

EES chapter 10 – Cultural heritage

Warburton Mountain Bike Destination

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10.0 Cultural heritage

This chapter assesses the potential Aboriginal cultural heritage and historic cultural heritage impacts associated with the construction and operation of the Warburton Mountain Bike Destination (the project). The information in this chapter is a summary of the impact assessment presented in **Technical Report C: Cultural Heritage** and describes the key potential impacts arising from the project.

10.1 Overview

Project construction and operation have the potential to impact on registered and unidentified Aboriginal places, intangible cultural values, archaeologically sensitive landforms, and listed and unlisted historic heritage sites. Listed historic heritage sites refer to sites that are recognised as having local, state or regional significance and are listed on the Victorian Heritage Register (VHR), the Victorian Heritage Inventory (VHI) or the Heritage Overlay (HO) under the Yarra Ranges Planning Scheme. No national or world heritage sites are present in the project area. Unlisted historic heritage sites refer to areas of archaeological potential which are not formally listed but may contain artefacts or features of historic heritage value.

A Cultural Heritage Management Plan (CHMP) 15276 is being prepared for this project in consultation with the Wurundjeri Woi-wurrung Cultural Heritage Aboriginal Corporation (WWCHAC). **Technical Report C: Cultural Heritage** provides an overview of the CHMP methodology, the assessment undertaken (i.e. desktop, standard and complex assessments) and a summary of conclusions from the CHMP.

Understanding how the project could affect cultural heritage is important to the development of effective mitigation measures.

The key findings of the cultural heritage assessment are:

- There are five Aboriginal places recorded within one kilometre of the proposed mountain bike trails, five listed historic heritage places of local significance (three historical archaeological sites listed on the VHI and two places listed in the HO under the Yarra Ranges Planning Scheme) that are intersected by trails, and 12 unlisted historic places of archaeological potential that are intersected by trails.
- No specific intangible Aboriginal cultural heritage stories or oral traditions were identified by the Traditional Elders for the Warburton area that would be impacted by project construction. Consultation and engagement with WWCHAC will continue to provide recommendations on future community engagement and to manage potential impacts to intangible Aboriginal cultural values.
- No known Aboriginal places were identified that would be impacted by the construction of the project.
- During construction, where impacts to listed and unlisted historic heritage sites occur, it would result in permanent impacts to items of state and local heritage significance. Measures would be undertaken to avoid these sites through micro-siting and to minimise ground disturbance.
- Additional visitors to the project area during operation could result in permanent harm to Aboriginal or historic cultural places or removal of Aboriginal or historic cultural heritage material. This risk would be mitigated by the installation of signage to encourage visitors to stay on designated trails and the monitoring of known sites and places.

In response to the EES evaluation objective, impacts of the project on cultural heritage have been assessed, and mitigation measures have been identified to avoid and minimise adverse impacts.

10.2 EES evaluation objectives

The scoping requirements for the project set out the specific environmental matters to be investigated and documented in the project's EES in order to satisfy the Commonwealth and Victorian assessment and approval requirements.

The scoping requirements include a set of evaluation objectives that identify the desired outcomes to be achieved in managing the potential impacts of constructing and operating the project.

The following evaluation objective is relevant to the cultural heritage study:

- **Cultural heritage** – avoid, or minimise where avoidance is not possible, adverse effects on Aboriginal and historic cultural heritage.

This chapter and **Technical Report C: Cultural Heritage** address the specific Aboriginal and historic cultural heritage related matters set out in the EES scoping requirements.

10.3 Applicable legislation and policy

Table 10-1 lists the key legislation, policies, guidelines and standards relevant to the cultural heritage impact assessment.

Table 10-1 Aboriginal and historic cultural heritage legislation, policy, guidelines and criteria

Type	Applicable legislation, policy and guidelines
Legislation and policy	<ul style="list-style-type: none"> • <i>Environment Protection and Biodiversity Conservation Act 1999 (Commonwealth)</i> ('EPBC Act') • <i>Environment Effects Act 1978 (Vic)</i> • <i>Aboriginal Heritage Act 2006 (Vic)</i> <ul style="list-style-type: none"> - Aboriginal Heritage Regulations 2018 • <i>Planning and Environment Act 1987 (Vic)</i> • <i>Heritage Act 2017 (Vic)</i> <ul style="list-style-type: none"> - Heritage Regulations 2017 • <i>Traditional Owners Settlement Act 2010 (Vic)</i>
Guidelines	<ul style="list-style-type: none"> • Aboriginal Victoria, 2016. <i>Guide to Preparing a Cultural Heritage Management Plan</i> • Aboriginal Victoria, 2015. <i>Guide to Drafting Enforceable Conditions and Contingency Plans</i> • Aboriginal Victoria, 2015. <i>Practice Note: Subsurface Testing</i> • Heritage Victoria, 2020. <i>Guidelines for Conducting Historical Archaeological Surveys</i> • Heritage Victoria, 2015. <i>Guidelines for Investigating Historical Archaeological Artefacts and Sites</i>

10.4 Method

The purpose of the cultural heritage impact assessment was to assess the potential impacts associated with the project and inform the preparation of the EES required for the project. This was achieved by undertaking the following:

- Establishing a study area and an assessment of existing environmental conditions including desktop review of relevant datasets, review of literature, policies and legislation, and targeted site visits.
- Use of a three-tiered approach to characterise the existing environment and the identification of Aboriginal cultural heritage places, including desktop assessment (background research), standard assessment (ground survey) and complex assessment (excavation).
- A review of the project design and proposed activities in the context of existing environmental conditions to understand temporal and spatial distribution of project components and activities in relation to Aboriginal cultural heritage and historic heritage.
- Use of a risk assessment as described in **Chapter 6: EES assessment framework** as a prioritisation tool to inform the impact assessment and development of mitigation measures.
- Assessment of potential direct and indirect Aboriginal cultural heritage and historic heritage impacts of the construction and operation phases of the project, particularly in relation to the legislation, policy and guidelines listed in Section 10.3. This included an analysis of the spatial and temporal extent, magnitude and nature of the potential impacts, and gave consideration to the sensitivity and significance of affected places, values and sites.
- Assessment of the alternative to Trail 1 as shown in Figure 10-1 (the combination of Trail 45, Trail 46 and Trail 47) including describing existing conditions, assessment of impacts and a comparative analysis against Trail 1.
- Development of mitigation measures for the construction and operation of the project, based around the implementation of the mitigation hierarchy.

- Evaluation of the residual environmental impacts, which describe impacts once mitigation has been implemented.

10.5 Avoidance and minimisation through design

It is recognised that there are opportunities to avoid and minimise environmental impacts during the many stages of project development which has culminated in the project description presented in Chapter 3 of this EES. During project inception and early design development stages of the project, decisions on the location of the project, its design and construction techniques have enabled impacts to be significantly avoided and minimised in accordance with the mitigation hierarchy described in **Chapter 6: EES assessment framework**.

For cultural heritage the key avoidance and minimisation measures that have been incorporated into the design include:

- Siting trails to avoid known Aboriginal cultural heritage sites
- Siting trails to avoid the fabric of known VHR, VHI and HO sites
- Micro-siting of trails to minimise impacts on unlisted heritage sites containing heritage values.

After opportunities to avoid and minimise impacts through design were exhausted, minimisation and rehabilitation measures were developed. These are described in the construction and operation impact assessment sections in Sections 10.7 and 10.8.

10.6 Existing conditions

This section provides a summary of the existing conditions that are captured in detail in **Technical Report C: Cultural Heritage**. **Technical Report C: Cultural Heritage** details the existing conditions supported by references to previous studies, detailed mapping, figures and both historic and recent images.

10.6.1 Aboriginal cultural heritage

Aboriginal cultural heritage within the geographic region is described in the following sections, including:

- Historical and ethno-historical accounts of Aboriginal people
- Landforms and geomorphology
- Registered Aboriginal places
- Intangible heritage.

10.6.1.1 Geographic region

A geographic region was defined to set the boundary for the background information searches as part of the CHMP process. This geographic region was determined based on the geomorphic unit upon which the project area is located and giving regard to the location of waterways, which are known to have a high potential for significant Aboriginal cultural heritage material. The known Aboriginal places within the geographic area are indicative of the types of Aboriginal places that could be present within the project area.

The geographic region encompasses several named waterways including the Yarra River, Tugwell Creek, Cemetery Creek, and Yankee Jim Creek. A total of 19 named waterways flow through or are located within 200 metres of the project area. An overview of areas of cultural heritage sensitivity is provided in Figure 10-1.

10.6.1.2 Historical and ethno-historical accounts

Aboriginal groups mapped natural features as boundaries for their ranges, estates and economic territories. The *Woiwurrung* occupied the Yarra and Maribyrnong watersheds that were bounded by the Dividing Ranges to the north, from Mount Baw Baw westward to Mount William and Mount Macedon, and bounded to the west by the Werribee River.

The *Woiwurrung* consisted of four clans, with three additional partrilines. Each of these were responsible for particular areas of land, with their members sharing historical, genealogical and religious identities. The named group that occupied the project area were the *Wurundjeri willam* who held land along the Plenty and Yarra Rivers. The name *Wurundjeri willam* means white gum tree-dwellers.

Knowledge of Aboriginal religion was recorded and maintained through visual and oral traditions, which ensured the maintenance of social structures through generations. Pre-contact Aboriginal burial customs varied greatly across Victoria. Burials are often identified in softer alluvial sands containing one or two interments. The Aboriginal ancestral remains (burials) within the geographic region are associated with the Aboriginal historical place, Coranderk Cemetery. This cemetery was part of Coranderk Station that originally consisted of 2,300 acres and now consists of a half-acre cemetery.

Certain individuals within Aboriginal groups had responsibility for the management of natural resources. The *Woiwurrung* used indigenous flora and fauna to make items such as necklaces from reeds, arm and forehead bands made from waterfowl feathers, and belts made from animal skin and hair. Furthermore, the Wurundjeri are known to have travelled to the Bolin Swamps near Templestowe to catch eels.

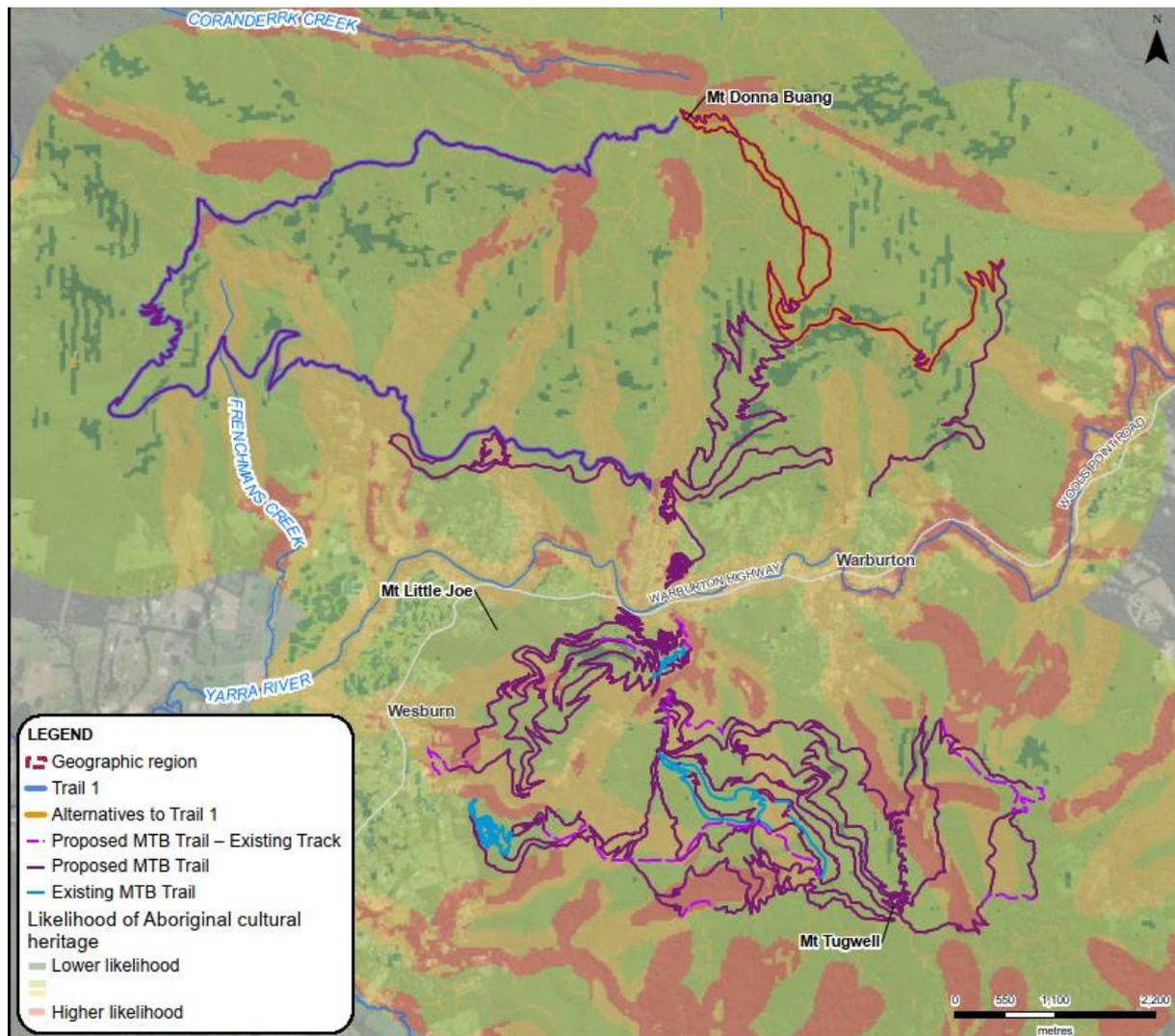


Figure 10-1 Aboriginal cultural heritage areas of sensitivity

10.6.1.3 Historical accounts of Aboriginal people

At the time of European settlement, there were three *Ngurungaeta*, or clan heads, that controlled the vast territory held by the *Wurundjeri willam*.

In 1839 an Aboriginal Protectorate Scheme was established in Victoria; the Protectorates provided religious instruction, rations, homes and medical care to Aboriginal people whilst recording population information.

In 1859, Wonga, a *Ngurungaeta*, approached Chief Protector of Aborigines, William Thomas, with a request for land on behalf of his *Taungurung* kinsmen. After petitioning the government, the Acheron Station was established on land to the north of the Cathedral Ranges. A year later, after the land had been cleared and fences and crops sowed, the government ordered the people to move to Mohican Station, located eight kilometres south of Acheron. A group of squatters had convinced the

government to sell Acheron station to them and move the Aboriginal people to Mohican Station. The Aboriginal people abandoned Mohican Station as the weather was unsuitable.

In 1862 John Green, General Inspector, applied for the *Woiwurrung* and *Taungurung* to re-establish Acheron Station. The 40 men, women and children walked from Yering to Acheron, cutting a track through the forest over the Yarra Ranges that would become known as the Black Spur trail. Upon arrival at Acheron it was discovered that squatters had settled in the area. With nowhere else to go, the *Woiwurrung* and *Taungurung* families set up camp at the confluence of the Yarra River and Badger Creek. They named the camp Coranderrk after the *Woiwurrung* name for the native flowering Christmas Bush located in the area. By 1870 Coranderrk had become a large village with a bakery, school and butcher.

In 1876, the Government recommended that the people on the Coranderrk Mission be moved for the benefit of their health. The people of the Mission fought for years to retain their homes. The Aborigines Protection Act of 1886 resulted in the removal of much of the Mission's workforce. As a result, the community struggled to sustain themselves, and the station lands were reduced to 2,400 acres.

In 1917, the State Government decided to close all missions but the Lake Tyers Mission in Gippsland. The Aboriginal community at Coranderrk resisted, and in 1924 the government finally agreed to six people remaining at the Mission. By this time, the Aboriginal people living at the Mission had developed strong ties with the land and family that were buried at the cemetery. The cemetery was handed back to the Wurundjeri community in 1988.

10.6.1.4 Landforms and geomorphology

Landforms and geomorphology are important for understanding the likelihood as well as types of Aboriginal places that would be most likely to occur within the project area. The project area is located within the East Dissected Victorian Uplands geomorphic division characterised by diverse landforms that were cut into Lower Palaeozoic sedimentary rocks and granites. Generally speaking, the dissected uplands consist of steep-sided valleys on either side of an alluvial valley floor. The following landforms are within the project area:

- Plateaux and broad ridges
- Low relief landscapes at low elevation
- Terraces, fans and floodplains
- Escarpments and gorges
- Deeply dissected ridge and valley landscapes.

The topography of the project area consists of dissected ranges, ridges, valleys and plains. The summit of Mount Donna Buang is approximately 1,250 metres above sea level, Ben Cairn is approximately 900 metres, Mount Little Joe is approximately 440 metres and Mount Tugwell is approximately 780 metres above sea level. Many creeks and tributaries flow downslope from the upper slopes of the surrounding hills of Mount Donna Buang, Mount Little Joe and Mount Tugwell.

Due to the elevation, there are extremes in temperatures including snow in winter, which is not conducive to year-round habitation. The combination of steep slopes and seasonal downpours wash away much of the sediment, leading to poor Aboriginal place preservation.

10.6.1.5 Existing Aboriginal places within the geographic region

A total of 76 Aboriginal places were identified within the geographic region on the Victorian Aboriginal Heritage Register (VAHR). The place type, number of places and percentage total are provided in Table 10-2.

Spatially, the majority of the recorded Aboriginal places were close to waterways. The majority of artefact scatters, scarred trees and low density artefact distribution are located within the western extent of the geographic region, within areas of cleared land associated with pastoral use or residential and recreational development.

Table 10-2 Aboriginal place types within the geographic region

Place type	Number of places	% of total
Artefact scatter	29	38.16
Scarred tree	23	30.26
Low density artefact distribution	14	18.42
Object collection	4	5.26
Aboriginal historical place	2	2.63
Earth feature	2	2.63
Aboriginal ancestral remains (burial)	1	1.32
Quarry	1	1.32
Total	76	100.00

A total of five Aboriginal places are recorded within one kilometre of the project area, a description of these Aboriginal places is provided in Table 10-3. Whilst all proposed trail locations were reviewed as part of EES investigations, these Aboriginal places were identified during previous archaeological studies within the geographic region and a summary of each of the studies is provided in **Technical Report C: Cultural Heritage**.

These artefacts have been recorded on a variety of landforms: flood plains, ridgetops, hill slopes as well as level ground on mountain tops; representing the various landforms that were utilised by Aboriginal people in the past.

Table 10-3 Aboriginal place types located within one kilometre of the project area

Place	Place type	Description	Proximity to trails
Mt Tugwell 1 VAHR 8022-0027	Artefact scatter	Located to the south of Cumming Spur Track and west of Morris Gully. The artefact scatter consists of one quartz flake and one quartz flaked piece recorded on the top of Mount Tugwell.	Approximately 30 m from Trail 48, approximately 70 m from Trail 33
Old Warburton 1 VAHR 8022-0019	Artefact scatter	Located approximately 220 m to the north and 320 m to the east of proposed mountain bike trails, to the south of Yankee Jim Creek and west of Main Creek. The artefact scatter was recorded as a surface scatter located over an area of 10 m by 2.5 m and consisted of a quartz retouched scrapper and other non-specific quartz artefacts. The surface scatter was recorded in a cleared area of undeveloped land on a landform that was recorded as mountain top – level ground of undeveloped land located on a ridgetop. The preservation of the artefact scatter was recorded as poor and threatened by erosion and vehicles.	No mountain bike trails proposed within 100 m of place
Mt Little Joe 1 VAHR 8022-0023	Artefact scatter	Located approximately 120 m to the west of a proposed mountain bike trail and to the south of the Yarra River. This Aboriginal place consists of three quartz artefacts that were recorded on the hill slope of Mount Little Joe.	Greater than 100 m from Trail 11
Warburton Scar Tree VAHR 8022-0115	Deceased scarred tree	A deceased scar tree with a girth of 5 m at 1.5 m high. It has a single scar with dimensions of 0.83 m long, 0.24 m wide and 1.5 m high and is in fair condition.	No mountain bike trails proposed within 100 m of place

Place	Place type	Description	Proximity to trails
4 Woods Point Road LDAD VAHR 8022-0118	Low density artefact distribution	A single crystal quartz flake was found at 0.25 m depth. The maximum dimension was 13 mm, and no cortex or use was noted.	No mountain bike trails proposed within 100 m of place

10.6.1.6 Intangible heritage

Cultural significance is embodied in a place: in its tangible or physical form, in the wider cultural landscape that it is located in, in the ways in which the place is used or interacted with, and in the associations, stories, and meanings of the place and community it holds significance for.

Intangible Aboriginal cultural heritage is identified through consultation with Aboriginal stakeholders and historical research and is recorded as part of the CHMP process.

Although no specific stories or oral traditions were known by the Elders for the specific Warburton area, utilisation of the abundant natural resources in the region and the significant vantage points such as Mount Donna Buang now have intangible values to their descendants. Further to this, in recent times, the dispossession of the land with the arrival of Europeans has formed a historical narrative through the region, which has intrinsic intangible values still felt by the Wurundjeri Woi-wurrung people.

10.6.1.7 CHMP 15276 summary

Five previously registered Aboriginal places were located within one kilometre of the project area. Previous archaeological assessments undertaken within the Upper Yarra Valley found that the rugged terrain and thickly wooded slopes are landforms that probably would have not been utilised by Aboriginal people. Within forested areas, the potential for Aboriginal cultural heritage material would generally be located on flat ground such as that of ridge tops, between ridges, and on creek and river flats, most likely near to permanent water sources.

Historic land use practices such as mining and logging and construction of roads and other infrastructure as described in Section 10.6.2.1 have changed the surrounding landscape and would have truncated or destroyed Aboriginal cultural heritage material if present. Furthermore, as previous regional and local archaeological assessments have shown, areas within the current project area that consists of steeply sloping, heavily vegetated land, have low potential to contain cultural heritage material.

The standard and complex assessments undertaken for CHMP 15276 did not identify or locate any Aboriginal cultural heritage material. One area of archaeological potential was identified near the golf course as likely being disturbed, and the complex assessment showed that the area displayed signs of erosion brought about by natural occurrences combined with historic gold mining practices. The CHMP development is ongoing; however, the results of the complex assessment indicate that it is unlikely that Aboriginal cultural heritage material is present within the project area.

10.6.2 Historic cultural heritage

Historic cultural heritage in the region is described in terms of:

- Land use history
- Historic heritage places
- Places of historic heritage archaeological potential.

10.6.2.1 Land use history

European surveyors and explorers were drawn to the Yarra River, as the most substantial waterway in the Port Phillip District. Historic land use practices include mining, logging and recreation.

In the 1830s, the Ryrie brothers arrived in the Upper Yarra Valley, driving their cattle from the Monaro plateau in New South Wales. In 1837, Donald established and ran a 16,000-acre out-station from Healesville along the Yarra Valley to Launching Place and Warburton, including the surrounding ranges.

Gold mining commenced in the Upper Yarra in 1859 following an earlier discovery in Emerald. The gold rush began at Britannia Creek at the junction with the Little Yarra River that soon established the township of Britannia near the present village of Wesburn. Yankee Jim's Creek goldfield opened in

1859, with the area renamed Warburton in 1863 after the Gold Warden for the district, Charles Warburton Carr. In 1860, the mining population consisted of around 500 miners who rushed to Big Pat's Creek upon the discovery of gold. The mining was mainly for alluvial gold in the deep deposits along the Yarra River and its tributaries and creeks. In order to supply water to the goldfields for sluicing, an open channel was cut from Starling's Creek to the diggings at Old Warburton, with extra water being diverted from Four Mile Creek.

In 1870, a waterwheel was built by Walter Fisher at Warburton to drive a battery to crush gold-bearing rock. This was located at the Shining Star mine near Mount Little Joe. A water race was constructed around the hillside to deliver water from the upper section of Big Pat's Creek to supplement the water from Yankee Jim's Creek. Miners then turned to hydraulic sluicing to extract remaining alluvial gold in deep deposits and surface soils, creating huge man-made gorges. The Yarra Yarra Hydraulic Gold Sluicing Company re-worked areas of Yankee Jim's Creek in the 1870s and 1880s. Sluicing was also taking place at Starvation and Hoddles Creeks at this time, however by the early 1880s most companies had exhausted their land. The last two surviving companies, Britannia Hydraulic Sluicing and Warburton Hydraulic Sluicing ceased operation in 1884.

Gold extracted via quartz reefing began around Britannia Creek in 1860. By the early 20th century, small-scale quartz reefing operations consisted of Evans Reward Mine and Lady Hopetoun in Warburton, Hoddles Creek Mine at Hoddles Creek and Mountain Queen at McMahon's Creek. Most of these operations were no longer in existence by 1910.

The gold mining boom in the region increased the need for timber, establishing the incentive for the logging industries in the Yarra Ranges and the establishment of the West Gippsland sawmills. In 1901, the railway line was extended to Warburton to help strengthen the growing timber industry. Sawmills and timber tramways were constructed throughout the area that fed the train line that supplied timber to Melbourne. The main tramways were located from Mount Bride, in Yankee Jim's Creek Gully, and along Britannia Creek. The rail line to Warburton ceased operations in 1965 and is now the Warburton Rail Trail.

Roads were also constructed in the mountains, initially to access gold mining areas, then for timber extraction and finally for tourism. Routes to the goldfield were created along the steep ridges into the dark gullies throughout the district. One such route became known as Back Stair Creek from the staircase looking effect that the horses had worn into the steep sides of the creek. Another track was opened up between Reefton along the Great Dividing Range from Marysville to other gold mining towns in Matlock and Wood's Point. These tracks and routes helped in opening up the Upper Yarra for settlement.

By the early 20th century, there was an increased demand for water to be supplied to the growing city of Melbourne. Water supply between the O'Shannassy Reservoir in the Yarra Ranges and the Silvan Dam holding reservoir in Silvan was established in 1914 through the construction of a 37-kilometre aqueduct. Many of the logging trails and tramways intersected the aqueduct, where concrete bridges with rails were constructed for access to the logging trains and farming properties. The aqueduct was decommissioned in 1997 and is now a walking and cycling trail.

During the late 1920s and 1930s Mount Donna Buang became a popular ski resort. The first ski run was constructed in the summer of 1924-25, and by 1937 there were six ski runs down the mountain. In 1939, bushfires and the start of the Second World War resulted in the decline of skiing on Mount Donna Buang.

10.6.2.2 Existing historic cultural heritage places

Within the study area, eight previously recorded historic cultural heritage places are listed on the VHI and 36 HO places are present. As a result of the project's assessment four additional sites were determined to meet the requirements for listing on the VHI, and one site card submitted for another site was not accepted by Heritage Victoria as it did not meet the threshold required for the VHI. Four VHR places of State significance were identified in the study area; however, these are not intersected by the proposed trails. The identified heritage places of local significance intersected by the proposed trails are described in Table 10-4 and shown in Figure 10-4.

Table 10-4 Identified historic cultural heritage places intersected by the project

Name	Place type	Description	Trails that intersect place
O'Shannassy Aqueduct Sawmill Site H8022-0111	VHI – timber tramway	Located on Sussex Street in Warburton, the site was established in September 1901 by three sawmillers, who set up their plants in the area. Over the years, the site was used by several sawmilling businesses and a log tramway was extended for logs from Mount Donna Buang. Subsequent investigations suggest this was a tramway transfer site rather than a sawmill.	Trail 1, 5 and 7
Mount Donna Buang-Bridle Tracks and Road HO140	HO – roads and tracks	Comprises bridle tracks, walking tracks and road access to Mount Donna Buang near Warburton. Bridle tracks were created to help locals and visitors access Mount Donna Buang from as early as 1912, and were developed into the present road. Bridle tracks later became of regional significance as an important Upper Yarra Valley beauty spot and recreational area.	Trail 1, 45 and 46
Lilydale – Warburton Railway HO214	HO – railway	A linear feature, originally with a rail track running from Lilydale to Warburton. The rail track is no longer present, however, sections of the rail reserve between Launching Place and Warburton East have been developed as the 'Centenary Trail', consisting of 12 km of pathway. The area illustrates the impact of the railway on the development of the upper section of the Yarra Valley, particularly for timber utilisation and its community use and association.	Trail 11
Lady Hopetoun Mine H8022-0138	VHI – mining site	Extensive areas of benching on the steep slopes, at least two levels of tramway and/or water race, the excavation for a mine entrance, and rock and earth spoil heaps extend north from the mine. The mine is known to have been supplied water from a renovated race, which is clearly that constructed originally for the Yankee Jim Mine.	Trail 22 and 23
Anderson's Mill H8022-0135	VHI – sawmill site	The Anderson sawmill was in operation from 1901 to 1905, then was taken over by Parbury in 1905 and became the Brookfield sawmill (see Figure 10-2). The site of Anderson/Parbury mill is recognisable to the north-east of the golf clubrooms on the southern edge of the patch of bushland. Here, concrete foundations, rail lines and machinery bases are evident on either side of Ythan Creek (see Figure 10-3). A large electric motor and what appeared to be a steam condenser chest sits on the site. It is known that Parbury had installed a Pelton wheel and electricity generator to drive the mill and incline haulage, and so this likely is the remains of this installation. About 10 m to the north, in the forested area, a terrace is discernible that is likely part of the mill platform. Finally, to the west an 80-pound rail was found, however, undergrowth obscures most of the ground.	Trail 10



Figure 10-2 Parbury's Brookfield mill, 1922. Source: Padula, 2018



Figure 10-3 Machinery and concrete foundations from Anderson's Mill on the golf course, 2021. Source: Biosis, 2021

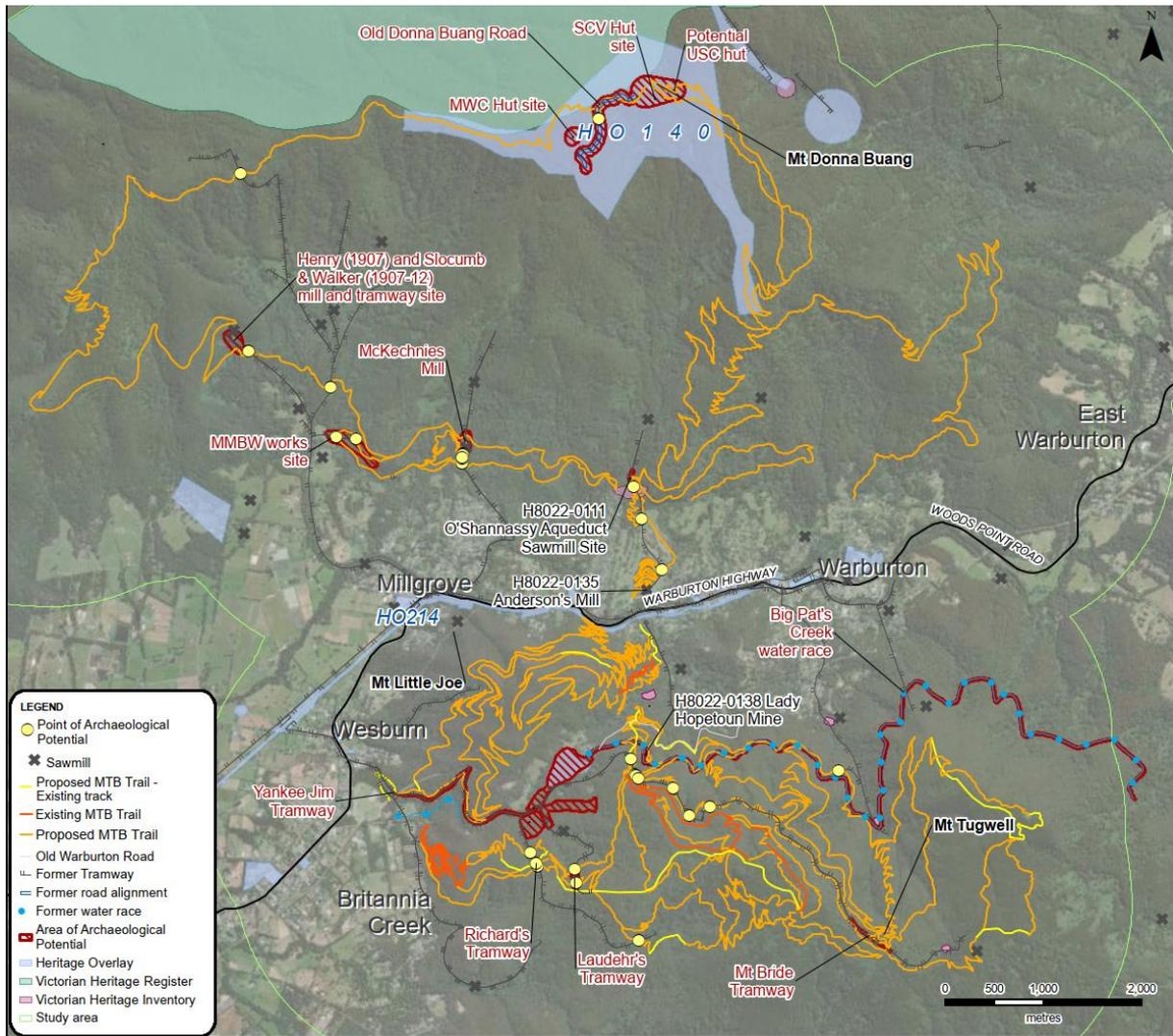


Figure 10-4 Listed historic heritage places and areas of archaeological potential intersected by trails

10.6.2.3 Potential historical cultural heritage

Technical Report C: Cultural Heritage identified a number of areas of archaeological potential where archaeological material may be encountered, but where there is insufficient evidence at this stage to confirm the presence of archaeological sites. Table 10-5 provides a description of each place and identifies the trail(s) that intersect the place extent as shown in Figure 10-4. For some areas of archaeological potential, heavy vegetation precluded the identification of features and archaeological remains.

Table 10-5 Places of historic cultural heritage archaeological potential intersected by the project

Area of archaeological potential	Description	Trails that intersect area
Mount Donna Buang hut sites	Several hut sites are known from historic maps along the Mt Donna Buang road and near the summit. These include the Melbourne Walking Club (MWC), Ski Club of Victoria (SCV) and University Ski Club (USC) huts. Dense vegetation precluded identification of historic features.	Trail 1 (MWC Hut) Trail 1, 45 and 46 (SCV Hut) Trail 56 and 46 (USC Hut)
Old Donna Buang Road	Modern improvements from the 1960s onwards saw the road to the summit sealed and improved. Part of the Old Donna Buang Road in the final section was completely realigned, with some sections of the old route forming car parks.	Trail 1
Henry (1907) and Slocumb & Walker (1907-12) mill and tramway site, Dee Road	In 1901, Henry Hermon established a sawmill at the headwaters of Four Mill Creek near Mount Bride, which was connected by a tramway and in 1909 he built another small mill near La La Falls known as the No 6 Mill. The No 6 Mill closed down in 1916 and the Mount Bride Mill closed in 1910. A log tramway alongside the Four Mile Creek carried timber to the La La sidings on the Warburton railway. It forms the La La Falls walking track for much of its length today. Additionally, Slocum and Walker operated a number of mills, including one at the head of the Dee River (1907-12) and another near the aqueduct at the end of McKenzie King Drive (1912-13) that had been commenced by Henry Hermon in 1906.	Trail 1
Melbourne and Metropolitan Board of Works (MMBW) site and O'Shannassy aqueduct, Dee Road	Further to H8022-0111 identified in Table 10-4, the O'Shannassy aqueduct is highly intact and visible. The aqueduct was decommissioned in the late 1990s. The concrete lined channel has level areas on either side along a maintenance track. The O'Shannassy trail access car park at the north end of Dee Road appears to be at the site of a former MMBW maintenance camp. This area has a number of levelled benches and large concrete foundations remaining from former buildings. The Henry and Walker tramway can be discerned running across the site.	Trail 2
Big Pats Creek water race	The water race that fed the sluicing works and water-powered crushing plant at Yankee Jim Creek can be traced along the northern slopes of the ranges running between Mount Bride Road and Old Warburton Road, and extending as far as Big Pats Creek to the south-east.	Trail 22, 23, 24, 41, 42 and 52
Mining, tramways and sawmill sites (including Laudehr tramway, Yankee Jim Creek tramway,	The routes of a number of timber tramways can be discerned by subtle landforms resulting from excavation of level benches and cuttings across the hillsides. The main tramways were located from Mount Bride, in Yankee Jim's Creek Gully, and along Britannia Creek	Trail 27 and 35 (Laudehr tramway) Trail 43 (Yankee Jim Creek tramway)

Area of archaeological potential	Description	Trails that intersect area
Richards tramway, Mt Bride tramway and McKechnie's Mill)	that carried timber to Wesburn. The tramway around the base of Mount Little Joe is clearly evident with tracks following it in part, while Laudehr and Platt's tramways running either side of the Cemetery Reserve can be traced in part, although the alignment has been disturbed by four-wheel drive tracks.	Trail 55 and 66 (Richards tramway) Trail 41, 51 and 52 (Mt Bride tramway) Trail 1 and 3 (McKechnie's Mill)

10.7 Construction impact assessment

Aboriginal and historic cultural heritage impacts associated with project construction discussed in this section include:

- Construction activities impact on intangible cultural heritage values, resulting in loss of heritage value
- Direct or indirect impacts to listed historic heritage sites
- Direct or indirect impacts to unlisted historic heritage sites.

Other matters assessed but not presented within this chapter are set out in Table 10-6. With the implementation of appropriate mitigation measures (refer to Section 10.10) such as engagement and consultation with WWCHAC, agreed management conditions outlined in CHMP 15276 and implementation of an unexpected finds procedures as part of the CHMP contingency measures, these impacts would be minimised as far as reasonably practicable. Further information on these impacts can be found in **Technical Report C: Cultural Heritage**.

Table 10-6 Potential impacts and findings

Potential impacts	Findings
Registered Aboriginal cultural heritage places are impacted resulting in loss of heritage value	No previously recorded Aboriginal places are located within the project area and no Aboriginal places have been identified during this assessment, likely due to the uninhabitable nature of the project area. With the implementation of management conditions in CHMP 15276 it is anticipated that impacts would be minimised to as low a level as possible, and the cultural significance of a place would not be impacted.
Unidentified Aboriginal cultural heritage places are impacted resulting in loss of heritage value	No Aboriginal places were identified during this assessment and the nature of the terrain is not conducive to the accumulation of Aboriginal cultural heritage material. However, Aboriginal places may be identified and impacted when excavation occurs during construction. The implementation of an unexpected finds procedure as per the CHMP contingency measures would minimise impacts as far as reasonably practicable.
Construction activities impact archaeologically sensitive landforms including waterways, mountain tops, ridgelines, gently sloping hills and flood plains	It is anticipated that excavation would take place within a 1.2 to 3.3 m corridor to maximum depths of approximately 800 mm. This has the potential to alter the landscape and impact sensitive landforms such as waterways, mountain tops, ridgelines, gently sloping hills and floodplains. Due to the low degree of disturbance to potentially significant landforms and lack of previously recorded Aboriginal places associated with these landforms in the project area, impacts to sensitive landforms are not expected. The implementation of management measures outlined in CHMP 15276 would minimise potential impacts.

10.7.1 Construction activities impact on intangible Aboriginal cultural heritage values, resulting in loss of heritage value

Vegetation removal would occur during construction, potentially resulting in the alteration of landscapes that may be associated with intangible cultural values. Natural resources were noted as having intangible value to the Wurundjeri Woi-wurrung people through their past utilisation. The intangible values themselves lie in the presence and knowledge of the Wurundjeri people from the Warburton region in the past, present and future. Due to the low impact to existing vegetation and

habitat, and the reinstatement of vegetation where possible, the impact on intangible heritage is considered minimal.

10.7.2 Direct or indirect impacts to listed historic heritage sites

There are five listed historic heritage sites (comprising three VHI sites and two HO areas) that are intersected by the proposed mountain bike trails as described in Table 10-4.

Three VHI places are intersected by the proposed mountain bike trails, O'Shannassy Aqueduct Sawmill Site (H8022-0111), Lady Hopetoun Mine (H8022-0138) and Anderson's Mill (H8022-0135). Construction techniques are expected to remove soils and, therefore, potentially expose subsurface archaeological features.

The O'Shannassy Aqueduct Sawmill Site includes features such as timber tramways, levelled benches and concrete foundations which would potentially be impacted by the proposed works. The trail alignment has been modified to avoid this site and utilises an existing disturbed area; however, a small area of the mapped extent has trails crossing it. Avoidance of this VHI place was not possible due to the steepness of the terrain in the vicinity and possible environmental impacts such as erosion if the trail alignment was moved. Inspections during the assessment indicated that there are no archaeological features in this small area, and the fabric of the site would not be impacted.

Lady Hopetoun Mine is overgrown, but some features are visible. This site was identified through the historic heritage study and presents an opportunity for public interpretation through locating the trail in this area. There would be disturbance of surface soil and rock from which gold has been extracted; however, the fabric of the site would not be impacted, and site artefacts would not be visible from the trail alignment. Mitigation measures undertaken in consultation with Heritage Victoria would serve to protect the fabric of the site.

Anderson's Mill is also overgrown with some features visible. Surface soil would be disturbed in the vicinity. This site exists within a highly disturbed area currently used as a golf course. Avoidance has been considered; however, a realignment of the trail would require encroaching on the golf course which would impact on the existing recreational activities.

A Consent heritage approval under Section 124 of the *Heritage Act 2017*, is likely to be required where impacts are proposed within sites listed on the VHI, prior to the commencement of project works. Detailed design and efforts to avoid excavation within the curtilage of listed historic heritage sites would assist in managing impacts during the construction phase of the project. The Consent applications would include mitigation measures which would be developed in consultation with Heritage Victoria.

The Mount Donna Buang-Bridle Tracks and Road (HO140) and Lilydale – Warburton Railway (HO214) places cannot be avoided by the trails as they are critical parts of the trails. The Mount Donna Buang-Bridle Tracks and Road site makes up a substantial portion of the summit, including the existing visitor site and access roads. The Lilydale – Warburton Railway site is the location of the existing Lilydale to Warburton Rail Trail which has been constructed along the old rail corridor and the proposed trail is required to connect to this existing trail. It is not anticipated that construction activities would impact archaeological features, deposits or landforms of the HO places. An amendment to the Planning Scheme is currently in preparation that, if approved, would satisfy the requirement for a planning permit for HO areas.

10.7.3 Direct or indirect impacts to unlisted historic heritage sites

The *Heritage Act 2017* protects all significant archaeological sites in Victoria, regardless of whether they have been previously recorded. The extent of archaeological potential of approximately 12 unlisted heritage sites is intersected by the proposed mountain bike trails, as summarised in Table 10-5. A number of these unlisted historic places are long and linear such as tramways and water races, and it has not been possible for the trails to avoid intersecting these points of archaeological potential.

There is the potential for construction of the trails to expose subsurface archaeological features such as foundations of structures, disturb archaeological deposits such as rubbish dumps (bottles, ceramics or other discarded materials), or damage or remove archeologically sensitive landforms such as benching for structures or tramways which have not yet been identified at this stage of the project. Excavation causing erosion and gullying towards water races and tramways may also impact areas of archaeological potential.

10.7.4 Contingency and mitigation measures

Mitigation measures to avoid and minimise impacts on Aboriginal cultural heritage and historic heritage during construction are summarised in Section 10.10.

Impacts to intangible Aboriginal cultural heritage would be minimised through ongoing consultation and engagement with WWCHAC on cultural heritage values. A cultural values recording was carried out with WWCHAC to document Indigenous cultural values within the project area. A report on cultural values is in preparation for the project area that would assist in managing these values and provide recommendations on future community engagement. Management conditions and contingency plans within CHMP 15276 would be implemented to mitigate potential impacts.

To avoid and mitigate impacts to listed historic heritage sites, micro-siting and monitoring would be undertaken during construction. If ground-disturbing works within VHI sites are required, consent would be sought and mitigation measures developed in consultation with Heritage Victoria. Measures to protect historic features would include limiting works to vegetation clearance if possible, monitoring during construction and recording historic features.

In order to mitigate impacts to unlisted historic heritage sites such as water races, tramways and mining features during construction, micro-siting of the trails would be undertaken. Workers would undergo a heritage induction to recognise potential archaeological sites and what contingency measures would need to be followed in the case of an unexpected find. The preference would be to avoid ground-disturbing works and remove vegetation only; however, if excavation is required, inspection and archaeological monitoring would be carried out in areas of historical and archaeological sensitivity or adjacent to these areas. Construction techniques would also minimise indirect impacts, such as ensuring gentle approach angles to avoid creating erosion or gulying at historic features.

Mitigation measures have been established to address matters relating to unexpected archaeological finds and unlisted historic heritage sites (MM-HM05). If archaeological features or artefacts are found during construction works, construction workers would be required to stop works as per the Construction Environmental Management Plan (CEMP) and a suitably qualified archaeologist would record the features or artefacts uncovered. If possible, the trail would then be realigned following the micro-siting procedure. Submission of a site card to notify Heritage Victoria of the find would also be required.

10.7.5 Residual impact

Residual impacts from project construction to intangible Aboriginal cultural heritage would be minimal. Consultation and engagement with WWCHAC would continue to provide recommendations on future community engagement and to manage potential impacts to intangible Aboriginal cultural values.

Micro-siting of the trails would avoid harming cultural heritage places. Following the implementation of mitigation measures to salvage, protect and monitor heritage places, residual impacts to Aboriginal cultural heritage and historic heritage would be low, particularly given the nature and scale of the disturbance.

10.8 Operation impact assessment

Technical Report C: Cultural Heritage considered direct or indirect impacts to registered and unidentified Aboriginal cultural heritage places and direct or indirect impacts to listed and unlisted historic heritage sites due to operation. A summary of the findings, proposed mitigation measures and the residual impact is described below.

10.8.1 Direct or indirect impacts to registered and unidentified Aboriginal cultural heritage places and to listed and unlisted historic heritage sites

It is anticipated that the development of the trails would encourage more people to the area and therefore in proximity to registered and unidentified Aboriginal and historic cultural heritage places. The advent of increased visitor traffic and users forming additional unauthorised trails may result in human impacts such as vandalism, accidental harm or the removal of Aboriginal cultural heritage material or archaeological material.

10.8.2 Proposed mitigation measures

Mitigation measures to avoid and minimise impacts on Aboriginal cultural heritage and historic heritage during operation are summarised in Section 10.10.

To mitigate impacts to Aboriginal cultural heritage during operation, all management conditions and contingency measures of CHMP 15276 would be followed. Compliance with management conditions

and contingency measures would ensure that the management of unexpected finds are managed with the participation and approval of WWCHAC.

Impacts to listed and unlisted historic heritage sites would be minimised by installing interpretive signage at trail heads to indicate the presence of historical features and sites to the public.

Monitoring or checks of known historic sites and features would be carried out as part of general trail inspections and maintenance in accordance with the Operations Environmental Management Plan (OEMP). Unauthorised trails which have the potential to impact heritage sites would be closed.

10.8.3 Residual impact

Following the implementation of mitigation and contingency measures as per CHMP 15276 and the OEMP, residual impacts to Aboriginal cultural heritage and historic heritage would be low.

10.9 Assessment of alternative to Trail 1

The assessment and comparison of Trail 1 and the alternative to Trail 1 (Trails 45, 46 and 47) shown in Table 10-7 is based on the existing conditions information provided in Section 10.6. The comparison is based on the residual impact of these options assuming effective implementation of the proposed mitigation and contingency measures outlined in Section 10.10.

All of Trails 1, 45, 46 and 47 are of low sensitivity with respect to Aboriginal cultural heritage and without any recorded Aboriginal places. The results of the auger testing in both areas indicated homogeneous soil profiles. The recording archaeologist identified that all trails were on the edge of a steep ridge that was difficult to access, would have contained little in terms of resource and would have poor place preservation due to natural impacts. Trail 1 (22,260 metres) is significantly longer than Trails 45, 46 and 47 (15,183 metres), and therefore is more likely to cause harm to unknown Aboriginal places than Trails 45, 46 and 47. However, given that all four of the trails have been deemed unlikely to have Aboriginal places present, regarding Aboriginal heritage, there are no discernible differences between the trails.

Regarding historic heritage, Trail 1 was determined to be of high sensitivity and intersects HO 140 and numerous places of archaeological potential. Trails 45, 46 and 47 were determined to be of moderate sensitivity and also intersects HO 140. Trail 1 is also significantly longer than Trails 45, 46 and 47. Therefore, regarding historic heritage, whilst neither alternative would be expected to have a significant impact on historic heritage values, Trails 45, 46 and 47 have less potential for impact than Trail 1.

Table 10-7 Assessment of alternative to Trail 1

	Trail 1	Trails 45, 46 and 47
Trail length (metres)	22,260	15,183
Aboriginal heritage	Low sensitivity area No recorded places or areas of potential identified	Low sensitivity area No recorded places or areas of potential identified
Historic heritage	High sensitivity area: <ul style="list-style-type: none"> • Within HO 140 area • Intersects two areas of archaeological potential associated with hut sites • Intersects area of archaeological potential associated with sawmill • Intersects water race and three tramways • Intersects VHI site H8022-0111 O'Shannassy aqueduct sawmill and tramway site. 	Moderate sensitivity area: <ul style="list-style-type: none"> • Trails 45 and 46 intersect HO 140 area. • Trail 47 does not intersect any known historic heritage places.

10.10 Summary of mitigation and contingency measures

Table 10-8 outlines the mitigation measures developed to avoid and minimise cultural heritage impacts within the project area. The focus of these mitigation measures is firstly avoiding impacts where

possible, and secondly, developing, preparing and implementing project-specific measures to achieve acceptable cultural heritage outcomes.

It is noted that specific measures, including relevant monitoring, recording and contingencies will be required as conditions of the CHMP under the *Aboriginal Heritage Act 2006* and Permit/Consent applications under the *Heritage Act 2017*. Compliance with conditions would be managed through contractual requirements and implementation of the CEMP. It is up to the proponent to ensure compliance with conditions.

Table 10-8 Proposed mitigation measures

Mitigation measure number	Project phase	Mitigation measure
MM-HM01	Construction / Operation	<p>Comply with all management conditions and contingencies of CHMP 15276.</p> <p>Management measures 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	Construction	Complete the Cultural Values Recording report.
MM-HM03	Construction	<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 Heritage Victoria prior to their commencement.
MM-HM04	Construction	<p>An amendment to the Planning Scheme is currently in preparation that, if approved, will 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> <p>If archaeological features are uncovered during works within a Heritage Overlay, HM05 applies.</p>
MM-HM05	Construction / Operation	<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 on Figure 10-4.</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 will be presented by a suitable experienced and qualified archaeologist. The induction will 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

Mitigation measure number	Project phase	Mitigation measure
		<ul style="list-style-type: none"> 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 will be subject to the following protocol.</p> <ul style="list-style-type: none"> All works must be conducted according to the CEMP, including the micro-siting procedure outlined within 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 CEMP, including the micro-siting procedure outlined within 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 outlined in the CEMP to realign the trail if possible Submission of a site card to Heritage Victoria (HM03 will then apply) Abide by all conditions on Heritage Victoria site card
MM-HM06	Operation	<p>Signage would be installed in accordance with the Warburton Mountain Bike Destination 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>

10.11 Conclusion

The cultural heritage assessment has shown that the construction and operation phases of the project could be managed such that the objective to avoid or minimise where avoidance is not possible, adverse effects on Aboriginal and historic cultural heritage is achieved.

To avoid and minimise impacts on cultural heritage, siting of the trails have avoided known Aboriginal cultural heritage sites and avoided the fabric of known VHI and heritage overlay sites where possible. Additionally, micro-siting of trails prior to construction would minimise potential impacts to unlisted heritage sites containing heritage values.

The assessment considered potential impacts to cultural heritage during both construction and operation of the project including on registered and unidentified Aboriginal cultural places, intangible cultural values, archaeologically sensitive landforms, and listed and unlisted historic heritage sites, finding that there are not anticipated to be significant impacts due to the project.

Following the implementation of measures described in Section 10.10, the following residual impacts have been identified:

- No known Aboriginal places were identified that would be impacted by the construction of the project.
- No specific intangible Aboriginal cultural heritage stories or oral traditions were identified by the Traditional Elders for the Warburton area that would be impacted by project construction.
- During construction, the extent of disturbance of the five listed historic heritage sites and 12 areas of archaeological potential would be confined and have a limited impact on the fabric of these sites.
- During operation, although additional visitors to the project area may increase the risk of damage or removal of heritage material, with adherence to guidance on the use of the trail network, impacts on heritage values are not expected.

Potential impacts would not contribute to a material change to existing conditions and are able to be managed through mitigation measures. Interpretive signage installed as part of the project would present an opportunity for public interpretation and appreciation of the historic heritage of the Warburton area.

In response to the EES evaluation objective described at the beginning of this chapter, impacts of the project on cultural heritage have been assessed, and mitigation measures have been identified to avoid and minimise adverse impacts.