wind events using systems such as the Bureau of Meteorology forecasts and modify works if conditions are likely to result in air quality impacts at sensitive receptors</p>
AM05	Construction	<p>Exhaust emissions</p> <p>Objective: To minimise air quality impacts from exhaust emissions</p> <p>Vehicles and equipment would be maintained as per manufacturer's specifications to ensure minimal exhaust emissions</p>
AM06	Construction	<p>Rehabilitation</p> <p>Objective: To minimise air quality impacts from land clearance generating dust</p> <p>Land clearance would be minimised during construction to reduce the likelihood of wind-blown dust. Rehabilitate as soon as practicable</p>
AM08	Construction	<p>Visual dust monitoring</p> <p>Objective: To undertaken visual dust monitoring for proactive management of dust</p> <p>For trails under active construction, undertake air quality monitoring on a daily basis by visual observation for dust and emission plumes on-site associated with construction works and vehicles.</p>
Visual		
LM05	Construction	<p>Minimising visible construction areas</p> <p>Objective: To avoid or minimise visible construction areas and equipment</p>

Mitigation measure ID	Stage	Mitigation measure
		<ul style="list-style-type: none"> The approach to trail construction would be one that minimises the requirement for storage areas and new clearings within the Yarra Ranges National Park and Yarra State Forest not associated with the final trails themselves. The focus would be on non-intrusive methods of construction, use of small machinery that can utilise the mountain bike trails under construction, and material transfer via helicopter or on foot. Construction equipment, stored materials and other visible elements would be located away from views from sensitive visual receptors. Should such equipment or stored materials be located in visually prominent locations for any reasonable period of time, screening measures such as hoarding or temporary plantings, and practices would be incorporated to ensure sites are kept tidy.

Table 16-7 Socio-economic construction mitigation and contingency measures

Mitigation measure ID	Project phase	Mitigation measure
MM-SM1	Construction	<p>Minimise disruption of construction on residents</p> <p>Objective: To minimise the impact of the construction of trails and trail heads on residents</p> <ul style="list-style-type: none"> Develop construction schedules in partnership with residents whose properties are bisected by, or within 100 m of a trail, through phone or face-to-face discussions in the first instance and subsequent letter-drops confirming plans. Place temporary fencing along trail construction sites to clearly demarcate safe areas for residents where construction bisects a property Ensure daily communication is conducted between residents and construction teams for residents where construction bisects a property Create a clear mechanism for residents to raise complaints or concerns, ideally through a single point of contact at Council.
MM-SM6	Construction	<p>Maintain access, safety and enjoyment of other recreation users</p> <p>Objective: To maintain access, safety and enjoyment of other recreation users</p> <ul style="list-style-type: none"> Establish appropriate signage at trail heads and popular trails to advise riders of the mountain bike code of conduct (always give way) and to ride on open marked trails only Use choke points/slowing techniques before points of intersection with other trails
MM-SM7	Construction and operation	<p>Minimise impacts to liveability for Warburton residents from increased traffic</p> <p>Objective: To ensure that increased traffic does not impact liveability in Warburton</p> <p>Yarra Ranges Council would complete the recommendations set out in the Yarra Ranges Integrated Transport Strategy (2020-2040) and the Local Movement and Transport Report as important mitigation strategies. In particular, this includes:</p> <ul style="list-style-type: none"> Develop and implement a Traffic Management Plan to minimise disruption during all stages of construction. Develop and implement a stakeholder communication plan to ensure that appropriate consultation and advanced notice is provided prior and during construction. Undertake a Road Safety Audit to ensure that roads, intersections and the Lilydale-Warburton Rail Trail are designed and constructed to provide safe vehicle movements during both construction and operation. Undertake improvement works where necessary based on the pavement conditions survey.

Mitigation measure ID	Project phase	Mitigation measure
		<ul style="list-style-type: none"> Establish an Emergency Access Plan.
MM-SM9	Construction and operation	<p>Maintain Warburton residents' access to appropriate community infrastructure</p> <p>Objective: To ensure that the project does not diminish Warburton residents' access to appropriate community infrastructure</p> <ul style="list-style-type: none"> Proposed community infrastructure works, including toilet upgrades at Mount Donna Buang and construction of toilets at the Mount Tugwell and Golf Club trail heads, would be completed as priorities in accordance with project staging. Monitor the impact of the project on dog walkers at Wesburn Park and provide additional areas elsewhere if necessary. Work with relevant authorities to ensure that CFA capacity and medical emergency capacity are assessed to ensure that essential emergency management services are maintained. An Emergency Management Plan would be prepared and approved before use of the land for the project commences to ensure that risks to life are reduced and managed appropriately. The Emergency Management Plan would include specific bushfire response measures developed in consultation with the Country Fire Authority,

16.3.4 Operations contingency and mitigation measures

Table 16-8 Biodiversity operations mitigation and contingency measures

Mitigation measure ID	Mitigation and contingency measures
General	
BM01	<p>Independent auditing</p> <p>Objective: To ensure environmental objectives and approval conditions are met</p> <p>Undertake independent auditing of trail operation against environmental objectives and approval conditions. Independent auditor would have power to stop work / use of trails should the project be non-compliant.</p>
BM02	<p>Update environmental issues on GIS</p> <p>Objective: To ensure all trail alignments and environmental issues are updated</p> <p>All trail alignments and all known site-specific environmental issues would be incorporated into the GIS platform accessible to maintenance staff.</p>
BM04	<p>Management of potential impacts to biodiversity values</p> <p>Objective: To ensure environmental objectives and approval conditions are met</p> <p>The OEMP sets out the requirements and processes for the project with regards to the management of potential impacts to biodiversity values. Follow the OEMP monitoring, reporting, auditing and complaint management processes.</p>
BM05	<p>Natural materials</p> <p>Objective: To minimise the use / removal of natural materials from the site</p> <p>Minimise use / removal of natural materials such as rocks, woody debris, fallen timber, organic litter during operation and maintenance of trails. Natural materials would not be collected from outside of the trail construction area. Any material removed must be retained on-site nearby.</p>
BM06	<p>Chemicals, fuel and waste management</p> <p>Objective: To avoid and manage the potential for spills</p> <p>Implement standard controls for chemicals (including fungicides), fuel and waste management including procedures for spill containment and clean-up as per SWM10.</p>
BM07	Environmental induction

Mitigation measure ID	Mitigation and contingency measures
	<p>Objective: To minimise risks to biodiversity by providing an induction on biodiversity values for workers</p> <p>Compulsory in-person environmental induction and assessment for operations phase workers. Induction to cover all biodiversity values present in the project area. An environmental advisor with appropriate ecological qualifications would be appointed to assist with inductions and to provide ecological advice throughout the course of the project.</p>
BM08	<p>Emergency Management Plan</p> <p>Objective: To manage fire risks from the project</p> <p>An Emergency Management Plan would be implemented. The plan would include measures to manage fire risk from project activities including compliance with any requirements under the Forests (Fire Protection) Regulations 2014 for operational activities in Fire Protected Areas.</p>
BM09	<p>Landform stability</p> <p>Objective: To maintain landform stability and avoid / minimise landslips, erosion and sedimentation.</p> <p>Measures to maintain landform stability include the following:</p> <ul style="list-style-type: none"> • Seasonal closure of selected trails • Incorporate management measures outlined in GTM01, GTM02 & GMT03 • Remediation of areas where landslips and / or erosion and sedimentation occur as a result of the trail.
BM10	<p>Trail maintenance</p> <p>Objective: To maintain trail condition during operation</p> <p>Full time maintenance workers would maintain the trails to ensure they remain in good condition. Trail maintenance would continue for the entire life of the project i.e. as long as the trails remain in use.</p>
BM11	<p>Existing tracks</p> <p>Objective: To minimise erosion and sedimentation issues associated with existing tracks</p> <p>Existing vehicle roads and tracks e.g. Cemetery Track to be incorporated into the trail network. Upgrades associated with incorporating these tracks would reduce existing erosion and sedimentation issues.</p>
BM12	<p>Existing trails</p> <p>Objective: To minimise erosion and sedimentation issues associated with existing trails</p> <p>Existing mountain bike trails in the vicinity of Mount Tugwell would be incorporated into the trail network. Upgrades associated with incorporating these trails would reduce existing erosion and sedimentation issues.</p>
BM13	<p>Trail closure</p> <p>Objective: To minimise erosion and sedimentation issues or safety hazards associated with extreme weather</p> <p>Trail closure during periods of extreme weather as per SWM15 and in accordance with the Emergency Management Plan and any additional directions required under the Forests Act.</p>
BM15	<p>Trail inspections</p> <p>Objective: To inspect trails and identify potential issues</p> <p>Regular trail inspections undertaken to identify any problems or changes to the trails that need to be repaired. This includes after extreme weather events.</p>
BM16	<p>Biodiversity observations</p> <p>Objective: To collect relevant data on biodiversity finds</p>

Mitigation measure ID	Mitigation and contingency measures
	<p>Document and deal with biodiversity finds, including to collect relevant data for:</p> <ol style="list-style-type: none"> 1) Significant flora observations 2) Significant fauna observations 3) Nests / burrows / roosts used by native fauna 4) Dealing with injured / killed / displaced fauna 5) GDEs, seeps / springs and associated vegetation communities / species. <p>Observations of the above would be entered into the GIS platform and records of significant flora, significant fauna and threatened ecological communities would be periodically uploaded to the Victorian Biodiversity Atlas (VBA).</p>
BM17	<p>Vegetation regeneration</p> <p>Objective: To allow vegetation regeneration within the construction footprint</p> <p>Allow and assist native vegetation to regenerate within construction footprint to a 30 to 60 centimetre wide tread width.</p>
BM18	<p>Monitoring of off-trail tracks</p> <p>Objective: To monitor and rehabilitate off-trail tracks where required</p> <p>Monitor for any off-trail tracks and implement a process for closing unauthorised trails and assisted regeneration.</p>
BM19	<p>Vegetation removal</p> <p>Objective: To avoid removal of vegetation to the minimum extent possible</p> <p>Removal of vegetation would be to the minimum extent required, according to variable trail construction footprint which is a function of slope class. Accidental / excessive clearing would be remediated through assisted regeneration or additional offsets.</p>
BM21	<p>Environmental enhancement works</p> <p>Objective: To undertake environmental enhancement works</p> <p>Conduct environmental enhancement works such as species monitoring programs and installation of nesting boxes for significant fauna.</p>
Pests, weeds and pathogens	
BM20	<p>Pest animal program</p> <p>Objective: To manage pest animals</p> <p>The project would work with relevant land managers to support existing pest animal programs. Support would be provided for the entire life of the project i.e. as long as the trails remain in use.</p>
BM22	<p>Weed management program</p> <p>Objective: To manage weeds</p> <p>A comprehensive weed management program would be implemented along and in the vicinity of trails. The program would be developed in consultation with land managers and would continue for as long as the trails remain in use.</p>
BM23	<p>Environmental induction - weeds</p> <p>Objective: To minimise risks to biodiversity by providing an induction on high threat environmental weeds for workers</p> <p>Operation phase staff trained as part of site induction to identify high threat environmental weeds within the project area and to implement procedures to minimise risk of spread. Training would include distribution of fact sheets, Yarra Ranges Weed ID guide and CaLP Act obligations.</p>
BM25	<p>Hygiene protocols</p> <p>Objective: To minimise impacts to biodiversity by implementing hygiene protocols</p> <p>Implement appropriate hygiene procedures for weeds and pathogens throughout the trail alignment.</p>

Mitigation measure ID	Mitigation and contingency measures
BM26	<p>Environmental induction - pathogens</p> <p>Objective: To minimise risks to biodiversity by providing an induction on pathogens for workers</p> <p>Operation phase staff trained as part of site induction to identify signs of plant pathogens e.g. Myrtle Wilt and to implement procedures to minimise risk of spread.</p>
BM27	<p>Maintenance schedule for bike washing facilities</p> <p>Objective: To minimise impacts to biodiversity by maintaining bike washing facilities</p> <p>Implement commissioning & maintenance schedule and procedures for bike washing facilities as per SWM14. These facilities would be maintained for the entire life of the project i.e. as long as the trails remain in use.</p>
BM28	<p>Fill material quality</p> <p>Objective: To minimise introduction of weeds and pathogens</p> <p>Any fill material introduced to the site must be certified clean and be weed and pathogen free and exhibit similar properties to natural soils e.g. pH, drainage, texture. Any fill material introduced to the State Forest would be undertaken according to DELWP FFM procedures and exhibit similar properties to local natural soils e.g. pH, drainage, texture. Fill areas should be monitored for germination of weeds.</p>
BM29	<p>Minimise fill material</p> <p>Objective: To minimise the introduction of fill material</p> <p>Minimise the introduction of fill material for the construction and ongoing management of the trail.</p>
BM30	<p>Environmental induction - pests</p> <p>Objective: To minimise risks to biodiversity by providing an induction on pest animals for workers</p> <p>Operation phase staff trained as part of site induction to identify pest animals and signs of their presence to inform pest management program e.g. locating traps near feral cat sightings. This data would be recorded in the GIS platform for the project.</p>
Aquatic ecosystems	
BM34	<p>Inspections of waterway crossings</p> <p>Objective: To inspect waterway crossings are suitably maintained</p> <p>All waterway crossings must be inspected and maintained by a suitably qualified person as per GTM05.</p>
BM35	<p>No-go zones – waterways</p> <p>Objective: To avoid impacts to waterways</p> <p>All waterways are designated no-go zones during construction and operations unless works are required directly in / adjacent to waterway.</p>
Cool Temperate Rainforest (CTR) / Cool Temperate Mixed Forest (CTMF)	
BM42	<p>Disturbance to Myrtle Beech</p> <p>Objective: To minimise impacts to Myrtle Beech</p> <p>Where areas containing Myrtle Beech cannot be avoided, minimise disturbance within the drip line of all Myrtle Beech trees using a design/engineered solution.</p>
BM43	<p>Pruning of Myrtle Beech</p> <p>Objective: To minimise pruning impacts to Myrtle Beech</p> <p>Where pruning or wounding of Myrtle Beech trees and / or roots is likely to occur trail crews would be trained in pruning methods and application of anti-fungal agents to prevent the spread of Myrtle Wilt.</p>

Mitigation measure ID	Mitigation and contingency measures
BM44	<p>Fill material – CTR / CTMF</p> <p>Objective: To minimise impacts to CTR / CTMF</p> <p>No imported fill material (including gravel, rock and soil) is to be used within CTR / CTMF.</p>
BM45	<p>Environmental induction – CTR / CTMF</p> <p>Objective: To minimise impacts to Myrtle Beech, CTR and CTMF by providing an induction for workers</p> <p>Operation phase staff trained as part of site induction to identify Myrtle Beech, CTR and CTMF.</p>
BM46	<p>Maintaining ground surface gradients within CTR / CTMF</p> <p>Objective: To minimise changes to existing ground surface gradients within CTR / CTMF</p> <p>No machinery excavation is to be undertaken within CTR / CTMF.</p> <p>Where soils are damp and boggy, trail must be elevated using boardwalk or another appropriate engineered/design solution.</p>
BM47	<p>Hand building trails within CTR / CTMF</p> <p>Objective: To minimise trail impacts within CTR / CTMF</p> <p>Trail maintenance is to be undertaken using hand tools only within CTR / CTMF.</p>
Groundwater dependent ecosystems	
BM49	<p>Management of GDEs</p> <p>Objective: To minimise impacts on GDEs</p> <p>Implement measures outlined in GWM01 to manage potential impacts to GDEs / seeps / springs.</p>
BM50	<p>Environmental induction – GDEs</p> <p>Objective: To minimise impacts to GDEs by providing an induction for workers</p> <p>Operation phase staff trained as part of site induction to identify GDEs, seeps / springs and associated vegetation communities / species.</p>
Leadbeater's Possum (LBP)	
BM51	<p>Environmental induction – LBP</p> <p>Objective: To minimise impacts to LBP by providing an induction for workers</p> <p>Operation phase staff trained as part of site induction to identify high quality LBP habitat indicators. Training would include distribution of fact sheets including notes and photos.</p>
BM52	<p>LBP habitat management</p> <p>Objective: To minimise removal of vegetation within suitable LBP habitat</p> <p>Removal of vegetation within suitable Leadbeater's Possum habitat would be subject to the following constraints:</p> <ol style="list-style-type: none"> 1) In the National Park no removal of trees, including mid-storey trees, with > 10 cm DBH, 2) In State Forest where there is a stand of single age <i>Eucalyptus</i> sp. and mid-storey (i.e. regrowth following bushfire), trees < 20 cm DBH may be removed, 3) No removal of dense stands of montane thickets (comprising Bottlebrush <i>Callistemon</i> spp. and / or Tea-tree <i>Leptospermum</i> spp.) anywhere in the project area. Minor pruning of these species may occur at the edges of these thickets.
Mount Donna Buang Wingless Stonefly (MDBWS)	
BM56	<p>Minimise habitat disturbance – MDBWS</p> <p>Objective: To minimise impacts to MDBWS habitat</p> <p>Any work within the potential range of the species must minimise habitat disturbance e.g. soil compaction and sedimentation by elevating the trail to cross waterways, bogs, damp areas or</p>

Mitigation measure ID	Mitigation and contingency measures
	seasonal drainage lines within the mapped suitable habitat zone. Any elevated trail must be constructed to maintain natural light levels.
BM57	<p>Sediment management from Mount Donna Buang Road – MDBWS</p> <p>Objective: To minimise impacts to MDBWS habitat</p> <p>Operation of the trails managed to decrease sediment from Mount Donna-Buang Road or surrounds flowing into the adjacent springs downstream of the road as per SWM07.</p>
BM58	<p>Avoid and minimise sedimentation – MDBWS</p> <p>Objective: To minimise impacts to MDBWS habitat</p> <p>Avoid and minimise sedimentation into permanent or ephemeral waterbodies within potential range of the species through appropriate procedures for erosion and sedimentation as per SWM02.</p>
BM59	<p>Avoid and minimise pollution – MDBWS</p> <p>Objective: To minimise impacts to MDBWS habitat</p> <p>Within potential range of MDBWS, avoid and minimise pollution from trail use that can soak into soil through implementing appropriate procedures for leaks / spills as per SWM02 & SWM10.</p>
BM60	<p>Minimise groundwater impacts – MDBWS</p> <p>Objective: To minimise impacts to MDBWS habitat</p> <p>Ensure trail use does not interrupt flow rate of ground water within or upslope of potential range of the species.</p>
BM61	<p>Environmental induction – MDBWS</p> <p>Objective: To minimise impacts to MDBWS by providing an induction for workers</p> <p>Operation phase staff trained as part of site induction to identify MDBWS habitat indicators. Training would include distribution of fact sheets including notes and photos.</p>
Other significant flora and fauna	
BM62	<p>Habitat trees</p> <p>Objective: To minimise impacts to habitat trees</p> <p>No removal of existing habitat trees unless deemed hazardous in which case treatment of these trees would be discussed with land manager, arborist and an ecologist e.g. habitat pruning of tree. Any hazardous tree considered for removal would be assumed to be a habitat tree unless deemed otherwise.</p>
BM63	<p>Habitat for epiphytic / lithophytic species</p> <p>Objective: To minimise impacts to suitable habitat for epiphytic / lithophytic species</p> <p>Minimise disturbance to suitable habitat for epiphytic / lithophytic species e.g. avoid use of boulders covered with bryophytes and / or ferns.</p>
BM64	<p>Environmental induction – significant flora</p> <p>Objective: To minimise impacts to significant flora by providing an induction for workers</p> <p>Operation phase staff informed as part of site induction regarding potential presence of significant flora species (including epiphytic / lithophytic species) in order to minimise risk of damage to species or suitable habitat.</p>
BM65	<p>Environmental induction – rare or threatened flora</p> <p>Objective: To minimise impacts to rare or threatened flora by providing an induction for workers</p> <p>Operation phase staff trained as part of site induction to identify any additional high-risk habitats rare or threatened flora e.g. wet gullies, rainforests, etc. Training would include distribution of fact sheets including notes and photos.</p>

Mitigation measure ID	Mitigation and contingency measures
BM67	<p>Native vegetation removal</p> <p>Objective: To minimise removal of native vegetation</p> <p>Native vegetation (trees including mid-storey species) removal is subject to the following constraints:</p> <ol style="list-style-type: none"> 1) No trees (including mid-storey trees) with DBH > 10 centimetres are to be removed in the National Park (unless condition 3) applies). 2) Within State Forest trees < 20 centimetres DBH in single age stands of <i>Eucalyptus</i> spp. and mid-storey (i.e. regrowth following bushfire) may be removed. 3) Excluding areas of suitable habitat for Leadbeater's Possum, any small dead trees (< 20 centimetres DBH) within 2 metres of the trail may require removal if significant defects are identified. Such trees would be felled and kept nearby as habitat logs (coarse woody debris).
BM68	<p>Environmental induction – trees</p> <p>Objective: To minimise impacts to trees by providing an induction for workers</p> <p>Operation phase staff trained as part of site induction in tree protection methods, SRZ and root protection methods and identification of hazardous trees.</p>
BM69	<p>Minimise impacts to trees</p> <p>Objective: To avoid and minimise impacts to trees</p> <p>Minimise impacts to trees through adequate implementation of sympathetic mitigation measures.</p>
BM70	<p>Recording of tree impacts</p> <p>Objective: To record potential impacts to trees</p> <p>Capture relevant data where direct tree impacts are possible, where tree root protection is required, or where hazardous tree removal or excessive pruning is required.</p>
BM72	<p>Large trees</p> <p>Objective: To avoid impacts to large hollow-bearing canopy trees</p> <p>All large hollow-bearing canopy trees (dead and alive) are to be retained with no substantial works encroachment that would compromise the health and viability of such trees.</p>
BM73	<p>Night riding</p> <p>Objective: To avoid and minimise disturbance to fauna</p> <p>No use of trail infrastructure in the Yarra Ranges National Park at night. Night riding allowed for selected trails within State Park.</p>
BM75	<p>Slow-start construction measures</p> <p>Objective: To enable fauna time to disperse</p> <p>Maintenance activities, particularly in proximity to the Yarra River or sensitive areas within Yarra Ranges National Park, to use slow-start construction measures to enable both aquatic and terrestrial fauna time to disperse.</p>
BM77	<p>Noise, vibration and air quality management</p> <p>Objective: To avoid and minimise impacts to biodiversity from noise, vibration and air quality</p> <p>Management of potential impacts from noise, vibrations and air quality as outlined in NM01 to NM06 and AM01 to AM07.</p> <p>In addition to these measures, project activities should minimise amount of equipment / machinery in use at any one time to reduce intensity of noise, vibrations and / or reduced air quality.</p>
BM78	<p>Environmental induction – fauna habitat</p> <p>Objective: To minimise impacts to fauna by providing an induction for workers</p> <p>Operation phase staff trained as part of site induction to identify signs of native fauna habitation including, but not limited to:</p> <ol style="list-style-type: none"> 1) Lyrebird display mounds

Mitigation measure ID	Mitigation and contingency measures
	2) Roosting or nesting sites for forest owls 3) Platypus burrows 4) Habitat indicators for Curve-tail Burrowing Crayfish and Tubercle Burrowing Crayfish 5) Burrows used by ground-dwelling fauna e.g. wombats. Training would include distribution of fact sheets including notes and photos.

Table 16-9 Surface water, groundwater and geotechnical hazards mitigation and contingency measures

Mitigation measure ID	Mitigation and contingency measures
Surface water	
SWM02	<p>Erosion and sediment controls</p> <p>Objective: To minimise erosion and sedimentation impacts to waterways</p> <p>Follow the EPA publications:</p> <ul style="list-style-type: none"> EPA publication 1894 Managing soil disturbance EPA publication 1895 Managing stockpiles EPA publication 1896 Working within or adjacent to waterways EPA publication 1897 Managing truck and other vehicle movement <p>Soil and sediment management:</p> <ul style="list-style-type: none"> Identify suitable locations for material stockpiles (if required) and ensure appropriate sediment controls are in place prior to stockpiling. Plan works to provide for the progressive and timely stabilisation and rehabilitation of disturbed areas as required. Balanced cut and fill construction is to be used. No spoil is to be spread down slope, minimising damage to adjacent vegetation below the trail. Where the trail runs alongside a waterway, excavated spoil material should not be placed such that it enters the waterway or impedes natural drainage. Rock armouring to be used on the entry and exit to any low-level bridges or boardwalks and on some steep sections of trail chutes and may be used on sections of boggy ground. Topsoil would be retained in stockpiles on any cleared areas not required for construction of the trail tread or batter slopes. Materials would be reused on the site where possible. In areas of high erodibility soils cut batters must be near vertical, and where possible retained by logs or rock facing. Site by site assessment on the requirement for retaining walls would be required. Batters would be stabilised appropriately to reduce potential slippage and erosion. Appropriate silt control mechanisms would be applied where necessary to control and minimize scour and silt movement. Cut batters to be less than 2 m in vertical height. Silt fences to be installed on all grade reversal outlets within 50 m of a waterway where access allows. All trails to comply with International Mountain Bicycling Association trail construction guidelines, especially: <ul style="list-style-type: none"> The Half Rule 10% Average Guideline Maximum Sustainable Trail Grades Grade Reversals 5% outslope as appropriate Maintain all erosion and sediment controls in effective working order as required. Vehicle entry and exits would be via designated areas only. Identify all designated 'no go zones' on the plans. Materials stockpiled on-site would be stored in a designated storage location with silt fencing on down slope areas where the stockpiles are within 30 m of a waterway. Coir logs or silt fences would be maintained on slopes below bare soil areas at drainage flow path outlets where it is within 30 m of a waterway.

Mitigation measure ID	Mitigation and contingency measures										
	<ul style="list-style-type: none"> Ensure all temporary erosion and sediment controls are removed and relevant rehabilitation undertaken at the completion of works or when sufficient ground cover for stabilisation is achieved. <p>Waterway Crossings</p> <ul style="list-style-type: none"> Where waterway crossing is required, identify the narrowest practicable location. Low level bridges must be designed to cope with peak flows for the catchment they are located in and must not impede flow in any way. Low level bridges must be Building Code of Australia (BCA) compliant. Approaches to waterway crossings would as much as possible be at right angles to the waterway and minimise the length of track within the immediate riparian zone. Rock armouring to be used as appropriate on either side of bridge/boardwalks to prevent soil being carried onto the bridge/boardwalk. Works near waterways would be scheduled appropriately. For example, works would be timed to coincide with periods of low flow and completed quickly. Works would be stopped if conditions are not suitable, such as during and after heavy rain. Any removal of fallen timber within the waterway must be to the minimum extent necessary and any material removed must be retained on-site, downstream from the crossing point. <p>Drainage</p> <ul style="list-style-type: none"> If areas of erodible soils are found in the trail surface, the area must be armoured with rock, gravel or low erodibility soils. Drainage must be installed on approaches to waterway crossings so that where possible a 30 m buffer of vegetation is achieved to act as a filter strip. All drainage must direct water onto vegetation and not exposed fill material. Unless the trail tread is out-sloped (i.e. it drains to the lower side of the track) and no table drain is required on the upper side, cross drains/water bars/grade reversals must be installed at no greater distance apart than shown below: <table border="1" data-bbox="453 1137 1070 1344"> <thead> <tr> <th>Trail gradient</th> <th>Maximum drain spacing</th> </tr> </thead> <tbody> <tr> <td>1-5%</td> <td>70 m</td> </tr> <tr> <td>6-10%</td> <td>40 m</td> </tr> <tr> <td>11-20%</td> <td>30 m</td> </tr> <tr> <td>>20%</td> <td>20 m</td> </tr> </tbody> </table> <p>Corrective actions to control erosion:</p> <ul style="list-style-type: none"> Repair/maintain existing drainage, erosion and sediment controls. Clean up or rehabilitate any impacts and exposed areas. Install additional erosion and sediment controls where issues have been identified. Consider the deployment of alternative erosion and sediment control devices where issues have been identified with the existing devices. Ensure all personnel involved in the deployment and maintenance of erosion and sediment control measures are appropriately trained in their use and deployment. Communicate changes with all relevant staff. 	Trail gradient	Maximum drain spacing	1-5%	70 m	6-10%	40 m	11-20%	30 m	>20%	20 m
Trail gradient	Maximum drain spacing										
1-5%	70 m										
6-10%	40 m										
11-20%	30 m										
>20%	20 m										
SWM06	<p>Monitoring of waterways</p> <p>Objective: To monitor effectiveness of mitigation measures</p> <p>A waterway monitoring program would be developed in consultation with Melbourne Water. The key potential stressor to waterways for the project is sedimentation and therefore turbidity is the key metric of interest. In addition, monitoring of macroinvertebrates would provide evidence of any longer-term project effects. Subject to consultation outcomes with Melbourne Water, the monitoring program would have the following key features:</p> <ul style="list-style-type: none"> Monitoring scopes in alignment with the ANZG (2018) guidelines for water quality monitoring (covering such aspects as spatial extent, parameter selection, scale, duration, frequency, cost effectiveness of the monitoring program) Macroinvertebrate monitoring in selected waterways to provide evidence of any longer-term effects. 										

Mitigation measure ID	Mitigation and contingency measures
	<p>The monitoring program would cover the construction and operations phases of the project and be 'adaptive' – i.e. be responsive to the results to optimise the monitoring effort.</p> <p>Periodic monitoring of turbidity would be undertaken in the Yarra River and tributaries with a high number of crossings: Britannia, Four Mile and Scotchmans Creeks using a turbidity meter, to identify any increases in turbidity. Monitoring would commence prior to operation.</p> <p>Macroinvertebrate monitoring would be undertaken in accordance with EPA Publication 604 Guideline for Environmental Management: Rapid bioassessment methodology for rivers and streams in the early stages of the operations phase. Monitoring would be undertaken at sites in the Yarra River upstream and downstream of tributaries which may be impacted by the Project and in selected tributaries which have the highest risk of impact (tributaries with a high number of crossings: Britannia, Four Mile and Scotchmans Creeks).</p> <p>Where monitoring detects impacts due to the project, contingency measures would be implemented such as remedial actions listed in EPA publication 1834 Civil construction, building and demolition guide. Modifications to waterway crossing structures would also be considered where appropriate.</p> <p>Any corrective actions taken would be recorded including the location of actions taken.</p>
SWM07	<p>Adhere to Stonefly no-go zones</p> <p>Objective: To avoid water quality or hydrological changes to Stonefly habitat</p> <ul style="list-style-type: none"> • Establish no-go zones in the vicinity of Sites WP1 and WP2 (as identified by Tsyrlin, 2019)
SWM09	<p>Operational maintenance measures</p> <p>Objective: To monitor effectiveness of mitigation measures</p> <p>Inspection of the trails would be undertaken for the identification of new spring activity or other changes to catchments in which a channel becomes a waterway. Although springs can occur any time, there is likely to be a correlation with recent rainfall. Inspections for springs would occur after rainfall events (trigger to inspect 3-7 days after > 10 mm rainfall in 24 hours). Where identified, trail treatments, e.g. armouring or an elevated structure, may be required to control erosion.</p> <ul style="list-style-type: none"> • Undertake a site inspection of all water crossing and high-risk sections of track after a rainfall event (e.g. >25 mm in 24 hours). • Implement measures to rectify issues if crossings present an erosion risk after heavy rainfall. • Undertake inspections four times per year and adapt the monitoring program frequency once sufficient data is gathered with regards to spring activity. • Record inspections on a form (or other measure) and list any corrective actions to be undertaken as a result of the monitoring. • A crossing agreement would be required to be entered into with Melbourne Water, outlining ongoing ownership and maintenance responsibilities. <p>If a spring is detected:</p> <ul style="list-style-type: none"> • Document the spring activity and location (following GWM01, which also covers the identification of springs and establishes appropriate treatments to protect groundwater and the down-gradient discharging environment) • Review the trail design in this localised area and consider opportunities for micro-siting (SWM01) • Implement the CEMP and requirements stipulated in SWM02 • Implement a trail control to ensure that spring flow is not dammed, and that downstream water quality and erosion hazards are minimised. This would require the installation of drained berms, rock armouring, or in extreme cases of high flow, bridging structures. • Confirm the acceptability of the control through monitoring / inspection during operation, as per SWM09 and GWM01.
SWM12	<p>Operation of trail heads</p> <p>Objective: Minimise the likelihood and impact of human waste, littering and illegal rubbish dumping impacting surface water</p>

Mitigation measure ID	Mitigation and contingency measures
	<p>Ensure trail head facilities have bins and toilets that cater for the expected number of users. Facilities must be appropriately maintained and cleaned.</p> <p>Signage or 'track etiquette' rules may be appropriate.</p> <p>Refer to the OEMP for the inspection and maintenance activities proposed for the trail heads.</p>
SWM13	<p>Gully erosion management and monitoring</p> <p>Objective: To monitor effectiveness of mitigation measures</p> <p>Follow EPA publication 1894 Managing soil disturbance</p> <p>Erosion monitoring: Photo-point monitoring of selected gully crossing points to identify gully erosion.</p> <p>Flow monitoring: Place field cameras or appropriate flow monitoring equipment at selected gully crossing points (i.e. three or four of the most used or highest risk sites) to identify rainfall events which would cause water to flow in gullies or rock armouring to be overtopped. Sediment and debris observations would be made at other gully crossings during post rainfall assessments. Adaptive management can then allow for a decision to temporarily close tracks based on forecast rainfall events, if required.</p> <p>Undertaken periodical inspection of trails to assess condition and need for maintenance or additional trail treatments, particularly after severe weather events. Mitigation selection may depend upon the size of the affected area.</p> <p>Inspections of trail conditions would be undertaken in parallel with the spring monitoring activities listed above (i.e. an all-encompassing track inspection regime, to check for track condition, spring emergence, soil erosion, bogginess, litter, vandalism etc).</p> <p>As per the spring monitoring, it is likely best undertaken after rainfall (e.g. 1-7 days after > 10 mm rainfall in 24 hours) at a minimum 4 times per year, but the frequency of the monitoring program may be adapted once data has been gathered to make informed changes. Record the condition in a form or report, list the corrective actions and then act on them.</p> <p>Reviews of photo-point flow monitoring data would be completed under the same frequency, with emphasis placed on assessment of flow conditions during and following rainfall events (>10 mm in 24 hours).</p> <p>The key metric for monitoring would be to select the waterways with the highest number of crossings and then to locate a single monitoring point for that waterway below the lowest crossing in its sub-catchment. The waterways with the highest number of crossings are: Four Mile Creek (37 crossings), Scotchmans Creek (30 crossings) and Britannia Creek (20 crossings) and Yankee Jim Creek (12 crossings).</p> <p>The crossings with the highest anticipated usage would be included in the monitoring program. Initially these are assumed to be located nearest to the trail heads, but this may be adapted if trail usage data shows other tracks being more frequently used.</p>
SWM14	<p>Bike wash system</p> <p>Objective: Minimise the likelihood and impact of grey water on surface water</p> <p>Ensure the bike wash system and water recycling unit is functioning as designed. Trapped sediment to be removed and disposed of appropriately in accordance with manufacturer's specifications.</p>
SWM15	<p>Track closure during periods of snow or high rainfall</p> <p>Objective: Minimise impacts of erosion and turbidity during periods of snow or high rainfall</p> <p>Yarra Ranges Council would proactively monitor trail conditions and close trails under adverse conditions to avoid damage and associated environmental impacts during these periods. Closures could be at a network scale or individual trail level. These decisions would be made by Yarra Ranges Council based on:</p> <ul style="list-style-type: none"> • A trigger of 25 mm of rain in the preceding 24 hours for a network closure, or • Observations of staff indicating sustained wet/snow conditions likely to impact trails (could be individual trails, areas, or complete network)

Mitigation measure ID	Mitigation and contingency measures
	Trail closures would be communicated to mountain bikers by: <ul style="list-style-type: none"> • Active social media and electronic communications • Signage at trail heads and strategic locations around the network • Signage at start of trail for individual trail closures
Groundwater	
GWM01	<p>Spring management</p> <p>Objective: Identify springs and establish appropriate treatments to protect groundwater and down-gradient discharging environment.</p> <p>Periodical inspections during the operation phase are required to assess for the presence of new springs and seeps.</p> <p>Where identified, trail treatments, e.g. armouring, may be required to control erosion. Treatments are documented in CEMP and SWM01, SWM02 and SWM09.</p> <p>Where a new spring has emerged as a result of the excavations, or unexpectedly through climate variation, an assessment would be made regarding:</p> <ul style="list-style-type: none"> • Potential treatments to control sedimentation and erosion • Impact to behaviour of nearby springs, and need for treatment, e.g. diversion of discharge to the same area. <p>When treated, inspection and maintenance are undertaken periodically during the operation phase to assess effectiveness of the treatment.</p> <p>Although springs can occur any time, there is likely to be a correlation with recent rainfall. Inspections for springs would occur after rainfall events (trigger to inspect 3-7 days after > 10 mm rainfall in 24 hours). Inspections would also be undertaken at a minimum of 4 times per year and the frequency of inspection would be adjusted once sufficient data is gathered with regards to spring activity. Record the inspection in a form or by another measure and also list corrective actions to be undertaken as a result of the monitoring and act on those.</p>
Geotechnical hazards	
GTM03	<p>Trail formation management</p> <p>Objective: Reduce and manage the risk of poor trail formation resulting in ineffective drainage leading to instability and erosion</p> <ul style="list-style-type: none"> • Ensure trail tread is compact • Use rock armouring to protect areas of the trail subject to erosion • Use of raised embankments to promote effective drainage where the trail is flat • Preferred method of drainage from the trail is grade reversal and out sloping trail head but culverts and water bars may be used from time to time • All drainage must direct water onto vegetation and not exposed fill material • Trail design and construction is to minimise any changes to surface water flows • Periodic inspections of the trail following heavy rainfall events to assess the effectiveness of the trail drainage and observe areas subject to erosion or unfavourable water flow downslope of the trail. Remediation to prevent further impact would be required.
GTM04	<p>Rockfall risk</p> <p>Objective: Reduce and manage the risk of rockfalls below or above the trails</p> <ul style="list-style-type: none"> • Ensure that boulders placed on the out slope as part of the construction process are secure and not likely to roll down the slope.
GTM05	<p>Debris flow</p> <p>Objective: Manage the build-up of debris material at the location of bridge structures to reduce the risk of debris flows</p> <ul style="list-style-type: none"> • Periodical inspections of the bridge structure, particularly following heavy rainfall events to assess potential build-up of debris material • Removal of debris material from bridge structure. Where possible, debris material would be placed downstream from the bridge structure.

Table 16-10 Historic heritage and Aboriginal Cultural heritage operation mitigation and contingency measures

Mitigation measure ID	Mitigation and contingency measures
MM- HM01	<p>CHMP management conditions</p> <p>Objective: To avoid or minimise impacts on Aboriginal cultural heritage</p> <p>Comply with all management conditions and contingencies of CHMP 15276.</p> <p>Management measures (not confirmed at this stage) are likely to include inductions to construction crews undertaking ground disturbing works, compliance checks before, during and after the project construction. The CHMP also includes contingency plans in the case of unexpected finds.</p>
MM- HM05	<p>Unknown historic heritage sites and identified areas of archaeological potential</p> <p>Objective: To avoid or minimise impacts on unknown historic heritage sites and identified areas of archaeological potential</p> <p>To mitigate possible impact to unknown historic sites and identified areas of archaeological potential, the following protocol would be followed. The Areas of Archaeological Potential and Points of Archaeological Potential are shown in the project ArcGIS.</p> <p><i>Inductions</i></p> <p>All workers involved must undertake a heritage induction prior to commencing works. This induction would be presented by a suitable experienced and qualified archaeologist. The induction would include the following topics:</p> <ul style="list-style-type: none"> • A brief history of the area and types of sites that are present • The existence of the EES and the management conditions • Landforms and artefacts that may be present that indicate an archaeological site • The contingency measures that need to be followed in the case of an unexpected find <p><i>Areas of Archaeological Potential</i></p> <p>Areas of identified archaeological potential would be subject to the following protocol.</p> <ul style="list-style-type: none"> • Limit works to the removal of vegetation if possible. • If works cannot be limited to vegetation removal and ground disturbing works must take place, the works must be supervised by an archaeologist • If archaeological features are uncovered during works, the contingency protocol must be followed. <p><i>Contingencies</i></p> <p>The following contingency measures would be undertaken if archaeological features or artefacts are found.</p> <ul style="list-style-type: none"> • Stop works if archaeological features are uncovered • Recording the features/artefacts by a suitable qualified and experienced archaeologist • Submission of a site card to Heritage Victoria • Abide by all conditions on Heritage Victoria site card
MM- HM06	<p>Operational controls</p> <p>Objective: To protect and provide information on HO sites</p> <p>Signage would be installed in accordance with the CEMP and the management conditions of any consents from Heritage Victoria.</p> <p>Monitoring or checks of known historic sites and features would be carried out as part of general trail upkeep during operation.</p>

Table 16-11 Traffic and transport operation mitigation and contingency measures

Mitigation measure ID	Mitigation and contingency measures
MM-TP2	<p>Stakeholder communication plan</p> <p>Objective: To minimise traffic impacts on stakeholders through consultation</p>

Mitigation measure ID	Mitigation and contingency measures
	<p>During operation, regular meetings should occur with Council and an agreement should be reached with DELWP to confirm pavement upgrades of impacted local roads around the study area, subject to the pavement strength survey results. Regular road maintenance and inspections should also be discussed for declared roads with VicRoads.</p>
MM-TP3	<p>Road Safety Audit</p> <p>Objective: To verify the traffic risks can be managed</p> <p>A Road Safety Audit (RSA) would be undertaken by a VicRoads accredited Road Safety Auditor independent of the project team at the following locations prior to project opening:</p> <ul style="list-style-type: none"> • Detailed design of the Lilydale-Warburton Rail Trail/road crossings proposed • Existing Warburton Highway signalised crossing. • Key road intersections that would experience an increase in cyclist volumes (given aspects of these intersections are unknown such as sight lines). • At the trail/road crossing points. Consideration to be given to visual obstructions to ensure a safe crossing location for cyclists. • The Lilydale-Warburton Rail Trail between Station Road, Wesburn and the eastern end of the rail trail at Warburton Highway, Warburton. The audit should focus on surface quality, areas of narrow width and poor sight distance. • At the proposed shuttle drop off locations. Consideration would be taken into the sight distance of road traffic and their ability to see the drop off points to avoid the risk of crashes. • Along the length and intersections of Edwardstown Road and Cemetery Track to confirm adequate emergency access and identify any sight and surface issues.
MM-TP4	<p>Improvement works</p> <p>Objective: To avoid or minimise road infrastructure impacts</p> <ul style="list-style-type: none"> • Subject to the results of the RSAs undertaken at various locations in the study area, improvements may be required prior to project opening.
MM-TP5	<p>Cyclist and pedestrian safety improvements</p> <p>Objective: To ensure safe pedestrian and cyclist movements within the study area during the operational phase of the project.</p> <p>Measures include:</p> <ul style="list-style-type: none"> • Yarra Ranges Council to assess bike parking provision after 12 months of operation in busier summer months to ensure that adequate bike parking is available to visitors. Additional bike parking should be provided, subject to the results of this assessment. • Drink taps/water bottle filling locations should be located in close proximity to the car park and bike path for the Golf Course and Wesburn trail heads to prevent dehydration. • Prior to opening of the project signage should be installed to warn drivers of cyclist presence in accordance with road standards. • Given the scale of this project on cyclist generated trips, Yarra Ranges Council would develop a plan to upgrade road crossings along the Lilydale-Warburton Rail Trail to Strategic Cycling Corridor (SCC) standard beginning with crossings deemed more critical. This plan would identify critical crossings which need to be implemented prior to opening of the project, and less critical crossings that can be implemented in a staged approach post opening. • The Yarra Ranges Council Paths and Trails Strategy would investigate collection of data and monitoring cyclist road crossing locations to determine when and what type of formalised crossing is required at the following locations: <ul style="list-style-type: none"> – Station Road, Wesburn – Hooks Road, Warburton – Station Road, Warburton – Warburton Highway, Warburton (This treatment would require approval from DoT)

Mitigation measure ID	Mitigation and contingency measures
	<ul style="list-style-type: none"> • Collection of data and monitoring cyclist road locations to determine if future formalised crossings or upgrades for cyclists need to be implemented. This would also help inform other mitigation measures in the future where there are risks of cyclist interactions with vehicles. • Implement wayfinding to guide cyclists to formal safer intersections and links • Yarra Ranges Council Paths and Trails Strategy would investigate how and when to implement: <ul style="list-style-type: none"> – shared streets along local roads within Warburton – safe cyclist connections between Wesburn, East Warburton, Warburton, and Millgrove to/from the trails • A sealed shoulder feasibility study along the length of Mount Donna Buang Road to advocate safer cyclist connection with the DoT • At the proposed shuttle drop off locations. Consideration should be taken into the sight distance of road traffic and their ability to see the drop off points to avoid the risk of crashes. • At the Golf Course Trail Head, a designated shared use path (not mixed with golf users) which matches the desire lines of those heading to the trails should be provided including raised priority treatments at intersections with the private roads. Path(s) should be wide enough to accommodate golf carts, pedestrians and cyclists. The design of the paths should be developed in consultation with stakeholders and would likely have a minimum width of 3.5 metres. • The shared path bridges need to provide a minimum of 2.5 metres between the handrails. • Yarra Ranges Council Paths and Trails Strategy to include investigation into a connection between the Lilydale-Warburton Rail Trail at Station Road and the northern side of Warburton Highway
MM-TP6	<p>Operational parking management</p> <p>Objective: To ensure that parking congestion does not exceed acceptable limits for visitors or residents</p> <p>Yarra Ranges Council would establish a parking management plan for the operation of the Mountain Bike Project. It would include:</p> <ul style="list-style-type: none"> • Arrangements for overflow car parking to include using the Wesburn Park car park as an overflow car park. Appropriate signage and wayfinding should be provided to adequately direct visitors, VMS boards should be placed at key locations to inform visitors on where to park in peak periods when the car parks are expected to be full • Installation of bike parking in the town centre to allow visitors to safely park their bikes • The impact on the town centre parking should be monitored in the first 12 months of project opening. This would be done by parking surveys (including duration of stay and occupancy surveys) to understand the usage and available spaces • The Warburton Local Movement and Transport Report (SALT, 2019) actions and strategy on improving car parking in Warburton should be considered to improve the utilisation of parking currently and into the future.
MM-TP7	<p>Emergency access plan</p> <p>Objective: To ensure that emergency access is available during operation</p> <p>An Emergency Management Plan for the project should be established and approved before opening. The plan would include staff training in relation to emergency access arrangements.</p>

Table 16-12 Land use, noise, air quality and visual operation mitigation and contingency measures

Mitigation measure number	Mitigation measure
Noise	

Mitigation measure number	Mitigation measure
NM04	<p>Operational noise – Bike washes</p> <p>Objective: To ensure noise from bike washes are sufficiently located away from residents and comply with EPA publication 1826 <i>Noise limit and assessment protocol for the control of noise from commercial, industrial and trade premises and entertainment venues</i></p> <p>The Main trail head / Visitor's Hub bike wash stations are likely to be located at least 100 metres away from the nearest residents.</p> <p>If the bike wash stations are to be located closer than 100 metres from the nearest resident at the main trail hub then shielding in the form of noise barriers around the wash area and the orientation of the bike washes would be given consideration at the detailed design stage.</p> <p>The bike wash station at the Wesburn Park Trail Head would be located at least 50 metres away from the nearest residential to comply with EPA publication 1826 <i>Noise limit and assessment protocol for the control of noise from commercial, industrial and trade premises and entertainment venues</i>.</p>
NM05	<p>Operational noise – Noise barrier to Martyr Road</p> <p>Objective: To minimise noise at properties on Martyrs Road from bike pass-bys</p> <p>Noise due to bike pass-bys could be clearly audible at properties on Martyr Road which are approximately 25 metres from the nearest trail.</p> <p>Therefore, noise mitigation, in the form of noise barriers to this section of trails would be installed, subject to consultation with the immediate landowners.</p> <p>Noise barriers would be built from a non-porous material with no gaps, including at the base and a surface density of at least 15 kg/m² at its thinnest point.</p> <p>Indicative materials include 17 mm plywood, 25 mm timber, concrete, glass or 1 mm steel.</p> <p>The barrier should be at least 1.8 m higher than the trail surface and be located as near to the trail as possible.</p> <p>The exact extent and location of the barrier should be defined in the detailed design stage.</p>
NM06	<p>Events noise</p> <p>Objective: To ensure noise from events is sufficiently located away from residents and complies with the Environment Protection Regulations 2021.</p> <p>Larger events, including regional, state and national competitions have the potential to involve public address systems and music as part of the event.</p> <p>Larger events, including regional, state and national competitions that include public address systems and music as part of the event would be assessed and approved in accordance with the following policy and guidelines:</p> <ul style="list-style-type: none"> • Public address systems: EPA Publication 1254 Section 13: Public Address Systems. • EPA Publication 1826 <i>Noise limit and assessment protocol for the control of noise from commercial, industrial and trade premises and entertainment venues</i>. <p>Participant and staff briefings for large events would provide guidance with respect to the potential impact of noise to nearby residences. The briefings should include guidance on the mindful use of competitor equipment such as compressors.</p> <p>In addition, areas where there are likely to be large congregations of people, such as the pits and the area around the finish line, should be located as far from the nearest residents as is reasonably practicable.</p>
Air quality	

Mitigation measure number	Mitigation measure
AM07	<p>Events Traffic Management Plan</p> <p>Objective: To implement a Traffic Management Plan for events that reduces exhaust emissions.</p> <p>A traffic management plan would be developed for major mountain biking events which considers the reduction of exhaust emissions related to queuing and congestion.</p>

Table 16-13 Socio-economic operation mitigation and contingency measures

Mitigation measure ID	Mitigation measure
MM-SM2	<p>Assist local businesses to adapt to changing market</p> <p>Objective: Provide businesses with assistance in adapting to the changing market.</p> <p>Yarra Ranges Council would advocate for and facilitate access to business adaptation programs and government grants to help businesses adapt to the changing market and benefit from the opportunities provided by the Warburton Mountain Bike Destination.</p>
MM-SM3	<p>Minimise impact of project operations in Wesburn on residents' privacy and amenity</p> <p>Objective: To minimise impacts to Wesburn residents' privacy and amenity.</p> <p>Council would:</p> <ul style="list-style-type: none"> Engage with each landholder directly impacted by trail operation to build trust, better understand their concerns and develop appropriate responses collaboratively. Investigate appropriate screening and noise reduction measures, potentially including choke points to mitigate amenity and privacy concerns. Continue negotiations with Warburton Golf Club representatives to identify mutually beneficial outcomes for the proposed mountain bike trail head.
MM-SM4	<p>Maintain appeal and sustainability of the Warburton golf club</p> <p>Objective: To minimise impacts to the Warburton golf club</p> <ul style="list-style-type: none"> Continue to negotiate with Warburton Golf Club representatives to identify mutually beneficial outcomes. Provide appropriate screening and protection of trails running through the course.
MM-SM6	<p>Maintain access, safety and enjoyment of other recreational users</p> <p>Objective: To ensure access, safety and enjoyment for other recreational users is maintained</p> <p>To maintain access, safety and enjoyment of other recreation users, Yarra Ranges Council would:</p> <ul style="list-style-type: none"> Appropriate signage is established at trail heads and popular trails to advise riders of the MTBA code of conduct (always give way) and to ride on marked trails only Choke points/slowing techniques are used before intersection with another track/trail Intersection points are clearly marked on trail maps and marketing collateral including details of other likely users An extensive education campaign is conducted and all user groups (such as Bushwalking Victoria and local horse-riding groups) are regularly updated, to ensure they are aware of intersections between trail types and to minimise users mistakenly accessing mountain bike trails Yarra Ranges Council works with land managers to install appropriate signage and barriers to prevent bike riding on intersecting walking trails and monitor compliance. 4WD organisation representatives are engaged to discuss the implications of closing Cemetery Trail Increased monitoring of trail bike riding activity, ensuring appropriate mountain bike trails are only used by mountain bike riders.
MM-SM7	<p>Minimise impacts to liveability for Warburton residents from increased traffic</p> <p>Objective: Minimise impacts to the Warburton transport network</p> <p>To ensure that increased traffic does not impact liveability in Warburton, Yarra Ranges Council would complete the recommendations set out in the Yarra Ranges Integrated</p>

Mitigation measure ID	Mitigation measure
	<p>Transport Strategy (2020-2040) and the Local Movement and Transport Report as important mitigation strategies. In particular, this includes:</p> <ul style="list-style-type: none"> ● Undertake a Road Safety Audit to ensure that roads, intersections and the Lilydale-Warburton Rail Trail are designed and constructed to provide safe vehicle movements during both construction and operation. ● Undertake improvement works where necessary based on the pavement conditions survey. ● Implement mitigation measures to ensure safe pedestrian and cyclist movements during the operational phase of the project. ● Establish a parking management plan to implement appropriate measures for the operation of the project to ensure that parking congestion does not exceed acceptable limits for visitors or residents. ● Establish an Emergency Access Plan.
MM-SM8	<p>Increase affordable rental housing stock</p> <p>Objective: Increase affordable rental accommodation for visitors</p> <p>Yarra Ranges Council would:</p> <ul style="list-style-type: none"> ● Investigate potential to increase social housing in or near Warburton through applying affordable housing provisions as part of both rezoning, and permit applications for major developments. ● Work with accommodation providers to increase the supply of visitor accommodation to absorb some of the impact of the additional visitors in Warburton.
MM-SM9	<p>Maintain Warburton residents' access to appropriate community infrastructure</p> <p>Objective: Ensure Warburton residents' access to community infrastructure is not diminished</p> <p>To ensure that the project does not diminish Warburton residents' access to appropriate community infrastructure, Yarra Ranges Council would:</p> <ul style="list-style-type: none"> ● Proposed community infrastructure works, including toilet upgrades at Mount Donna Buang and construction of toilets at the Mount Tugwell and Golf Club trail heads, would be completed as priorities. ● Monitor the impact of the project on dog walkers at Wesburn Park and provide additional areas elsewhere if necessary. ● Work with relevant authorities to ensure that Country Fire Authority (CFA) capacity and medical emergency capacity are assessed to ensure that essential emergency management services are maintained. ● An Emergency Management Plan would be prepared and approved before use of the land for the project commences to ensure that risks to life are reduced and managed appropriately. The Emergency Management Plan would include specific bushfire response measures developed in consultation with the CFA.
MM-SM10	<p>Maximise the benefits of job creation for Warburton youth and disadvantaged</p> <p>Objective: Support job creation for Warburton youth and disadvantaged</p> <p>Yarra Ranges Council would:</p> <ul style="list-style-type: none"> ● Through a partnership model, coordinate employment and education opportunities with appropriate wrap around services to facilitate employment opportunities for local unemployed people.
MM-SM11	<p>Improve trust, connection and cohesion</p> <p>Objective: Improve trust, connection and cohesion in the Warburton community</p> <p>To improve trust, connection and cohesion in Warburton, Yarra Ranges Council would:</p> <ul style="list-style-type: none"> ● Support and promote social enterprises locally. ● Support community events and initiatives separate from mountain biking to sustain community diversity and engagement. ● Promote the Warburton Mountain Bike Destination to families, with a particular focus on diversity of riders (women, children, ages).

16.4 Evaluating performance and compliance

16.4.1 Inspections, maintenance and monitoring

Yarra Ranges Council is responsible for the management of the mountain bike trail network and associated infrastructure. This section outlines how trails and associated infrastructure, once approved and constructed, would be inspected, monitored and maintained during the project operation phase.

Up to four full time staff are anticipated to be required to undertake inspections and maintenance. Maintenance works would generally be undertaken by a small team of two to four people with the appropriate skills, equipment and qualifications for the required works. Additional staff or contractors may also be required after severe weather or fire events. Temporary closure of individual trails may be required to undertake maintenance works.

All trails and associated infrastructure would be inspected at least quarterly and more frequently where required to investigate any damage caused by extreme weather events or concerns raised by stakeholders.

16.4.1.1 Baseline environmental conditions

The baseline environmental conditions that would be used to monitor and evaluate the efficacy of applied environmental management and contingency measures are summarised in Table 16-14 below.

Table 16-14 Baseline environmental conditions

Environmental aspect	Location of information on baseline environmental conditions
Biodiversity	The baseline environmental conditions relevant to this aspect are described in EES Technical Report A – Biodiversity and habitats . The ecological data collected as part of the EES process has been provided to DELWP to contribute to the improvement of environmental knowledge.
Surface water, groundwater and geotechnical hazards	The baseline environmental conditions relevant to these aspects are described in EES Technical Report B – Surface water, groundwater and geotechnical hazards .
Aboriginal cultural heritage	The baseline environmental conditions relevant to this aspect are described in EES Technical Report C – Cultural heritage . The Aboriginal cultural heritage data collected as part of the EES process has been provided to Aboriginal Victoria to contribute to the improvement of environmental knowledge.
Historic heritage	The baseline environmental conditions relevant to this aspect are described in EES Technical Report C – Cultural heritage . The historic heritage data collected as part of the EES process has been provided to Heritage Victoria to contribute to the improvement of environmental knowledge.
Land use and planning	The baseline environmental conditions relevant to this aspect are described in EES Technical Report D – Land use and planning .
Visual and landscape	The baseline environmental conditions relevant to this aspect are described in Appendix C of EES Technical Report D – Land use and planning .
Air quality	The baseline environmental conditions relevant to this aspect are described in Appendix D of EES Technical Report D – Land use and planning .
Noise	The baseline environmental conditions relevant to this aspect are described in Appendix E of EES Technical Report D – Land use and planning .
Socio-economic	The baseline environmental conditions relevant to this aspect are described in EES Technical Report E – Socio-economic .
Transport	The baseline environmental conditions relevant to this aspect are described in EES Technical Report F – Transport .

16.4.1.2 Monitoring program

In the unlikely event that monitoring results vary significantly from impact assessment predictions or where mitigation measures are not as effective as envisaged, a range of contingency measures have been identified. These measures are additional actions to be taken to meet the required performance standards. In Section 16.4.2 and 16.4.3 below, the proposed monitoring activities and associated

contingency measures are presented for the environmental aspects specified in the EES Scoping Requirements.

16.4.2 Construction monitoring and reporting

Table 16-15 Biodiversity construction monitoring and reporting

Action	Measures
Biodiversity	
Objective	To prevent impacts to threatened flora and fauna and implement contingency measures where required in a timely manner
Performance indicators	<ul style="list-style-type: none"> No impact on native vegetation outside of the immediate construction corridor. Areas of vegetation disturbance minimised and existing vegetation adjacent to the works protected. Disturbed areas stabilised or revegetated. No reports of injury or death of fauna. No increase in the presence of weeds, pathogens or pests. No complaints received regarding native flora or fauna. No non-conformances raised at site audits regarding native flora or fauna. Personnel responsible for the construction would be adequately trained in identifying significant flora and fauna, habitat and weeds and appropriate measures are adopted to avoid locations or minimise impacts during construction.
Monitoring (Parameters, location and frequency)	<p>Prior to starting construction daily or if at a new site, record visual inspections and observations of:</p> <ul style="list-style-type: none"> Presence of fauna in the work area and their condition (i.e. healthy, injured, disturbed, distressed) Presence of significant flora, fauna or nests/burrows/roosts used by native fauna Presence of weeds or pathogens, such as Myrtle Wilt Presence of GDEs, seeps / springs and associated vegetation communities / species Excavator and plant/machinery washdowns, if undertaken.
Reporting	<ul style="list-style-type: none"> Information pertaining to inspections, monitoring and pre-emptive measures would be recorded within daily inspection checklists. Any non-conformances are to be documented and reported to Yarra Ranges Council and rectified in a timely manner. Yarra Ranges Council would notify the relevant land manager and regulatory authorities responsible for secondary approval where required.
Contingency measures	<ul style="list-style-type: none"> If an incident occurs or a complaint is registered, the following procedure would be followed: <ul style="list-style-type: none"> Cease works and report any breaches of the CEMP or other environmental issues to Yarra Ranges Council. Undertake an investigation of any non-compliance or other environmental issue and determine appropriate course of action to remedy impacts in consultation with an ecologist or arborist. Notify relevant regulatory authority if non-compliance is associated with any secondary approvals. Transport injured fauna to an appropriate veterinarian or carer as soon as possible and in accordance with the <i>Prevention of Cruelty to Animals Act 1986</i>.
Responsibilities	<p>Fauna and flora management is the responsibility of the site supervisor. All staff and sub-contractors are responsible for attending the project induction, and reporting environmental incidents and complaints to their supervisor including the nature and circumstances in which the incident happened (by an immediate verbal/email notification and completion of relevant incident notification forms).</p>

Table 16-16 Surface water, groundwater and geotechnical hazards monitoring and reporting

Action	Measures
Surface water	
Objective	To prevent contaminant spills or sediment entering waterways and implement contingency measures where required in a timely manner

Action	Measures
Performance indicators	<ul style="list-style-type: none"> • No visual evidence of any contaminants or uncontrolled release entering the waterways • All spill related environmental incidents are closed out in a timely manner • No evidence of erosion on-site or sediment/sediment laden runoff entering the downslope waterways • No complaints received regarding erosion and sediment control • No non-conformances raised at site audits regarding erosion and sediment control • Personnel responsible for the selection, design, review and monitoring of temporary and permanent erosion and sediment control measures would be adequately trained so that best available erosion sediment control measures are adopted during construction.
Monitoring (Parameters, location and frequency)	<ul style="list-style-type: none"> • A waterway monitoring program would be developed in consultation with Melbourne Water. The key potential stressor to waterways for the project is sedimentation and therefore turbidity is the key metric of interest. In addition, monitoring of macroinvertebrates would provide evidence of any longer-term project effects. Subject to consultation outcomes with Melbourne Water, the monitoring program would have the following key features: <ul style="list-style-type: none"> - Monitoring scopes in alignment with the ANZG (2018) guidelines for water quality monitoring (covering such aspects as spatial extent, parameter selection, scale, duration, frequency, cost effectiveness of the monitoring program) - Macroinvertebrate monitoring in selected waterways to provide evidence of any longer-term effects. - The monitoring program would cover the construction and operations phases of the project and be 'adaptive' – i.e. be responsive to the results to optimise the monitoring effort. • Macroinvertebrate monitoring would be undertaken in accordance with EPA Publication 604.2 Guideline for Environmental Management: Rapid bioassessment methodology for rivers and streams prior to and during the construction phase. The monitoring event prior to construction commencement would establish background conditions. Monitoring would be undertaken at sites in the Yarra River upstream and downstream of tributaries which may be impacted by the project and in selected tributaries which have the highest risk of impact (tributaries with a high number of crossings: Britannia, Four Mile and Scotchmans Creeks). • During construction, undertake daily visual observations at: <ul style="list-style-type: none"> - Plant and equipment storage areas to ensure the efficacy of the bunds - Works site and all erosion and sediment control devices - Visual monitoring for leakage or exposure of hazardous materials • During construction at waterway crossings, where water is present, undertake twice daily monitoring upstream and downstream of the waterway crossing. Collect visual assessments and measurements using a handheld turbidity meter. Log records of measurements and observations (SWM06). • Following significant/heavy rainfall events, undertake inspections of: <ul style="list-style-type: none"> - All erosion and sediment control devices
Reporting	<ul style="list-style-type: none"> • Information pertaining to inspections, monitoring and pre-emptive measures would be recorded within daily inspection checklists. • Any non-conformances or other environmental issues are to be documented and reported to Yarra Ranges Council and rectified in a timely manner.
Contingency measures	<ul style="list-style-type: none"> • Should monitoring indicate that corrective or remedial actions are required at a construction site, actions would be undertaken by the construction crew or Yarra Ranges Council (e.g., installation of hay bales, coir logs or star pickets to minimise sediment movement). The corrective actions would be recorded, including the location of the actions taken. • In the event of a spill: <ul style="list-style-type: none"> - Replace depleted spill kits - Re-train staff in the use of spill kits and the correct handling of materials to minimise exposure to hazardous materials. • Seek advice on corrective measures from a suitably qualified person • Repair/maintain existing drainage, erosion and sediment control devices • Clean up or rehabilitate any impacts/exposed areas

Action	Measures
	<ul style="list-style-type: none"> Install additional or alternative erosion and sediment control devices where issues have been identified Ensure all personnel involved in the deployment and maintenance of erosion and sediment control measures are appropriately trained in their use and deployment. Communicate changes to controls with all relevant staff.
Responsibilities	<p>Management and maintenance of erosion and sediment control devices is the responsibility of the site supervisor.</p> <p>All staff and sub-contractors are responsible for reporting environmental incidents and complaints to their supervisor including the nature and circumstances in which the incident happened (by an immediate verbal/email notification and completion of relevant incident notification forms).</p>
Groundwater	
Objective	To protect groundwater, down-gradient discharging environments and groundwater dependent ecosystems and implement contingency measures where required in a timely manner
Performance indicators	<ul style="list-style-type: none"> No impact to behaviour of nearby springs All spill related environmental incidents are closed out in a timely manner No complaints received regarding impacts to springs No non-conformances raised at site audits regarding spring management.
Monitoring (Parameters, location and frequency)	<p>Prior to construction, record evidence of spring activity, location, quantification of flow and quality (if possible), photographic record etc, to establish a baseline in spring activity.</p> <p>Daily inspection of the trails and current work area would be undertaken during construction for the identification of new spring activity, which may have resulted from bench excavations that exposed new spring eyes, or springs that weren't flowing due to prevailing climate conditions. Where identified the springs need to be documented and characterised.</p>
Reporting	<ul style="list-style-type: none"> Information pertaining to inspections, monitoring and pre-emptive measures would be recorded within daily inspection checklists. Any non-conformances or other environmental issues are to be documented and reported to Yarra Ranges Council and rectified in a timely manner.
Contingency measures	<p>Where springs are identified, trail micro-siting, or trail treatments, e.g. armouring, may be required to control erosion. Where a new spring has emerged as a result of the excavations, or unexpectedly through climate variation, an assessment would be made regarding:</p> <ul style="list-style-type: none"> Potential treatments to control sedimentation and erosion Impact to behaviour of nearby springs, and need for treatment, e.g. diversion of discharge to the same area. The corrective actions would be recorded, including the location of the actions taken. Communicate changes to controls with all relevant staff.
Responsibilities	<p>Management of groundwater springs is the responsibility of the site supervisor.</p> <p>All staff and sub-contractors are responsible for attending the project induction, and reporting environmental incidents and complaints to their supervisor including the nature and circumstances in which the incident happened (by an immediate verbal/email notification and completion of relevant incident notification forms).</p>
Geotechnical hazards	
Objective	To prevent geotechnical hazards and implement contingency measures where required in a timely manner
Performance indicators	<ul style="list-style-type: none"> No visual evidence of loose boulders on batter faces No evidence of slope failures No complaints received regarding slope failures or geotechnical hazards No non-conformances raised at site audits regarding geotechnical hazards Personnel responsible for the selection, design, review and monitoring of slopes would be adequately trained so that geotechnical incidents are avoided.

Action	Measures
Monitoring (Parameters, location and frequency)	<ul style="list-style-type: none"> During construction, where exposed rock faces with a height >2 m are present, a geotechnical inspection should be undertaken to assess the need for permanent rockfall protection such as rockfall mesh Following significant/heavy rainfall events, undertake inspections of: <ul style="list-style-type: none"> Completed sections of the trail to observe potential slope failures of newly formed batters (GTM01) Effectiveness of the trail drainage and observe areas subject to erosion or unfavourable water flow downslope of the trail (GTM03).
Reporting	<ul style="list-style-type: none"> Information pertaining to inspections, monitoring and pre-emptive measures would be recorded within daily inspection checklists. Any non-conformances or other environmental issues are to be documented and reported to Yarra Ranges Council and rectified in a timely manner. Yarra Ranges Council would notify the relevant land manager and regulatory authorities responsible for secondary approval where required.
Contingency measures	<ul style="list-style-type: none"> Should inspections indicate that corrective or remedial actions are required at a construction site, actions would be undertaken by the construction crew. The corrective actions would be recorded, including the location of the actions taken. Seek advice on corrective measures from a suitably qualified person Repair/maintain existing drainage, erosion and sediment control devices Clean up or rehabilitate any impacts/exposed areas Install additional controls where issues have been identified Communicate changes to controls with all relevant staff.
Responsibilities	Management of geotechnical hazards is the responsibility of the site supervisor. All staff and sub-contractors are responsible for attending the project induction, and reporting environmental incidents and complaints to their supervisor including the nature and circumstances in which the incident happened (by an immediate verbal/email notification and completion of relevant incident notification forms).

Table 16-17 Historic heritage and Aboriginal Cultural heritage monitoring and reporting

Action	Measures
Objective	To prevent harm to items of Aboriginal cultural heritage and historic heritage and implement contingency measures where required in a timely manner
Performance indicators	<ul style="list-style-type: none"> No harm to cultural heritage places Adherence to conditions in the CHMP Adherence to conditions in heritage permits and consents
Monitoring (Parameters, location and frequency)	<ul style="list-style-type: none"> Inspect excavation areas for potential archaeological artefacts at heritage sites and in areas of archaeological potential Undertake compliance inspections by Wurundjeri representatives during construction to ensure works comply with the conditions and contingency plan contained within the CHMP.
Reporting	<ul style="list-style-type: none"> Information pertaining to inspections, monitoring and pre-emptive measures would be recorded within daily inspection checklists Any non-conformances are to be documented and reported to Yarra Ranges Council and rectified in a timely manner Any items of cultural heritage encountered must be reported to the Aboriginal Party and/or appropriate Victorian government agencies. The discovery of cultural heritage artefacts or archaeological artefacts must be reported to Yarra Ranges Council through a formal reporting process.
Contingency measures	<ul style="list-style-type: none"> When an unanticipated discovery is made, personnel would immediately stop work in the vicinity of the discovery (MM- HM05). Follow the unexpected finds protocol and submit a site card to Heritage Victoria (MM-HM03) Notify the Council's environmental representative For Aboriginal heritage items, follow the contingency plan in the CHMP. The Yarra Ranges Council environmental representative would notify the Aboriginal Parties The significance of Aboriginal cultural heritage would be emphasised to staff during toolbox meetings or daily prestart meetings.
Responsibilities	All staff and sub-contractors have a duty of care to protect cultural heritage and would be required to attend the project induction.

Table 16-18 Traffic and transport monitoring and reporting

Action	Measures
Objective	To minimise potential adverse transport impacts and implement contingency measures where required in a timely manner
Performance indicators	<ul style="list-style-type: none"> No validated complaints received by members of the public. No unforeseen impacts of construction activities on vehicles, cyclists, pedestrians or public transport. Safety maintained for vehicles, cyclists, pedestrians and public transport users. Works are undertaken according to the approved TMP.
Monitoring (Parameters, location and frequency)	<ul style="list-style-type: none"> Monitor impacts of construction activities on all modes of transport, daily. Pre-construction on-site checks to assess route options for safety and clearance to potential obstructions, such as wires, structures and trees for OSOM vehicles. Survey and monitoring of road pavement, bridges and culvert condition prior to commencement and at completion of construction, particularly along Cemetery Track and Edwardstown Road (MM-TP4).
Reporting	<ul style="list-style-type: none"> Information pertaining to inspections, monitoring and pre-emptive measures would be recorded within daily inspection checklists. Any non-conformances or environmental issues are to be documented and reported to Yarra Ranges Council and rectified in a timely manner.
Contingency measures	<ul style="list-style-type: none"> If complaints are received, the issue should be investigated and rectified as required. If the road pavement condition survey indicates that construction has damaged the road, the pavement would be restored to the existing or better than existing condition.
Responsibilities	Traffic impact management is the responsibility of the site supervisor

Table 16-19 Land use, noise, air quality and visual monitoring and reporting

Action	Measures
Noise	
Objective	To minimise disturbance to surrounding land users for noise and implement contingency measures where required in a timely manner
Performance indicators	<ul style="list-style-type: none"> No validated complaints received by members of the public. Works are being undertaken within the specified timeframes. Plant is operating correctly and not generating a level of noise greater than that specified by the manufacturer.
Monitoring (Parameters, location and frequency)	<ul style="list-style-type: none"> Daily checks of plant to ensure it is well maintained and in correct working order (NM01). If works are planned to occur outside of normal working hours, noise monitoring at the nearest noise sensitive residential properties would be undertaken prior to construction to confirm the applicable noise criteria for evening and night-time works (NM02).
Reporting	<ul style="list-style-type: none"> Information pertaining to inspections, monitoring and pre-emptive measures would be recorded within daily inspection checklists. Any non-conformances or other environmental issues are to be documented and reported to Yarra Ranges Council and rectified in a timely manner.
Contingency measures	<ul style="list-style-type: none"> If complaints about noise are received, the offending construction activity should immediately cease until the issue is resolved satisfactorily. Corrective actions may include repair or replacement of defective plant, or undertake noise monitoring and control measures where noise levels exceed the relevant criteria.
Responsibilities	Noise management is the responsibility of the site supervisor
Air quality	
Objective	To monitor for dust and implement contingency measures where required in a timely manner

Action	Measures
Performance indicators	<ul style="list-style-type: none"> No visible dust emissions during works. No complaints received by members of the public. No dust emissions which cause notices, infringements notices or stop work order.
Monitoring (Parameters, location and frequency)	<ul style="list-style-type: none"> During construction, undertake daily visual observations and monitoring for: <ul style="list-style-type: none"> Dust and emission plumes on-site associated with the construction works and vehicles Weather conditions (refer to AM04).
Reporting	<ul style="list-style-type: none"> Information pertaining to inspections, monitoring and pre-emptive measures would be recorded within daily inspection checklists. Any non-conformances or other environmental issues are to be documented and reported to Yarra Ranges Council and rectified in a timely manner.
Contingency measures	<ul style="list-style-type: none"> If complaints about dust or air quality are received, the offending construction activity should immediately cease until the issue is resolved satisfactorily. Corrective actions may include ceasing works temporarily during high wind conditions, watering, mechanical sweeping, establishing additional temporary ground covers or other ESC measures (refer to AM01).
Responsibilities	Air quality management is the responsibility of the site supervisor

Table 16-20 Socio-economic monitoring and reporting

Action	Measures
Objective	To minimise potential adverse socio-economic effects at local and regional scales and implement contingency measures where required in a timely manner
Performance indicators	<ul style="list-style-type: none"> No validated complaints received by members of the public. Works are not being undertaken outside the specified timeframes.
Monitoring (Parameters, location and frequency)	<ul style="list-style-type: none"> Works are being conducted within specified timeframes. Daily communication with residents where construction bisects a property.
Reporting	<ul style="list-style-type: none"> Information pertaining to inspections, monitoring and pre-emptive measures would be recorded within daily inspection checklists. Any non-conformances or complaints are to be documented and reported to Yarra Ranges Council and rectified in a timely manner.
Contingency measures	<ul style="list-style-type: none"> If complaints are received, the offending construction activity should immediately cease until the issue is resolved satisfactorily.
Responsibilities	The Yarra Ranges Council Project Manager and Contractor construction manager are responsible for ensuring socio-economic impacts are minimised.

Table 16-21 Bushfire monitoring and reporting

Action	Measures
Objective	To minimise bushfire risk and implement contingency measures where required in a timely manner
Performance indicators	<ul style="list-style-type: none"> Bushfire risk is not increased due to project works. Works at the site are not impacted by bushfire risk or fire management. Adequate fire protection equipment on-site. No machinery which could cause a spark to be operated on TFB days.
Monitoring (Parameters, location and frequency)	<ul style="list-style-type: none"> Monitoring of fire bans. Monitoring of planned burns. Weather monitoring: <ul style="list-style-type: none"> During the fire season, check weather observations, calculate FFDI and record in fire weather log book on arrival to site in the morning and after main rest breaks (e.g. lunch). On TFB days, weather monitoring frequency to increase to after any rest break.
Reporting	<ul style="list-style-type: none"> Information pertaining to inspections, monitoring and pre-emptive measures would be recorded within daily inspection checklists and the fire weather log book.

Action	Measures
	<ul style="list-style-type: none"> Any non-conformances or other environmental issues are to be documented and reported to Yarra Ranges Council and rectified in a timely manner.
Contingency measures	<ul style="list-style-type: none"> If a TFB day has been called, contact Yarra Ranges Council immediately to discuss whether it is safe/appropriate to work in the event of high FFDI calculated. <ul style="list-style-type: none"> If the FFDI is equal or greater than 12 (High), consider implementing protocols as per TFB day. If the FFDI is equal or greater than 20 (High), consider suspending operations and leaving site. If activities spark a fire, immediately implement fire suppression methods and contact emergency services. Evacuate the site.
Responsibilities	Bushfire prevention and response is the responsibility of the site supervisor. All staff who are required to perform tasks that may impact or be impacted by bushfire during their work are responsible for implementing appropriate bushfire control measures.

Table 16-22 Waste monitoring and reporting

Action	Measures
Objective	To minimise and appropriate dispose of wastes and implement contingency measures where required in a timely manner
Performance indicators	<ul style="list-style-type: none"> No validated complaints received by members of the public. Waste is being separated and disposed of into the appropriate receptacle. No contamination of soil, water or air as a result of inappropriate waste management. The site is maintained in a clean and tidy state throughout the project activities. Continuous improvement of waste avoidance, reduction and recycling throughout the project.
Monitoring (Parameters, location and frequency)	<ul style="list-style-type: none"> Daily visual inspection of waste collection areas and general site housekeeping. Daily visual inspection to ensure that waste is being separated into recyclable and non-recyclable (i.e. disposal) receptacles appropriately.
Reporting	<ul style="list-style-type: none"> Information pertaining to inspections, monitoring and pre-emptive measures would be recorded within daily inspection checklists. Any non-conformances are to be documented and reported to Yarra Ranges Council and rectified in a timely manner.
Contingency measures	<ul style="list-style-type: none"> If complaints about waste are received or an incident occurs, the waste management system would be investigated and rectified as required. Corrective actions may include repair or replacement of defective waste receptacles, providing additional waste receptacles, or undertaking clean-up activities.
Responsibilities	Waste management is the responsibility of the site supervisor. All staff are responsible for implementing appropriate waste management measures.

16.4.3 Operation inspection, maintenance, monitoring and reporting

16.4.3.1 Inspection program

Regular inspections are a critical part of the strategy to monitor and control potential environmental impacts associated with the operation of the mountain bike trail network and associated infrastructure. Systematic and timely inspections provide a means to identify and address problems with contingency measures. Monitoring through an effective inspection program enables unforeseen impacts to be detected and adaptive management to be adopted. An adaptive management approach would be informed by the inspection program, monitoring and auditing, resulting in continuous improvement and a targeted, effective management approach.

The inspection program, monitoring and auditing would inform continuous improvement

All trails and infrastructure would initially be inspected at least quarterly and more frequently where required to investigate any damage caused by extreme weather events or concerns raised by

stakeholders. The aspects to be addressed in the inspection program and the purpose of the inspections are set out in Table 16-23. Checklists to record the findings of inspections are provided in Attachment 3 of the OEMP. Additionally, monitoring and reporting for environmental factors are captured in Section 16.4.3.

A wide range of maintenance activities would also be required to support the operation of the project. Routine maintenance activities would occur (such as vegetation pruning and removal of litter) and maintenance would be planned on a regular basis for non-urgent works (such as removing graffiti or removing soil and organic matter blocking the egress of water off the track). Some maintenance work may need to be undertaken urgently, where the issue poses a potential safety risk, or could lead to significant damage if not rectified (such as following an extreme rain event, trail slips or fallen trees on the trail). Maintenance works to be undertaken during operation are described in detail in the project OEMP.

Table 16-23 Aspects to be addressed in inspection program

Aspect	Purpose of inspection
Illegal trail building	<ul style="list-style-type: none"> Whilst the development of a high quality mountain bike trail network at Warburton is likely to alleviate rather than exacerbate the current problem of illegally built trails in the region, periodic inspections would be undertaken to monitor for illegal trails or activities relating to the mountain bike network that go beyond the project footprint.
Short cuts and trail widening	<ul style="list-style-type: none"> Monitor for the formation of short cut diversions and any areas where trail widening is occurring due to riders not remaining on formed trail
Weeds	<ul style="list-style-type: none"> The presence of weeds would be monitored through periodic trail inspections and in response to stakeholder notifications.
Predators	<ul style="list-style-type: none"> The presence of predators (cats, foxes and deer) would be monitored through periodic trail inspections and in response to stakeholder notifications.
Myrtle wilt	<ul style="list-style-type: none"> The presence of myrtle wilt would be monitored through periodic trail inspections and in response to stakeholder notifications.
Hazard trees	<ul style="list-style-type: none"> The presence of hazardous trees would be monitored through periodic trail inspections, following extreme weather events and in response to public notifications.
Noise, vibration, dust and emissions to air	<ul style="list-style-type: none"> No material impacts have been identified on amenity in relation to noise, vibration, dust and emissions to air. Nevertheless, any stakeholder concerns in relation to noise, vibration, dust and emissions to air would be captured and inspections undertaken as necessary.
Public health and safety	<ul style="list-style-type: none"> Public health and safety would be monitored through periodic trail inspections and in response to stakeholder notifications.
Runoff, erosion and sediment control	<ul style="list-style-type: none"> Effective function of drainage in the vicinity of the trails and sediment controls built into trail design and the potential for erosion would be monitored by periodic inspections, following extreme weather events and in response to stakeholder notifications.
Solid and liquid waste	<ul style="list-style-type: none"> Effective function of the toilets and bike wash facilities, adequacy of rubbish bin systems and prevalence of litter would be monitored by periodic inspections and in response to stakeholder notifications.
Aboriginal cultural heritage values	<ul style="list-style-type: none"> No material impacts have been identified on significant heritage values. Nevertheless, any public concerns in relation to heritage values would be captured and inspections undertaken as necessary.
Historic heritage values	<ul style="list-style-type: none"> No material impacts have been identified on significant heritage values. Nevertheless, any public concerns in relation to heritage values would be captured and inspections undertaken as necessary.
Traffic and road management measures	<ul style="list-style-type: none"> Parking availability would be monitored periodically through inspections and any unforeseen incidents or concerns would be captured and inspections undertaken as necessary.
Disruption of and hazard to existing infrastructure	<ul style="list-style-type: none"> No disruption of or hazard to existing infrastructure is envisaged. Nevertheless, any unforeseen incidents would be captured and inspections undertaken as necessary.

Aspect	Purpose of inspection
Socioeconomic and land use values	<ul style="list-style-type: none"> No material impacts have been identified on significant socioeconomic values. Nevertheless, any public concerns in relation to socioeconomic conditions and land use values would be captured and inspections undertaken as necessary.
Landscape and visual values	<ul style="list-style-type: none"> No material impacts have been identified on significant landscape and visual values. Nevertheless, any public concerns in relation to landscape and visual values would be captured and inspections undertaken as necessary.
Project area rehabilitation	<ul style="list-style-type: none"> There is no plan to decommission the project. As there is no plan for rehabilitation, no inspections are proposed in relation to project area rehabilitation, unless any unauthorised trails to be closed are identified that require vegetation regeneration. Trails would be inspected following construction for vegetation regeneration.
Waterways	<ul style="list-style-type: none"> Check waterway crossings for impediments. Check for new springs or soaks affecting trail surface Structural inspection of bridge structures by qualified personnel as required.

16.4.3.2 Operation monitoring and reporting

Table 16-24 Biodiversity monitoring and reporting

Action	Measures
Biodiversity	
Objective	To prevent impacts to threatened flora and fauna and implement contingency measures where required in a timely manner
Performance indicators	<ul style="list-style-type: none"> No impact on native vegetation outside of the trail corridor. Areas of vegetation disturbance minimised and existing vegetation adjacent to the works protected. Disturbed areas stabilised or revegetated. No reports of injury or death of fauna. No increase in the presence of weeds, pathogens or pests. No complaints received regarding native flora or fauna. No non-conformances raised at site audits regarding native flora or fauna. Personnel responsible for maintenance will be adequately trained in identifying significant flora and fauna, habitat and weeds and appropriate measures are adopted to avoid locations or minimise impacts during maintenance works.
Monitoring (Parameters, location and frequency)	<p>Monitoring over the course of the operation phase or in response to complaints would include:</p> <ul style="list-style-type: none"> Regular trail inspections at a quarterly minimum frequency, and after extreme weather events (such as sustained snow/rain conditions or 25 mm of rain in the preceding 24 hours), to identify problems or changes to the trails that need to be repaired. Monitor for any off-trail tracks and close unauthorised trails and rehabilitation where appropriate (BM18). <p>During regular trail inspections and scheduled maintenance, record visual inspections and observations of:</p> <ul style="list-style-type: none"> Presence of fauna, including pest species Presence of significant flora, fauna or nests/burrows/roosts used by native fauna Presence of weeds or pathogens, such as Myrtle Wilt Presence of GDEs, seeps / springs and associated vegetation communities / species Presence of obvious tree hazards presenting a clear and present danger or roots that require management. <p>Council would support existing programs implemented by land managers to monitor, control, and where possible, eradicate, pest animals in the trail network.</p>
Reporting	<ul style="list-style-type: none"> Information pertaining to inspections, monitoring and pre-emptive measures would be recorded within inspection and maintenance record sheets. This would include maintenance actions required and undertaken. Flora and fauna observations would be entered into the GIS platform and records of significant flora, significant fauna and threatened ecological communities would be periodically uploaded to the VBA.

Action	Measures
	<ul style="list-style-type: none"> Any issues requiring management or similar are to be documented and reported to Yarra Ranges Council and rectified in a timely manner. Relevant land managers and regulatory authorities responsible for secondary approvals would be notified of issues as required.
Contingency measures	<ul style="list-style-type: none"> Communicate fauna and flora protocols to all staff. If an incident occurs or a complaint is registered, the following procedure should be followed: <ul style="list-style-type: none"> Cease works and report any breaches of the OEMP or other environmental issues to Council. Undertake an investigation of any non-compliance and determine appropriate course of action to remedy impacts in consultation with an ecologist or arborist. Transport injured fauna to an appropriate veterinarian or carer as soon as possible.
Responsibilities	<p>Fauna and flora management is the responsibility of the Yarra Ranges Council Project Manager.</p> <p>All staff and sub-contractors are responsible for reporting environmental incidents and complaints to their supervisor including the nature and circumstances in which the incident happened (including an immediate verbal/email notification and completion of relevant incident notification forms).</p>

Table 16-25 Surface water, groundwater and geotechnical hazards monitoring and reporting

Action	Measures
Surface water	
Objective	To prevent contaminant spills or sediment entering waterways and implement contingency measures where required in a timely manner
Performance indicators	<ul style="list-style-type: none"> No visual evidence of any contaminants or uncontrolled release entering the waterways All spill related environmental incidents are closed out in a timely manner No evidence of erosion on-site or sediment/sediment laden runoff entering the downslope waterways No complaints received regarding erosion and sediment control No non-conformances raised at site audits regarding erosion and sediment control.
Monitoring (Parameters, location and frequency)	<p>A waterway monitoring program would be developed in consultation with Melbourne Water. The key potential stressor to waterways for the project is sedimentation and therefore turbidity is the key metric of interest. In addition, monitoring of macroinvertebrates would provide evidence of any longer-term project effects. Subject to consultation outcomes with Melbourne Water, the monitoring program would have the following key features:</p> <ul style="list-style-type: none"> Monitoring scopes in alignment with the ANZG (2018) guidelines for water quality monitoring (covering such aspects as spatial extent, parameter selection, scale, duration, frequency, cost effectiveness of the monitoring program) Macroinvertebrate monitoring in selected waterways to provide evidence of any longer-term effects in accordance with EPA Publication 604 Guideline for Environmental Management: Rapid bioassessment methodology. The monitoring program would cover the construction and operations phases of the project and be 'adaptive' – i.e. be responsive to the results to optimise the monitoring effort. All operational monitoring would be reviewed annually by an environmental engineer (or equivalent) to assess the requirement for ongoing monitoring. <p>Monitoring would be undertaken at sites in the Yarra River upstream and downstream of tributaries which may be impacted by the project and in selected tributaries which have the highest risk of impact (tributaries with a high number of crossings: Britannia, Four Mile, Scotchmans and Yankee Jim Creeks):</p> <ul style="list-style-type: none"> Monthly monitoring of turbidity using a turbidity meter, to identify any increases in turbidity. Monitoring would commence prior to operation.

Action	Measures
	<ul style="list-style-type: none"> Photo-point monitoring at selected points, particularly those points which have larger and steeper catchments, prior to operation and collected during periodic site inspections. Evidence of deer impacts at waterway crossings would also be recorded when analysing photo-point images to provide an understanding of deer presence on-site. Flow monitoring at key points in the track network where gullies are crossed but no boardwalk or bridge has been proposed. Macroinvertebrate monitoring during spring to assess waterways following winter flow conditions. <p>Visual inspection of the trails would be undertaken for the identification of new spring activity, for waterways with the highest number of crossings, or other changes to catchment in which a previously undefined waterway becomes a defined waterway.</p> <ul style="list-style-type: none"> Undertake a site inspection of all water crossing and high-risk sections of track after a rainfall event (e.g. >25 mm in 24 hours) Inspections would initially be undertaken four times per year. This would inform adjustments to the monitoring program. The following locations would be inspected for track condition, spring emergence, soil erosion, bogginess, litter, vandalism etc, likely best undertaken after rainfall e.g. 1-7 days after > 10 mm rainfall in 24 hours: <ul style="list-style-type: none"> Four Mile Creek (37 crossings) Scotchmans Creek (30 crossing) Britannia Creek (20 crossings) and Yankee Jim Creek (12 crossings). Reviews of photo-point flow monitoring data would be completed under the same monitoring frequency, with emphasis placed on assessment of flow conditions during and following rainfall events (>10 mm in 24 hours).
Reporting	<ul style="list-style-type: none"> Information pertaining to inspections, monitoring, pre-emptive measures and corrective actions would be recorded within inspection and maintenance record sheets. This would include maintenance actions required and undertaken. Any non-conformances are to be documented and reported to Yarra Ranges Council and rectified in a timely manner.
Contingency measures	<ul style="list-style-type: none"> The monitoring plan for the project would include triggers that warrant further investigation. For water quality, exceeding background levels would be used as a trigger for further investigation. If evidence of impacts is observed that can be attributed to operation of the Project, Yarra Ranges Council would consider amending waterway crossing structures where impacts are observed. Should monitoring indicate that corrective or remedial actions are required, actions would be undertaken by the maintenance crew. The corrective actions would be recorded, including the location of the actions taken. Where identified, trail treatments, e.g. armouring or an elevated structure, may be required to control erosion.
Responsibilities	<p>Management and maintenance of erosion and sediment control is the responsibility of the Yarra Ranges Council Project Manager and maintenance crew.</p> <p>All staff and sub-contractors are responsible for reporting environmental incidents and complaints to their supervisor including the nature and circumstances in which the incident happened (including an immediate verbal/email notification and completion of relevant incident notification forms).</p>
Groundwater	
Objective	To protect groundwater springs and implement contingency measures where required in a timely manner
Performance indicators	<ul style="list-style-type: none"> No impact to behaviour of nearby springs All spill related environmental incidents are closed out in a timely manner No complaints received regarding impacts to springs No non-conformances raised at site audits regarding spring management.
Monitoring (Parameters, location and frequency)	Periodical inspections (at least 4 times a year) or after rainfall events (3-7 days after > 10 mm rainfall in 24 hours) of during the operation phase are required to assess for the presence of new springs and seeps (refer to GWM01).

Action	Measures
	<p>Where identified, trail treatments, e.g. armouring, may be required to control erosion. Treatments documented in CEMP and SWM01, SWM02 and SWM09.</p> <p>Where a new spring has emerged as a result of the excavations, or unexpectedly through climate variation, an assessment would be made regarding:</p> <ul style="list-style-type: none"> • Potential treatments to control sedimentation and erosion • Impact to behaviour of nearby springs, and need for treatment, e.g. diversion of discharge to the same area. <p>When treated, inspection and maintenance are undertaken periodically during the operation phase to assess effectiveness of the treatment.</p>
Reporting	<ul style="list-style-type: none"> • Information pertaining to inspections, monitoring, pre-emptive measures and corrective actions would be recorded within inspection and maintenance record sheets. This would include maintenance actions required and undertaken. • Any non-conformances are to be documented and reported to the Yarra Ranges Council environmental representative and rectified in a timely manner.
Contingency measures	<p>If a spring is detected:</p> <ul style="list-style-type: none"> • Document the spring activity and location (GWM01) • Implement a trail control to ensure that spring flow is not dammed, and that downstream water quality and erosion hazards are minimised. This would require the installation of drained berms, rock armouring, or in extreme cases of high flow, bridging structures. • Confirm the acceptability of the control through monitoring / inspection during operation, as per SWM09 and GWM01.
Responsibilities	<p>Management of groundwater springs is the responsibility of the Yarra Ranges Council Project Manager and maintenance crew.</p> <p>All staff and sub-contractors are responsible for reporting environmental incidents and complaints to their supervisor including the nature and circumstances in which the incident happened (including an immediate verbal/email notification and completion of relevant incident notification forms).</p>
Geotechnical hazards	
Objective	To prevent geotechnical hazards and implement contingency measures where required in a timely manner
Performance indicators	<ul style="list-style-type: none"> • No visual evidence of loose boulders on batter faces • No evidence of slope failures • No complaints received regarding slope failures or geotechnical hazards • No non-conformances raised at site audits regarding geotechnical hazards.
Monitoring (Parameters, location and frequency)	<ul style="list-style-type: none"> • Yarra Ranges Council would proactively monitor trail conditions and close trails under adverse conditions to avoid damage and associated environmental impacts during these periods. • Following significant/heavy rainfall events (e.g. >25 mm in 24 hours), undertake inspections of: <ul style="list-style-type: none"> • Effectiveness of the trail drainage and observe areas subject to erosion or unfavourable water flow downslope of the trail (GTM03). • Periodical inspections of the bridge structures, particularly following heavy rainfall events to assess potential build-up of debris material (GTM05).
Reporting	<ul style="list-style-type: none"> • Information pertaining to inspections, monitoring, pre-emptive measures and corrective actions would be recorded within inspection and maintenance record sheets. This would include maintenance actions required and undertaken. • Any non-conformances are to be documented and reported to Yarra Ranges Council and rectified in a timely manner.
Contingency measures	<p>Should monitoring indicate that corrective or remedial actions are required, actions would be undertaken by the maintenance crew. The corrective actions would be recorded, including the location of the actions taken. If observed, debris material will be removed from bridge structures. Where possible, debris material would be placed downstream from bridge structures.</p> <p>Trail closures due to geotechnical hazards or inclement weather could be at a network scale or individual trail level. These decisions would be made by Yarra Ranges Council based on:</p>

Action	Measures
	<ul style="list-style-type: none"> • A trigger of 25 mm of rain in the preceding 24 hours for a network closure, or • Observations of staff indicating sustained wet/snow conditions likely to impact trails (could be individual trails, areas, or complete network) Trail closures would be communicated to mountain bikers by: <ul style="list-style-type: none"> • Active social media and electronic communications • Signage at trail heads and strategic locations around the network • Signage at start of trail for individual trail closures
Responsibilities	Management of geotechnical hazards is the responsibility of the Yarra Ranges Council Project Manager and maintenance crew. All staff and sub-contractors are responsible for reporting environmental incidents and complaints to their supervisor including the nature and circumstances in which the incident happened (including an immediate verbal/email notification and completion of relevant incident notification forms).

Table 16-26 Historic heritage and Aboriginal cultural heritage monitoring and reporting

Action	Measures
Objective	To prevent harm to items of Aboriginal cultural heritage and historic heritage and implement contingency measures where required in a timely manner
Performance indicators	<ul style="list-style-type: none"> • Adherence to conditions in the CHMP • Adherence to conditions in the Historic heritage statement
Monitoring (Parameters, location and frequency)	<ul style="list-style-type: none"> • Check known historic sites and features that are intersected by trails for damage during regular trail inspections (minimum frequency of four times a year)
Reporting	<ul style="list-style-type: none"> • Information pertaining to inspections, monitoring and pre-emptive measures would be recorded within inspection and maintenance record sheets. This would include maintenance actions required and undertaken. • Any non-conformances are to be documented and reported to Yarra Ranges Council and rectified in a timely manner • Any items of cultural heritage encountered must be reported to the Aboriginal Party and/or appropriate Victorian government agencies. The discovery of cultural heritage artefacts or archaeological artefacts must be reported to Yarra Ranges Council through a formal reporting process. • Discovery of archaeological sites would be reported in accordance with the unexpected finds protocol.
Contingency measures	<ul style="list-style-type: none"> • When an unanticipated discovery is made, personnel would immediately stop work in the vicinity of the discovery (MM-HM05) • If ground-disturbing works are required at a VHI site, consent approval would be sought from Heritage Victoria prior to commencement. • Notify the Yarra Ranges Council's environmental representative • For Aboriginal heritage items, the Council environmental representative would notify the Aboriginal Parties.
Responsibilities	All staff and sub-contractors have a duty of care to protect cultural heritage.

Table 16-27 Transport and traffic monitoring and reporting

Action	Measures
Objective	To minimise potential adverse transport impacts and implement contingency measures where required in a timely manner
Performance indicators	<ul style="list-style-type: none"> • No validated complaints received by members of the public. • Safety maintained for vehicles, cyclists, pedestrians and public transport users. • Adequate parking spaces are available.
Monitoring (Parameters, location and frequency)	<ul style="list-style-type: none"> • The Yarra Ranges Council Paths and Trails Strategy would investigate collection of data and monitoring cyclist road crossing locations to determine when and what type of formalised crossing is required at the following locations: <ul style="list-style-type: none"> - Station Road, Wesburn

Action	Measures
	<ul style="list-style-type: none"> - Hooks Road, Warburton - Station Road, Warburton - Warburton Highway, Warburton (This treatment would require approval from DoT) • Parking surveys (including duration of stay and occupancy surveys) to understand the usage and available spaces in the town centre over the first 12 months of project opening.
Reporting	<ul style="list-style-type: none"> • Information pertaining to inspections, monitoring and pre-emptive measures would be recorded within inspection and maintenance record sheets. This would include maintenance actions required and undertaken. • Any non-conformances are to be documented and reported to Yarra Ranges Council and rectified in a timely manner.
Contingency measures	<ul style="list-style-type: none"> • If complaints are received, the issue should be investigated and rectified as required.
Responsibilities	Traffic management is the responsibility of the Yarra Ranges Council Project Manager

Table 16-28 Land use, noise, air quality and visual monitoring and reporting

Action	Measures
Noise	
Objective	To minimise disturbance to surrounding land users for noise and implement contingency measures where required in a timely manner
Performance indicators	<ul style="list-style-type: none"> • No validated complaints received by members of the public.
Monitoring (Parameters, location and frequency)	<ul style="list-style-type: none"> • Installed noise barriers should be inspected yearly for any damage or required maintenance work (NM05).
Reporting	<ul style="list-style-type: none"> • Information pertaining to inspections, monitoring and pre-emptive measures would be recorded within inspection and maintenance record sheets. This would include maintenance actions required and undertaken. • Any non-conformances are to be documented and reported to Yarra Ranges Council and rectified in a timely manner.
Contingency measures	<ul style="list-style-type: none"> • If complaints about noise are received, investigations into the source of noise must be undertaken. • Corrective actions may include repair or replacement of defective noise barriers or undertake noise monitoring and control measures where noise levels exceed the relevant criteria.
Responsibilities	Noise management is the responsibility of the Yarra Ranges Council Project Manager

Table 16-29 Socio-economic monitoring and reporting

Action	Measures
Socio-economic	
Objective	To minimise potential adverse socio-economic effects at local and regional scales and implement contingency measures where required in a timely manner.
Performance indicators	<ul style="list-style-type: none"> • No validated complaints received by members of the public. • Implementation of Communications and Community Engagement Plan.
Monitoring (Parameters, location and frequency)	<ul style="list-style-type: none"> • Monitor trail bike activity during regular trail inspections, ensuring appropriate mountain bike trails are only used by mountain bike riders • Monitor the impact of the project on dog walkers at Wesburn Park and provide additional areas elsewhere if necessary.
Reporting	<ul style="list-style-type: none"> • Information pertaining to inspections, monitoring and pre-emptive measures would be recorded within inspection and maintenance record sheets. This would include maintenance actions required and undertaken.

Action	Measures
	<ul style="list-style-type: none"> Any non-conformances are to be documented and reported to Yarra Ranges Council and rectified in a timely manner.
Contingency measures	<ul style="list-style-type: none"> If complaints are received, the implemented mitigation measures should be reviewed and updated to rectify the issue.
Responsibilities	The Yarra Ranges Council Project Manager is responsible for ensuring socio-economic impacts are minimised.

Table 16-30 Bushfire monitoring and reporting

Action	Measures
Bushfire	
Objective	To minimise bushfire risk and implement contingency measures where required in a timely manner
Performance indicators	<ul style="list-style-type: none"> Bushfire risk is not increased due to project works. Works at the site are not impacted by bushfire risk or fire management. Adequate fire protection equipment on-site. No machinery which could cause a spark to be operated on TFB days.
Monitoring (Parameters, location and frequency)	<ul style="list-style-type: none"> Monitoring of fire bans. Monitoring of planned burns. Weather monitoring: <ul style="list-style-type: none"> During the fire season, check weather observations, calculate FFDI and record in fire weather log book on arrival to site in the morning and after main rest breaks (e.g. lunch). On TFB days, weather monitoring frequency to increase to after any rest break.
Reporting	<ul style="list-style-type: none"> Information pertaining to inspections, monitoring and pre-emptive measures would be recorded within inspection and maintenance record sheets. This would include maintenance actions required and undertaken. Any non-conformances are to be documented and reported to Yarra Ranges Council and rectified in a timely manner.
Contingency measures	<ul style="list-style-type: none"> If a TFB day has been called, contact Yarra Ranges Council immediately to discuss whether it is safe/appropriate to work in the event of high FFDI calculated. <ul style="list-style-type: none"> If the FFDI is equal or greater than 12 (High), consider implementing protocols as per TFB day. If the FFDI is equal or greater than 20 (High), consider suspending operations and leaving site. If activities spark a fire, immediately implement fire suppression methods and contact emergency services. Evacuate the site.
Responsibilities	Bushfire prevention and response is the responsibility of the site supervisor. All staff who are required to perform tasks that may impact or be impacted by bushfire during their work are responsible for implementing appropriate bushfire control measures.

Table 16-31 Waste management monitoring and reporting

Action	Measures
Waste	
Objective	To minimise and appropriate dispose of wastes and implement contingency measures where required in a timely manner
Performance indicators	<ul style="list-style-type: none"> No validated complaints received by members of the public. Waste is being separated and disposed of into the appropriate receptacle. No contamination of soil, water or air as a result of inappropriate waste management. The site is maintained in a clean and tidy state throughout the project activities. Continuous improvement of waste avoidance, reduction and recycling throughout the project.

Action	Measures
Waste	
Monitoring (Parameters, location and frequency)	<ul style="list-style-type: none"> Visual inspection of trails and waste collection areas on a regular basis (at a minimum frequency of quarterly for trails). Visual inspection to ensure that waste is being recycled and disposed of appropriately in line with Council waste collection cycles.
Reporting	<ul style="list-style-type: none"> Information pertaining to inspections, monitoring and pre-emptive measures would be recorded within inspection record sheets. This would include maintenance actions required and undertaken. Significant litter/waste dumps would be reported to the land manager as soon as possible. Any non-conformances are to be documented and reported to Yarra Ranges Council and rectified in a timely manner.
Contingency measures	<ul style="list-style-type: none"> If complaints about waste are received or an incident occurs, the waste management system would be investigated and rectified as required. Corrective actions may include repair or replacement of defective waste receptacles, providing additional waste receptacles, or undertaking clean-up activities.
Responsibilities	Waste management is the responsibility of the Yarra Ranges Council Project Manager. All staff are responsible for implementing appropriate waste management measures.

16.4.4 Environmental auditing and reporting

Compliance with the CEMP, OEMP and OMP would be verified through environmental audits coordinated by Yarra Ranges Council. Audits would be conducted by independent, suitably qualified and experienced environmental auditors. Audits would be conducted prior to the commencement of the construction and operations phases and thereafter annually during these phases.

Environmental audits would gather information through:

- Interviews with staff and contractors
- Reviews of documentation
- Observation of practices.

Audit reports would be submitted to Yarra Ranges Council, DELWP and Parks Victoria by the environmental auditor. Reports would record details of any nonconformances identified during the audit and corrective actions required to address the nonconformance. For each corrective action, the responsible person and target completion date would be specified.

Yarra Ranges Council would publish a summary of the results of each environmental audit report on the Council website within three months of the environmental audit report being finalised. The focus and frequency of audits would be reviewed annually in the light of audit results. Audit results would be communicated with the Project Reference Group (involving the various land managers and stakeholders) in regular group meetings.

16.5 Staff training and competence

To ensure compliance and effective implementation of environmental management, all personnel, including Yarra Ranges Council staff, contractors and subcontractors, directly involved in construction and operation of the project would be required to complete the following training:

- Environmental awareness training prior to undertaking any construction or maintenance on-site. The training would encompass legal and environmental approvals obligations, key environmental sensitivities and procedures for monitoring and control of environmental issues
- Job-specific environmental management training relevant to their role, if and where required.

Additionally, during construction, regular toolbox meetings would be held to highlight relevant environmental and safety issues, as needed.

Records of induction and training would be kept in a register, including the type and topic of training undertaken, dates, names and trainer details. Inductees would be required to sign off that they have been informed of their environmental management responsibilities. During construction, staff would use daily checklists to verify site controls are being adhered to. The daily checklists, in addition to site

inductions, other daily toolbox observations and monitoring data, would form the basis of the internal environmental auditing process. Monitoring data would be stored and managed in accordance with Yarra Ranges Council document control procedures.

16.6 Stakeholder engagement

Stakeholder engagement would continue to be important during the construction and operations project implementation phases. The CEMP and OEMP specify the stakeholder communications proposed to keep stakeholders (particularly communities in the immediate vicinity of the trails) informed regarding trail construction and operations.

The key elements of stakeholder engagement during project construction would include:

- Direct communications with landowners and land managers directly affected or in the vicinity of works by face to face meeting, telephone, email or letter box drop to advise of forthcoming construction activities
- Periodic briefings for Yarra Ranges Council partner agencies (Parks Victoria, DELWP and Melbourne Water) on construction progress through the project steering committee
- Regular updates on the construction program on the Yarra Ranges Council website
- Provision of contact information on the Yarra Ranges Council website for any enquiries.

The key elements of stakeholder engagement during project operation would include:

- Information on the trail network posted on the Yarra Ranges Council website to guide users on how best to enjoy the facility and how to use it responsibly to avoid biodiversity, heritage and socio-economic impacts
- Trail network bulletins posted on the Yarra Ranges Council website advising of any trail closures due to weather conditions and for other reasons and providing details of any events planned on the network
- Signage at the trail heads and around the trail network to facilitate safe and sustainable use of the trail network
- Direct communications with landowners and land managers by face to face meeting, telephone, email or letter box drop in relation to the function of the trail network and providing details of any events planned on the network
- Periodic briefings for Yarra Ranges Council partner agencies (Parks Victoria, DELWP and Melbourne Water) on trail network operations through the project steering committee
- Provision of contact information on the Yarra Ranges Council website for any enquiries.

Any community complaints in relation to the project would be managed through the Yarra Ranges Council Complaint Policy. This policy sets out procedures that:

- Provide a standardised approach to managing complaints
- Provide a framework for the management of complaints and feedback with a view to continually improving services, systems and capabilities
- Increase the level of satisfaction by resolving issues in an effective, fair, respectful and professional manner
- Ensure all statutory requirements are satisfied, and escalation options are communicated clearly.

The procedures under Yarra Ranges Council Complaint Policy require that:

- Complaints are recorded in a register including the date and time of the complaint, details of the complainant (if known) and the nature of the complaint
- The complainant be contacted directly (where possible) to discuss and better understand the concerns raised
- An investigation of the complaint is undertaken proportionate to the nature and the severity of the issues raised in the complaint

- A written response is provided to the complainant to communicate the findings in relation to the investigation of the complaint and details of any actions taken by Yarra Ranges Council in response to the issues raised.

16.7 Incident and emergency management

Any environmental incidents in relation to the project would be managed through the project's Emergency Management Plan and the Yarra Ranges Council Complaint Policy. The project Emergency Management Plan would be developed with consideration of the existing Yarra Ranges Council Municipal Emergency Management Plan and Parks Victoria Yarra Ranges National Park Emergency Management Plan. This would include adhering to emergency response planning, such as park closures.

Incidents would be escalated within Yarra Ranges Council in accordance with Council procedures and to regulatory agencies in accordance with legal requirements. Incident reports would include a description of the incident, an evaluation of the level of impact and corrective action taken or proposed. Landowners or land managers potentially affected by incidents would be informed as soon as practicable by Yarra Ranges Council.

Environmental incidents would be investigated to ensure that appropriate follow up actions are taken where required to prevent recurrence. The status of follow-up actions would be monitored and once all planned follow up actions have been completed the incident would be closed. All corrective actions would be recorded in an incident register that would be managed by Yarra Ranges Council.

Emergency situations including in relation to fire, flood, storm and extreme heat would be managed in accordance with the project Emergency Management Plan. For each high risk emergency, procedures would be established to include measures to prevent or mitigate environmental impacts arising from the emergency or from the response.

Council's representatives would be verbally notified of an incident within two hours of the responsible person becoming aware of the incident, and in writing within 24 hours. All notifications to authorities (e.g. Department of Environment, Land, Water and Planning) would be undertaken by Yarra Ranges Council.