Appendix J

Aboriginal and historical cultural heritage

MARINUS LINK

Marinus Link EIS/EES Aboriginal and Historical Cultural Heritage Technical Study – Victorian Terrestrial Component

Marinus Link Pty Ltd

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Template 2.8.1

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Abbreviations

Abbreviation	Description
ACHRIS	Aboriginal Cultural Heritage Research and Information System
ATSIHP Act	*Aboriginal and Torres Strait Islander Heritage Protection Act 1987* (Cwlth)
APR	Archaeological Potential Rating
BP	Before Present (years)
BLSC	Boonwurrung Land and Sea Aboriginal Corporation
BLCAC	Bunurong Land Council Aboriginal Corporation
CHMP	Cultural Heritage Management Plan
DCCEEW	Australian Department of Climate Change, Energy, Environment and Water (Commonwealth)
DEECA	Department of Energy, Environment and Climate Action (Victoria)
GLaWAC	Gunaikurnai Land and Waters Aboriginal Corporation
E	East
EE Act	*Environment Effects Act 1978* (Vic)
EES	Environment Effects Statement
EIS	Environmental Impact Statement
ELA	Eco Logical Australia Pty Ltd
EMPCA	*Environmental Management and Pollution Control Act 1994* (Tas)
ENE	East-north-east
EPA Tasmania	Environment Protection Authority (Tasmania)
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999* (Cwlth)
EPR	Environmental Performance Requirement
ESE	East-south-east
FPSR	First Peoples – State Relations
ha	hectare(s)
HVDC	high-voltage direct current
km	kilometre(s)
m	metre(s)
the Minister	Minister for Planning (Victoria)
MLPL	Marinus Link Pty Ltd
MW	megawatt(s)
N	North
NE	North-east
NEM	National Electricity Market
NW	North-west

Abbreviation	Description
NWTD	North West Transmission Developments Project
OEMP	Operational Environmental Management Plan
S	South
SE	South-east
SW	South-west
t	Tonne(s)
W	West

Executive Summary

Background

Marinus Link Pty. Ltd. proposes to construct a high voltage direct current electricity interconnector (comprised of dual below ground transmission lines) between Tasmania and Victoria, including a subsea cable and onshore cable and converter facilities.

The purpose of this report is to present the findings of the detailed historical and Aboriginal cultural heritage investigations, and associated impact assessment, for the Victorian terrestrial section of the proposed Marinus Link project.

Project Description

In Victoria, the shore crossing is proposed to be located at Waratah Bay with the project alignment crossing at the Waratah Bay–Shallow Inlet Coastal Reserve. From the land-sea joint located behind the coastal dunes, the land cable will extend underground for approximately 90 km to the converter station. From Waratah Bay the cable will run northwest to the Tarwin River Valley and then travel north to the Strzelecki Ranges. The alignment crosses the ranges between Dumbalk and Mirboo North before descending to the Latrobe Valley where it turns northeast to Hazelwood. The Victorian converter station will be at either a site south of Driffield or at Hazelwood adjacent to the existing terminal station.

The land cables will be directly laid in trenches or installed in conduits in the trenches. A construction easement 20 to 36 m wide will be required for laying the land cables and construction of joint bays. Cables will be laid using horizontal directional drilling (HDD) under major roads, railways, major watercourses and culturally sensitive locations where geotechnical conditions permit. Temporary roads for accessing the construction area and temporary laydown areas will also be required to support construction. Where possible, existing roads and tracks will be used for access, for example, farm access tracks or plantation forestry tracks.

Methods

The cultural heritage impact assessment involved the following steps:

- A desktop review to identify historical and Aboriginal cultural heritage values which may occur within the study area, drawing on information from cultural heritage databases, spatial datasets, aerial imagery, and relevant reports, guidelines, standards and scientific literature.
- The development of a digital predictive model to assist with the identification of priority properties requiring access during the archaeological fieldwork program if land access was not uniformly and readily available across the entire study area.
- Archaeological ground surveys undertaken as a series of pedestrian transects focused on the easement within the study area where most project-related disturbance will occur, but also expanding out to include the full width of the study area at water crossings and other areas of defined cultural heritage sensitivity, as well as access tracks, converter station footprints, etc. The intention of the archaeological ground survey was to cover 100% of the easement and expand to the full width of the study area at water crossings and other areas of defined cultural

heritage sensitivity, as well as access tracks, converter station footprints, etc, subject to land access being permitted.[1]

- An Aboriginal archaeological subsurface testing program at selected locations across the study area designed to further investigate the archaeological potential of landforms identified during the desktop assessment and archaeological ground survey as likely to be sensitive for the presence of Aboriginal archaeological cultural heritage.
- An Aboriginal cultural values assessment (CVA) program developed in partnership with the three First Peoples groups consulted during the preparation of this technical study, which included:
    - Gunaikurnai Land and Waters Aboriginal Corporation
    - Bunurong Land Council Aboriginal Corporation
    - Boonwurrung Land and Sea Council Aboriginal Corporation

  The purpose of the CVA was to identify tangible and intangible cultural values that the First Peoples groups associate with the study area, and to understand their concerns regarding the ways in which project activities might negatively impact these values.
- An analysis of impacts to historical and Aboriginal cultural heritage values based on the current project layout. This analysis involved a significance of impact approach and included the development of Environmental Performance Requirements to avoid, minimise and/or mitigate impacts identified as part of the analysis.

Results

The desktop assessment and archaeological fieldwork program included as part of the baseline assessment identified the following tangible (archaeological) cultural heritage values within the study area:

- One newly recorded historical archaeological site comprising a partially buried brick cistern.
- 13 previously registered Aboriginal cultural heritage places, including seven artefact scatters, five low-density artefact distributions (LDADs) and one multicomponent artefact scatter/ochre quarry site.
- 15 newly recorded Aboriginal cultural heritage places, including three artefact scatters and 12 low-density artefact distributions.

An Aboriginal CVA program was commenced as part of the baseline assessment. The CVA program was still in progress at the conclusion of the baseline assessment.

Impact Assessment

At the time the impact assessment was drafted, the CVA program was not sufficiently advanced to a point where meaningful information regarding intangible Aboriginal cultural heritage values associated with the study area could be incorporated into the assessment. The impact assessment is therefore limited to an assessment of Aboriginal and historical tangible cultural heritage values identified during

[1] Issues regarding limited land access and how this has affected the impact assessment are discussed in the report.

the desktop assessment, archaeological ground survey and Aboriginal archaeological subsurface testing program.

The project has the potential to directly or indirectly impact one historical and 28 Aboriginal tangible cultural heritage values, whose cultural heritage significance varies from low to moderate. In some instances, avoiding direct impacts to these cultural heritage values would require the project to be realigned. Taking into account the nature and scale of the project and the archaeological nature of these cultural heritage values, this assessment recommends the project be realigned to avoid direct impacts by the project to values assessed as having a high cultural heritage significance.

Impacts arising from the construction and operation of the project will be avoided, managed and/or mitigated through the implementation of the following potential avoidance, management and mitigation measures to be developed under relevant Environmental Performance Requirements (EPRs):

- Construction phase:
    - Project design to avoid historical cultural heritage place Moores Road 1 (EPR CH01).
    - Develop a Historical Heritage Management Plan (HHMP) (EPR CH01).
    - Develop and implement a strategy for ongoing engagement and partnership with First Peoples (EPR EM08).
    - Complete the CVA program and include the outcomes in the two project CHMPs (EPR CH03).
    - Avoidance of historical cultural heritage place Moores Road 1 (EPR CH01).
    - Implement the HHMP (EPR CH01).
    - Comply with relevant Aboriginal cultural heritage management plan (CHMP) management conditions and contingencies (EPR CH02), which may include:
        - Salvage surface collection of artefacts at 12 Aboriginal cultural heritage places.
        - Salvage excavations at five Aboriginal cultural heritage places.
    - Implement the strategy for ongoing engagement and partnership with First Peoples (EPR EM08).
    - Implement a construction noise and vibration management plan that specifically considers the requirements of sensitive cultural heritage values (EPR NV02).
- Operational phase:
    - Comply with EPRs EM08, CH01, CH02 and CH03.

A project-wide decommissioning management plan (EPR EM05) will also be prepared to outline how activities will be undertaken and potential impacts managed and addressing the items outlined in these cultural heritage EPRs.

The significance of residual impacts to historical and Aboriginal cultural heritage values after the implementation of EPRs CH01 to CH03 is summarised in the following table:

	Residual Impact Significance (29 Cultural Heritage Values)					
Project Phase	**Nil**	**Very Low**	**Low**	**Moderate**	**High**	**Major**
Construction	7 (24%)		7 (24%)	15 (52%)		
Operation	7 (24%)		7 (24%)	15 (52%)		
Decommissioning	7 (24%)		7 (24%)	15 (52%)		

The overall impact of the project on cultural heritage values in the project impact footprint, calculated using a weighted statistical median, is considered to be low. The cumulative impact of the project is also considered to be low using the same statistical approach applied to an assessment of four other regional projects.

The assessments included in this report have resulted in several positive outcomes for historical and Aboriginal cultural heritage values:

- The archaeological investigations undertaken in support of the project have contributed additional data on the Aboriginal and later historical occupation of the study area.
- The investigation results will enable future protection of cultural heritage places, contribute to the archaeological knowledge base of south-west Gippsland and enable future planning to prevent harm to historical and Aboriginal cultural heritage places.
- Close engagement with the First Peoples groups will also improve knowledge sharing and build relationships for future work and the protection of cultural heritage values.

Environmental Performance Requirements

Three cultural heritage Environmental Performance Requirements (EPRs) have been developed for the project:

EPR ID	Environmental Performance Requirement	Project Stage
CH01	**Develop and implement a historical heritage management plan to avoid and minimise impacts to historical cultural heritage values** Prior to commencement of project works prepare a historic heritage management plan. The plan must be prepared by a suitably qualified archaeologist in consultation with Heritage Victoria. The plan must include: • An unexpected finds protocol • Artefact and site recognition guide • Artefact and site recording standards • Artefact management and retention protocol • Measures to avoid impacts to the brick cistern located at Moores Rd, Buffalo, including: o Confirmation of the cistern site's boundary by a suitably qualified archaeologist. o Installation of a barrier around the site when construction activities are in proximity to the site. o Training to prevent access to the site by project employees and contractors. o Reference to the site and protection measures in daily toolbox meetings when construction activities are in proximity to the site.	**Construction and Operation**

EPR ID	Environmental Performance Requirement	Project Stage
	○ Periodic inspections to confirm the barrier around the site remains in place. ○ Monitoring during construction for vibration related impacts if required under the noise and vibration construction management plan prepared under EPR NV02. • Cultural awareness training • Procedure for historical cultural heritage inductions to be delivered to all project staff and contractors managing or directly undertaking ground disturbing activities. The plan must be implemented during construction. As part of the OEMP, include measures to ensure protection of the brick cistern during operation.	
CH02	**Comply with the Cultural Heritage Management Plans (CHMPs) 18201 and 18244** Implement and comply with CHMPs 18201 and 18244, prepared by qualified Heritage Advisors recognised under s 189 of the *Aboriginal Heritage Act 2006* (Vic), and approved in accordance with Division 5 (ss. 61-66A) of the *Aboriginal Heritage Act 2006* (Vic). The CHMPs must be implemented and complied with during construction and operation.	**Construction and Operation**
CH03	**Develop a cultural values assessment for land and sea country with First Peoples** As part of the strategy developed for EPR EM08, continue working with First Peoples in Victoria and Tasmania about intangible heritage values and develop an understanding of terrestrial and submerged intangible values. Work with First Peoples to prepare cultural values assessments for each group, and incorporate the results relevant to the Victoria jurisdiction into the two CHMPs referenced in EPR CH02.	**Construction and Operation**

EPRs EM05 and EM08 and are relevant and have been developed for implementation under the project's Environmental Management Framework:

EPR ID	Environmental Performance Requirement	Project Stage
EM05	**Develop and implement a land decommissioning management plan** Prior to the commencement of decommissioning, prepare a land decommissioning management plan with the objective of leaving a safe, stable and non-polluting environment, and minimising impacts during the removal of infrastructure. The land decommissioning management plan must: • Identify above-ground and below-ground infrastructure proposed to be removed or left in situ. • Assess potential impacts of decommissioning activities for the removal or retention of infrastructure • Describe measures to be implemented to avoid or reduce impacts from the removal or retention of infrastructure. • Include a rehabilitation and monitoring program to return the land surface to a condition consistent with pre-construction conditions or a condition consistent with the proposed land use. • Consider management measures adopted in construction and apply these where similar impacts could occur.	**Decommissioning**

	• Comply with the requirements of relevant legislation and guidelines at the time of decommissioning. • Apply the waste management hierarchy for removed materials. • Be consistent with the Marinus Link Sustainability Framework. The land decommissioning management plan is to be developed in consultation with landholders, relevant stakeholders and regulator/s. The plan must meet the relevant requirements of legislation and guidelines at the time of decommissioning and be approved by the Minister for Planning. The plan will be prepared and approved 6 months prior to decommissioning or at a time as agreed with the relevant authority. The land decommissioning management plan must be implemented during decommissioning.	
EM08	**Develop and implement a strategy for ongoing engagement with First Peoples** MLPL will develop and implement a strategy for ongoing engagement with First Peoples in Victoria and Tasmania during construction and operation of the project	**Construction and Operation**

EPR NV02 is also relevant to the management/mitigation of vibration-related impacts to cultural heritage:

EPR ID	Environmental Performance Requirement	Project Stage
NV02	**Develop and implement a construction noise and vibration management plan** Prior to commencement of project works, develop a construction noise and vibration management plan in consultation with EPA Victoria for onshore construction including the shore crossing. The construction noise and vibration management plan must describe the measures to be implemented during construction onshore in Victoria to minimise the risk of harm from construction noise and vibration, so far as reasonably practicable, in accordance with the General Environmental Duty under the *Environmental Protection Act 2017* (Vic). The plan must document (among other things): • The locations of the most sensitive working areas along the project alignment, including the extent of areas around unavoidable works and vibration sensitive areas (receivers) need to be identified where risk controls for noise and vibration are most important, based on the predicted noise and vibration emissions from construction. • Requirements for monitoring noise and vibration of construction works, including unavoidable works. • Vibration controls and monitoring requirements, including details of the locations and circumstances in which vibration monitoring would be conducted, for heritage structures including the cistern structure identified in Moores Road, Buffalo.	**Construction**

Conclusion

This assessment has found that the project will meet the evaluation objective specified in Section 4.3 of the EES scoping requirements:

Protect, avoid and, where avoidance is not possible, minimise adverse effects on historical heritage values, and tangible and intangible Aboriginal cultural heritage values, in partnership with Traditional Owners.

In order to meet the evaluation objective, this report has characterised the known tangible historical and Aboriginal cultural heritage values in the study area and identified potential impacts to these values that could result from project-related activities. Potential measures to avoid, minimise, or otherwise mitigate these potential impacts have been developed, which if implemented will meet the EES evaluation objective.

Ongoing engagement with First Peoples will occur through the preparation of CHMPs 18201 and 18244, further work to complete the CVA program, and the continued operation of the project's First Peoples Advisory Group. This will enable the project to further understand intangible values and identify appropriate avoidance, management and/or mitigation measures that will be incorporated into the CHMP management conditions.

1. Introduction

The proposed Marinus Link (the project) comprises a high voltage direct current (HVDC) electricity interconnector between Tasmania and Victoria, to allow for the continued trading and distribution of electricity within the National Energy Market (NEM).

The project was referred to the Australian Minister for the Environment on 5 October 2021. On 4 November 2021, a delegate of the Minister for the Environment determined that the proposed action is a controlled action as it has the potential to have a significant impact on the environment and requires assessment and approval under the *Environment Protection and Biodiversity Conservation Act 1999* (Cwlth) (EPBC Act) before it can proceed. The delegate determined that the appropriate level of assessment under the EPBC Act is an environmental impact statement (EIS).

On 12 December 2021, the former Victorian Minister for Planning under the *Environment Effects Act 1978* (Vic) (EE Act) determined that the project requires an environment effects statement (EES) under the EE Act, to describe the project's effects on the environment to inform statutory decision making.

In July 2022, a delegate of the Director of the Environment Protection Authority Tasmania determined that the project be subject to environmental impact assessment by the Board of the Environment Protection Authority (the Board) under the *Environmental Management and Pollution Control Act 1994* (Tas) (EMPCA).

As the project is proposed to be located within three jurisdictions, the Victorian Department of Transport and Planning (DTP), Tasmanian Environment Protection Authority (Tasmanian EPA) and Australian Department of Climate Change, Energy, Environment and Water (DCCEEW) have agreed to coordinate the administration and documentation of the three assessment processes. One EIS/EES is being prepared to address the requirements of DTP and DCCEEW. Two EISs are being prepared to address the Tasmanian EPA requirements for the Heybridge converter station and shore crossing.

This report has been prepared by Eco Logical Australia for the Victorian jurisdiction as part of the EIS/EES being prepared for the project.

1.1. Purpose of this Report

The purpose of this report to assess the potential impact to Aboriginal and historical cultural heritage in Victorian terrestrial contexts in accordance with the assessment guidelines for the project, as outlined in section 2.

The objectives of the Aboriginal and historical cultural heritage technical study are to:

- Identify, describe and map Aboriginal and historical cultural heritage values that may exist in relation to areas where ground disturbance from project activities is proposed.
- Identify potential impacts to the identified cultural heritage values arising from project activities.
- Recommend potential measures that should be adopted to mitigate and manage these impacts.
- Determine the residual impacts expected following implementation of proposed management measures.
- Assess the cumulative impact of the project in light of similar projects occurring in the vicinity of the project and in a similar time frame.

This report comprises:

- A baseline assessment describing the existing cultural heritage environment in the study area (see Section 5.2 for study area definition).
- An impact assessment detailing the potential, actual and perceived impacts of the project, recommended avoidance, management and mitigation measures to address the identified impacts, and an assessment of the residual impacts assuming implementation of the recommended measures.

1.2. Project Overview

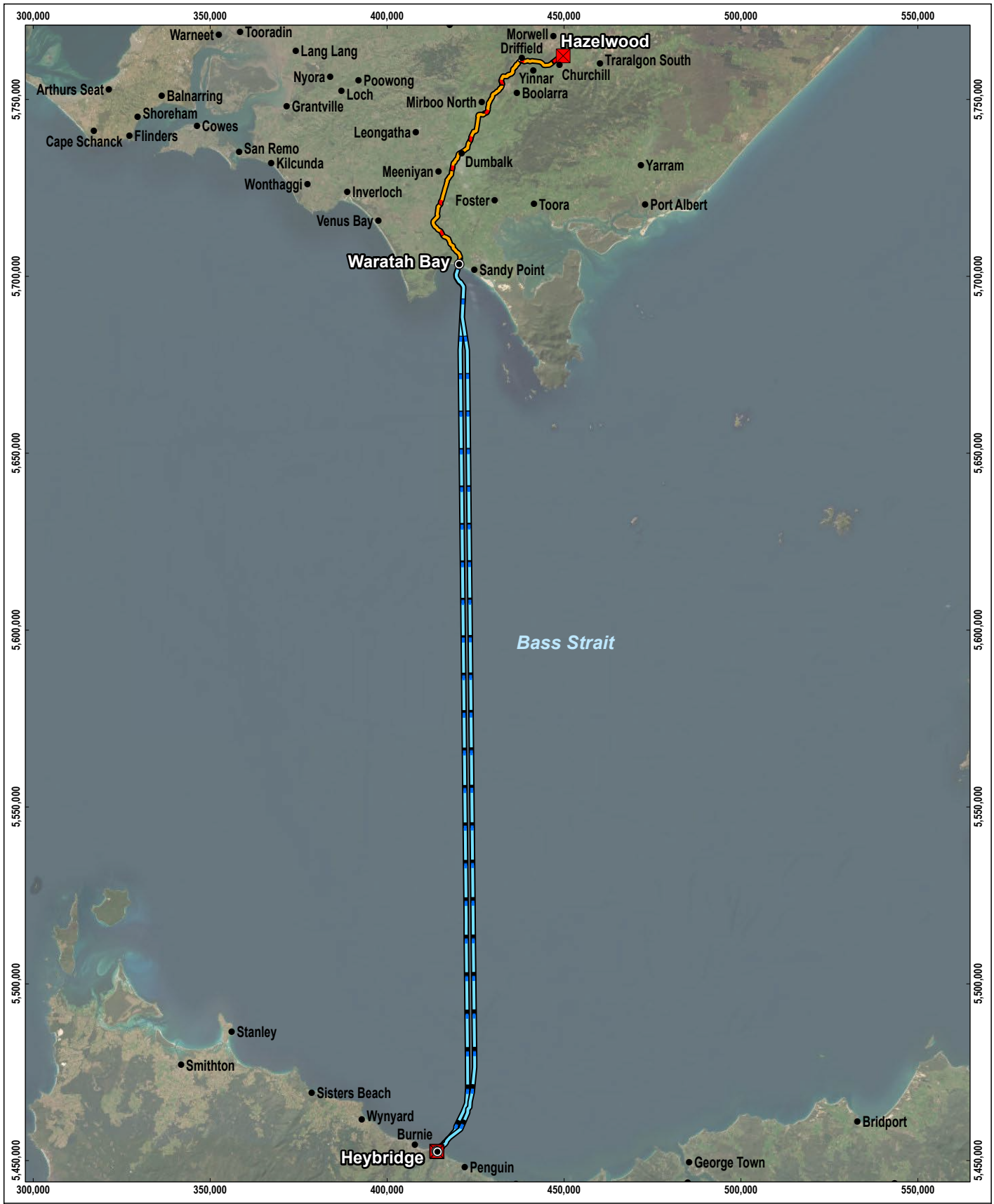
The project is a proposed 1500 megawatt (MW) HVDC electricity interconnector between Heybridge in northwest Tasmania and the Latrobe Valley in Victoria (Figure 1). Marinus Link is proposed to provide a second link between the Tasmanian renewable energy resources and the Victorian electricity grids enabling efficient energy trade, transmission and distribution from a diverse range of generation sources to where it is most needed and will increase energy capacity and security across the National Electricity Market (NEM).

Marinus Link Pty Ltd (MLPL) is the proponent for the project and is a wholly owned subsidiary of Tasmanian Networks Pty Ltd (TasNetworks). TasNetworks is owned by the State of Tasmania and owns, operates and maintains the electricity transmission and distribution network in Tasmania.

Tasmania has significant renewable energy resource potential, particularly hydroelectric power and wind energy. The potential size of the resource exceeds both the Tasmanian demand and the capacity of the existing Basslink interconnector between Tasmania and Victoria. The growth in renewable energy generation in mainland states and territories participating in the NEM, coupled with the retiring of baseload coal-fired generators, is reducing the availability of dispatchable generation that is available on demand.

Tasmania's existing and potential renewable resources are a valuable source of dispatchable generation that could benefit electricity supply in the NEM. Marinus Link will allow for the continued trading, transmission and distribution of electricity within the NEM. It will also manage the risk to Tasmania of a single interconnector across Bass Strait and complement existing and future interconnectors on mainland Australia. Marinus Link is expected to facilitate the reduction in greenhouse gas emissions at a state and national level.

Interconnectors are a key feature of the future energy landscape. They allow power to flow between different regions to enable the efficient transfer of electricity from renewable energy zones to where the electricity is needed. Interconnectors can increase the resilience of the NEM and make energy more secure, affordable and sustainable for customers. Interconnectors are common around the world including in Australia. They play a critical role in supporting Australia's transition to a clean energy future.



LEGEND

- Landfall
- Converter station
- HVDC subsea cable
- Underground HVDC cable
- Cable option not progressing

MARINUS LINK

0 15 30 km

SCALE **1:1,500,000**
PAGE SIZE: **A4**
PROJECTION: **GDA2020 MGA Zone 55**

SOURCE
Proposed route from Tetra Tech Coffey.
Imagery from ESRI Online.

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EIS/EES

FIGURE 1

Marinus Link overview

TETRA TECH COFFEY

DATE: **17.05.24** PROJECT: **754-MELEN215878ML** FILE: **215878ML_R06_F01-01_GIS**

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1.3. Assessment Context

Culture is the set of values, practices and symbols that define a group of people. These collectively formed beliefs and actions, may not be consciously thought of and can shape behaviour, define a person's worldview and lifeways.

Culture can give people a connection to social values, beliefs, religions and customs. It allows them to identify with others of similar mindsets and backgrounds. Cultural heritage can provide an automatic sense of unity and belonging within a group and allows us to better understand previous generations and the history of where we come from.

Cultural heritage is often considered in terms of both the tangible and intangible ways that people create, live, express and understand themselves and their place in the world.

Tangible and intangible cultural heritage varies from culture to culture. Tangible cultural heritage includes moveable or immovable objects, property, sites, structures or groups of structures which have archaeological, historical, cultural, artistic or religious values. It can also include unique natural features or tangible objects that embody cultural values, such as lakes, ponds, outcrops, rocks and waterfalls.

In contrast, intangible forms of cultural heritage include knowledge, innovations, and beliefs. Intangible cultural heritage is the traditions and living expressions inherited from ancestors and passed on to descendants. Intangible heritage includes cultural practices, oral traditions and language, skills, techniques and knowledge including dance, stories, crafts, medicines and designs.

Aboriginal intangible heritage is communicated from generation to generation and is constantly recreated by communities in response to their environment and their history (FP-SR 2021). It provides communities and individuals with a sense of identity and continuity. In Victoria, Aboriginal intangible heritage includes ceremony; creation stories; skills involved in the creation of cultural items; knowledge and skills associated with medicinal plant use; and language, dance, and song.

Oral tradition sites are places of intrinsic contemporary cultural significance or are associated with specific forms of contemporary cultural knowledge (this aspect being tangible). They are identified primarily on the basis that people alive today possess knowledge of these places (including their location, the stories behind them and the reasons why they are of cultural importance), and that the places exist as physical entities in the landscape.

While some of these places may contain physical (i.e. tangible) evidence of the human behaviours that relate to them, it is not an essential requirement in order for the place to be identified as a cultural heritage site – the fact that people have an extant oral tradition that identifies the place as being associated with a cultural activity or belief (i.e. intangible heritage) is sufficient. These may include places associated with ceremonial or ritual activities; burial sites and cemeteries; and places where people lived or undertook important social or economic activities.

The value that Australians place on their cultural heritage is considered to be sufficiently important that its protection and management is enshrined under relevant Commonwealth and State legislation.

2. Assessment Guidelines

This section outlines the assessment guidelines relevant to Aboriginal and historical cultural heritage and the linkages to other EIS/EES technical studies. A single consolidated EIS/EES is being prepared to address the requirements of the Commonwealth and Victorian jurisdictions, including the requirement for an EES. This report will use the term EIS/EES going forward.

2.1. Commonwealth

DCCEEW have published the following guidelines for the EIS: '*Guidelines for the Content of a Draft Environmental Impact Statement – Environment Protection and Biodiversity Conservation Act 1999* – Marinus Link underground and subsea electricity interconnector cable (EPBC 2021/9053)'. The sections relevant to the Aboriginal and Historical Cultural Heritage assessment include:

Section 4.2 (Description of the existing environment):

> The EIS must include a description of the environment of the proposed site and the surrounding areas that may be impacted by the action. The description should also include information on the importance and value of potentially impacted environmental features at the local and regional scale. The description must be sufficiently detailed to inform the assessment of impacts with greater detail provided for the species, habitats, and environmental features with greatest potential for impact. At a minimum, this section must include details of:
>
> *…Cultural heritage values (Indigenous and non-Indigenous); people and communities and other relevant social considerations;…*

Section 5.5 (Terrestrial impacts) requires an assessment of potential direct and indirect impacts to environmental values arising from the terrestrial components of the project, including a consideration of:

> *direct and indirect impacts to terrestrial cultural heritage, as a result of construction, commissioning, operation and decommissioning of the underground cable and the converter stations;*

2.2. Victoria

The EES Scoping Requirements issued by the Minister for Planning (February 2023) outline the specific matters to be assessed across a number of environmental and social disciplines relevant to the project, and to be documented in the EES for the project.

The EES Scoping Requirements inform the scope of the EES technical studies and define the EES evaluation objectives. The EES evaluation objectives identify the desired outcomes to be achieved and provide a framework for an integrated assessment of the environmental effects of a proposed project.

2.2.1. EES evaluation objective

The EES evaluation objective contained in Section 4.3 of the EES scoping requirements that is relevant to this Aboriginal and Historical Cultural Heritage assessment is:

Protect, avoid and, where avoidance is not possible, minimise adverse effects on historical heritage values, and tangible and intangible Aboriginal cultural heritage values, in partnership with Traditional Owners.

2.2.2. EES scoping requirements

The EES scoping requirements relating to cultural heritage are presented in Table 1, along with references to sections of this technical study relevant to each scoping requirement. Scoping requirements relating to underwater Aboriginal Cultural Heritage are addressed in a separate assessment EIS/EES Technical Appendix I: Underwater cultural heritage and archaeology.

Table 1: EES scoping requirements

Aspect	Scoping Requirement	Report Section
Key issues	• Recognition and respect for Traditional Owners' connection to Country. • Potential for adverse effects on Aboriginal cultural heritage values (including underwater Aboriginal cultural heritage[2], tangible and/or intangible), both known and unknown. • Potential for adverse effects on historic cultural heritage values (including underwater cultural heritage and archaeology), both known and unknown.	Section 7 (Impact Assessment)
Existing environment	• Review land use history, previous studies and relevant registers to identify areas with known or potential Aboriginal cultural heritage value (including underwater Aboriginal cultural heritage, tangible and/or intangible). • Informed by meaningful engagement with Registered Aboriginal Parties and Traditional Owner groups, identify and characterise Aboriginal cultural heritage sites, areas of sensitivity, cultural landscapes, or other intangible cultural heritage. • Review land and sea use history, previous studies, relevant registers and available seafloor survey data to identify and document known, potential and previously unidentified places, sites, objects and/or artifacts of historic cultural heritage significance potentially impacted by the project, including any areas of significant archaeological potential or value on land and underwater, in accordance with Heritage Victoria guidelines.	Section 6 (Baseline Assessment)
Likely effects	• Assess the potential effects on Aboriginal cultural heritage. • Assess the potential effects on sites and places of historic cultural heritage significance (including underwater heritage and archaeology) including mapping site extents in relation to proposed works. Assessments are to be undertaken in accordance with the *Heritage Act 2017* (Vic), the *Underwater Cultural Heritage Act 2018* (Cwlth), Heritage Victoria's *Guidelines for Conducting Archaeological Surveys* (2020) or updates and other guidance documents.	Section 7 (Impact Assessment): Construction, Section 7.1 Operation, Section 7.2 Decommissioning, Section 7.3

[2] Note that the present study is restricted to an assessment of terrestrial cultural heritage values only.

Aspect	Scoping Requirement	Report Section
Mitigation	• Describe any plan(s) or partnerships with Traditional Owners, including any opportunities to respond to Country Plans and to protect intangible cultural heritage. • Describe and evaluate proposed design, management or site protection measures that could avoid or mitigate potential adverse effects on known or unknown Aboriginal or historical cultural heritage values. • Describe management and contingency measures in accordance with the requirements for a Cultural Heritage Management Plan (CHMP) under the *Aboriginal Heritage Act 2006* (Vic), and including an Archaeology Management Plan that addresses requirements of the Heritage Act and Commonwealth Underwater Cultural Heritage Act; a survey of all areas of proposed works to identify currently unrecorded sites; recommendations for any required site avoidance, mitigation or site investigation processes; and the development of an Unexpected Finds Protocol, conducted by a qualified and experienced historical archaeologist for the land components and maritime archaeologist for the coastal and underwater components.	Section 7 (Impact Assessment): Construction, Section 7.1 Operation, Section 7.2 Decommissioning, Section 7.3
Performance	• Describe the framework for monitoring and evaluating the measures implemented to mitigate Aboriginal cultural heritage and historic heritage effects and contingencies. • Describe the approach to supporting ongoing Traditional Owner participation in project development and implementation.	Section 7.7 (Environmental Performance Requirements)

2.3. Linkages to other technical studies

This report is informed by or informs the technical studies outlined in Table 2.

Table 2: Linkages to other technical studies

Technical studies	Relevance to this study
Underwater cultural heritage and archaeology (EIS/EES: Technical Appendix I)	This report assesses the potential for cultural heritage in Victorian, Tasmanian and Commonwealth waters covering both maritime heritage and potential places of submerged Aboriginal cultural heritage.
Geomorphology and geology (EIS/EES: Technical Appendix O)	This report includes landform information relevant to the identification of potentially sensitive cultural heritage landscapes
Land use and planning (EIS/EES: Technical Appendix S)	This report includes information regarding previous and current land use across the study area, which will inform an understanding of the likely nature of past vegetation clearance and ground surface and subsurface disturbance.
Groundwater (EIS/EES: Technical Appendix P)	This report is required to identify whether there are issues, areas or sites of relevance and concern to First Peoples and a process to ensure appropriate engagement is undertaken to form indicators and objectives to minimise the risks of harm with respect to this environmental value.
Surface Water (EIS/EES: Technical Appendix Q)	This report is required to identify whether there are issues, areas or sites of relevance and concern to First Peoples and a process to ensure appropriate engagement is undertaken to form indicators and objectives to minimise the risks of harm with respect to this environmental value.

3. Legislation, Policy and Guidelines

3.1. Legislation

Commonwealth, Victorian and Local government legislation and other statutory instruments relevant to the project are summarised in Table 3.

Table 3: Commonwealth, Victorian and Local government legislation and relevance to this report

Act/Regulation/Statutory Listing	Summary	Relevance to the project
Commonwealth Government		
Environment Protection and Biodiversity Conservation Act 1999 (Cwlth)	The EPBC Act provides a legal framework to protect and manage nationally and internationally important flora, fauna, ecological communities and heritage sites—defined in the EPBC Act as matters of national environmental significance (MNES). These include world heritage properties and national heritage places. The EPBC Act was amended in 2003 to provide protection for Indigenous and non-Indigenous cultural heritage sites, in addition to the original aims of protecting environmental areas and sites of national significance. Indigenous cultural heritage places protected under the EPBC Act include "…[the] heritage value of the place that is of significance to indigenous [sic] persons in accordance with their practices, observances, customs, traditions, beliefs or history". Items identified under this legislation are given the same protective measures and penalties as actions taken against environmentally sensitive sites. Indigenous cultural heritage sites are protected under the EPBC Act if they listed on the National Heritage List or the Commonwealth Heritage List. The DCCEEW has issued the *Interim Engaging with First Nations People and Communities on Assessments and Approvals under the EPBC Act 1999*,[3] which outlines the statutory obligations that apply, and the department's expectations of, proponents engaging with First Nations people and communities under the EPBC Act.	The EPBC Act establishes the National Heritage List and the Commonwealth Heritage List.
Aboriginal and Torres Strait Islander Heritage Protection Act 1987 (Cwlth) (ATSIHP Act)	The major purpose of the ATSIHP Act is to preserve and protect Aboriginal and Torres Strait Islander cultural heritage areas and objects from injury and desecration. The ATSIHP Act enables immediate and direct action for protection of threatened areas and objects by a declaration from the Minister responsible for the Act, or from authorised officers. The ATSIHP Act must be invoked by or on behalf of an Aboriginal or Torres Strait Islander person or organisation. Any Aboriginal or Torres Strait Islander person or organisation may apply to the relevant Minster for a temporary or permanent 'Stop Order' for protection of threatened areas or objects of significant Indigenous cultural heritage. The ATSIHP Act overrides State and Territory legislation if the Minister is of the opinion that the State or Territory legislation is insufficient to protect the threatened areas or objects. Thus, if an application is made to the Minister for a Stop Order, the Minister will, as a matter of course, contact the relevant State or	Aboriginal cultural heritage places or objects within the study area may be protected under the ATSHIP Act if an application for a Stop Order is lodged by a relevant First Peoples group and Victorian legislation is deemed to provide insufficient protection.

[3] Interim Engaging with First Nations People and Communities on Assessments and Approvals under the Environment Protection and Biodiversity Conservation Act 1999 (dcceew.gov.au)

Act/Regulation/Statutory Listing	Summary	Relevance to the project
	Territory agency to ascertain what protection is being imposed and/or what mitigation procedures have been proposed by the land user/developer.	
National Heritage List and Commonwealth Heritage List	The EPBC Act enables the identification and subsequent listing of items for inclusion on the Commonwealth and National Heritage Lists. The EPBC Act establishes the National Heritage List under s. 324D, which includes natural, historic and Indigenous places of outstanding significance to the nation, and the Commonwealth Heritage List under s. 341D, which includes sites of national and international significance that are owned or controlled by the Commonwealth Government. The EPBC Act requires that approval be obtained before any action takes place that could have a significant impact on an item included on the National or Commonwealth Heritage lists.	Historic and/or Aboriginal heritage places in the study area may be included on the National or Commonwealth Heritage lists and therefore be protected under relevant provision of the EPBC Act.
Victorian Government		
Aboriginal Heritage Act 2006 (Vic)	The *Aboriginal Heritage Act 2006* (Vic) forms the framework within which Aboriginal heritage assessment is undertaken in Victoria. The Act provides for the protection and management of Victoria's Aboriginal heritage with processes linked to the Victorian planning system.	Sections 46 and 49 of the *Aboriginal Heritage Act 2006* (Vic) require a mandatory cultural heritage management plan (CHMP) to be prepared if an Environment Effects Statement (EES) is required for the project. Two CHMPs are being prepared for the project, delineated on the basis of Registered Aboriginal Party (RAP) boundaries: 1. Gunaikurnai Land and Waters Aboriginal Corporation RAP area (CHMP 18201) – Hazelwood to Mirboo North 2. Non-RAP area (CHMP 18244) – Mirboo North to Waratah bay.
Aboriginal Heritage Regulations 2018	The *Aboriginal Heritage Regulations 2018* set out the circumstances in which a CHMP is required to be prepared, and the standards for the preparation of a CHMP. The regulations also prescribe standards and set fees and charges for CHMP evaluation.	A mandatory CHMP is also required as the 'project' is a high impact activity that is being conducted within an area that intersects defined areas of Aboriginal cultural heritage sensitivity.
Heritage Act 2017 (Vic)	The *Heritage Act 2017* (Vic) enables the identification and protection of heritage places and objects that are of significance to the state of Victoria, the protection of known and unknown historical archaeological sites, and establishes the Victorian Heritage Register, the Victorian Heritage Inventory and the Heritage Council of Victoria, the expert statutory body for determining matters relating to historic cultural heritage	Historical cultural heritage of state significance is protected under the *Heritage Act 2017* (Vic). All historical archaeology older than 75 years identified within

Act/Regulation/Statutory Listing	Summary	Relevance to the project
		the project area is also protected under the *Heritage Act 2017*. Part 5 of the *Heritage Act 2017* (Vic) requires Permits or Permit Exemptions be obtained for works to places and objects on the Heritage Register. Part 6 of the Heritage Act requires reporting of a historical archaeological site discovered during a survey and requires Consents be obtained for works to a Heritage Inventory site. It is mandatory to cease works and contact Heritage Victoria if a historical archaeological site is discovered during ground or subsurface works. The works must not continue until the site is added to the VHI and a Consent obtained or determined to be of low archaeological value by the Executive Director of Heritage Victoria.
Heritage Regulations 2017	The *Heritage Regulations 2017* set out the fees for application fees forms for Permits for VHR places and Consents for VHI sites and forms for recording an archaeological site.	A site card must be completed and submitted to Heritage Victoria in order to assess the archaeological value and/or potential of a site, and whether it should be included on the VHI.
Planning and Environment Act 1987 (Vic)	Places of local historical significance can be listed for protection in Local Government Area (LGA) planning schemes under the provisions of the *Planning and Environment Act 1987* (Vic). Places are added to planning schemes through amendments and are included in local Heritage Overlays. Heritage Overlays are established in accordance with Section 18 of the Act, which requires local governments to develop Planning Schemes. Under Clause 43 of the Planning Schemes a permit is required for changes to heritage places included on the relevant planning scheme's Schedule to the Heritage Overlay.	The Planning and Environment Act provides protection to historical places included on LGA planning scheme heritage overlays.

Act/Regulation/Statutory Listing	Summary	Relevance to the project
Victorian Aboriginal Heritage Register (VAHR)	The VAHR was established under the *Aboriginal Heritage Act 2006* (Vic) and records information on all registered Aboriginal cultural heritage places and objects within Victorian, including their location and description.	The VAHR provide information on any Aboriginal cultural heritage places that may be situated within the study area and holds information regarding each Registered Aboriginal Party (RAP), their area of responsibility and contact details.
Victorian Heritage inventory (VHI)	All historical archaeological sites are protected under the *Heritage Act 2017* (Vic), and sites recorded which meet the definition of an archaeological site and HV's Threshold Policy for Determining Historical Archaeological Sites and reported to HV are included on the VHI. The VHI is a listing of sites (other than a shipwreck) that contain (or are likely to contain) archaeological remains which is 75 or more years old, where the remains demonstrate an association with a significant historical event, pattern of land use, or other activity; requires archaeological methods to reveal information about the settlement, development or use of the place; and is not associated only with Aboriginal occupation of the place.	The Victorian Heritage Inventory was consulted to determine whether any known historical archaeological sites are situated within the study area.
Victorian Heritage Register (VHR)	Places of recognised state heritage significance are included in the VHR and are legally protected under the provisions of the *Heritage Act 2017* (Vic). Permits are required prior to the commencement of any works at/modifications to places and objects on the Victoria Heritage Register.	The Victorian Heritage Register was consulted to determine whether any known historical cultural heritage places of state significance are situated within the study area.

3.2. Guidelines

Industry and best practice guidelines followed during the preparation of this Aboriginal and historical cultural heritage technical study are summarised in Table 4.

Table 4: Industry and best practice guidelines and relevance to this project

Guideline	Summary	Relevance to the project t
Australia ICOMOS Charter for Places of Cultural Significance, 'the Burra Charter' (Australia ICOMOS 2013; Marquis-Kyle & Walker 2004)	The Australia International Council on Monuments and Sites (ICOMOS) is a non-government, not-for-profit organisation of cultural heritage professionals which was formed as a national chapter of ICOMOS International in 1976. One of the key goals of Australia ICOMOS is to promote an understanding of the cultural significance of places and raise conservation standards through education and communications. The Australia ICOMOS Charter for Places of Cultural Significance 2013, generally referred to as the Burra Charter, is widely recognised as a benchmark standard for cultural heritage management in Australia. In general, it defines the basic principles and procedures to be followed in the conservation of heritage places (Australia ICOMOS 2013).	The Burra Charter outlines a process for establishing cultural significance using a set of clearly defined criteria (see Section 5.5.1 for further details). These criteria were incorporated into the EIS/EES cultural heritage impact assessment methodology.

3.3. Gunaikurnai Whole-of-Country Plan

The Gunaikurnai Land and Waters Aboriginal Corporation (GLaWAC) released the Gunaikurnai Whole-of-Country Plan (the Plan) in July 2015 (GLaWAC 2015). The Plan provides a vision and foundation for Gunaikurnai aspirations for their Country and their people. It outlines their overall goals for Gunaikurnai Country and guides them in the various ways these goals will be achieved (GLaWAC 2015:14).

The Plan articulates the following vision:

> *We are Gunaikurnai, the First People of our Country. We have survived for tens of thousands of years, often against great adversity. We have looked after our Country and passed on our stories and traditions through countless generations. We continue to survive and thrive, maintaining connection to our Country and to our ancestors.*
>
> *The future we see is one where Gunaikurnai stands proud and strong, where our people have strong connections to their culture and Country, where our businesses and relationships are based on solid foundations and where we are self-sufficient and highly respected. In our future, our mob is united – the five clans of Gunaikurnai*[4] *working together to support each other.*
>
> (GLaWAC 2015: 6)

The Plan acknowledges that Gunaikurnai Country is now also valued by many other people and cultures, as places for recreation and as a rich landscape that supports many diverse industries such as tourism, forestry, agriculture and natural resources (DDWCAC 2014: 9). The Plan also acknowledges that Gunaikurnai Country has been altered, often drastically, and that some landscapes have suffered devastating change that requires healing (GLaWAC 2015: 8).

The Plan notes that Gunaikurnai Country possesses a rich Aboriginal culture.

> *Our heritage is strong across our landscape, and Aboriginal cultural sites and artefacts can be found along our songlines, and trade routes, mountain ridges and waterways. They remind us about the ways of our ancestors and show our close and continuing connection to Country. Some of these sites have been recorded, however many have not yet been found and protected. Our spiritual connection is something that cannot be seen, but nevertheless exists strongly in the places we walk and in the paths of our ancestors.*
>
> (GLaWAC 2015: 8)

The Plan includes nine Whole-of-Country principles and seven strategic goals that will help the Gunaikurnai to work towards their vision (GLaWAC 2015: 6; Table 5):

[4] The Plan acknowledges five Gunaikurnai clans: the Brayakaulung, the Brabralung, the Brataualung, the Tatungalung and the Krauatungalung (GLaWAC 2015: 4)

Table 5: Gunaikurnai Whole-of-Country Plan principles and strategic goals (GLaWAC 2015)

Principles	
We have cultural obligations	It is our inherent responsibility to look after Country – to heal the damage of the past and protect it for future generations.
Everything is connected	All of our Country is linked. There is no separation between our landscapes, waterways, coasts and oceans, and natural and cultural resources. All are linked and bound to our people, law and custom.
Every bit matters	We understand the need to prioritise limited resources to where important values are under threat, but every part of our Country remains important to us. Our values exist even when you can't see them – whether they are under water, deep inside caves, covered with vegetation, they are still important to us.
Don't wait until its gone	When you lose a site, it's gone forever. We need to act now to prevent any further loss of environmental or cultural values.
Look at what was there before	When we are healing and restoring degraded landscapes, we should try to put back the plants and animals that used to be there.
Sustainable use	Our approach to managing Country is to balance resource use with conservation – they are all part of the same. Take only what you need – leave some for others.
Seek collective benefits	We use our resources for the benefit of our mob rather than seek individual gain.
We have the right to be on our Country	Traditional Owners should not be restricted in accessing our traditional Country. At the same time, we should have the right to restrict access to others who disrespect and damage our sensitive areas.
Our traditional knowledge is valuable	Our traditional practices and approaches sustained the land for thousands of years. Our Country should be managed in harmony with our traditional ways. We need to take the time to understand what natural and cultural heritage exists out on Country. It can't be managed properly if we don't know what is there.
Strategic Goals	
1. To have a strong, healthy and happy mob	• We have a shared vision for our future, and we are working towards the same goals • Our Elders are respected and cared for • Our younger generations have opportunities in all aspects of life, helping to build their confidence and improve their health and wellbeing • The cultural, spiritual and physical needs of our people are met • Our mob regularly gets together to celebrate our culture
2. To heal our Country	• Our skills and knowledge in managing Country are recognised, actively sought and respected • We are treated as an equal partner in land and sea management • Our people are working on Country in all areas of natural and cultural resource management • There are enough ranger positions to properly manage our Country, including water and Sea Country • We are empowered to make and enforce the laws of our land • All Gunaikurnai Country is managed according to our Traditional laws and customs
3. To protect and practice our culture	• We are actively maintaining our strong spiritual connection to Country • We are passing on our customs and traditions across generations through song, dance and story, being on Country and our dreaming • Our sacred sites are identified and protected and our cultural objects are returned • The remains of our ancestors are returned to Country

Principles		
		• We have a keeping place for each clan • Our real language is restored and preserved
4.	To be respected as the Traditional Owners of our Country	• We are recognised and respected as equal by all levels of government and by the broader community • Our ancient past is acknowledged, shared and respected • Government policies appropriately reflect our rights and interests • Our corporation is strong and effective, and recognised as the peak body representing the interests of Gunaikurnai people
5.	To have the right to use, manage and control our Country	• All public land is handed back as Aboriginal Title, and managed to deliver on the rights and interests of Gunaikurnai • We have access to resources for commercial, cultural and ceremonial purposes, and we determine what is sustainable and appropriate • We have unrestricted access to all of our Country and the right to restrict the access of others to our culturally significant sites • We are fairly compensated for the resources that others take from Gunaikurnai Country, including minerals, timber and water • We control who accesses and uses our traditional knowledge, including cultural copyright.
6.	To be economically independent	• GLaWAC is sustainable into the future • All Gunaikurnai people have access to secure employment • Our natural and cultural resources are a secure source of revenue for our mob • Government policy supports our economic development • We have diverse, successful and ethical enterprises providing jobs and income to our mob • We are taking advantage of emerging market opportunities
7.	To have a strong focus on learning	• We, as Gunaikurnai, are actively sharing our culture and knowledge with our mob and the wider community • The broader community understands and respects our culture and journey, and partners with us to care for Country • Our people are building the professional skills and qualifications needed to work on Country, and take up employment opportunities • Gunaikurnai leaders are identified and supported to reach their potential • Our ancient past and culture is embedded in the school curriculum • GLaWAC collects, owns and manages our own cultural knowledge and information, with a dedicated research arm and database of cultural practices

Of particular relevance to this report, Goal 3 of the Plan (To Protect and practice our culture) identifies a list of objectives, including (but not limited to):

- Establish keeping places for each clan.
- Create a central database where we can store our cultural and traditional knowledge.
- Develop a cultural heritage strategy.
- Install more interpretation materials, including installing signs and developing an app, so the wider community can appreciate Gunaikurnai history.
- Undertake mapping and surveying to find our sites and document our songlines.

The Plan also includes a set of principles for the joint management of national parks and reserves on Gunaikurnai Country. The Plan identifies coastal land and sea environments as having been occupied

by Gunaikurnai people for thousands of years, including areas that were dry land before the current sea level stabilised about 5,000 years ago:

> *Our relationship with these cultural landscapes continues, even where the evidence of our previous occupation now lies beneath the ocean.*
>
> *We see no distinction between the land and the sea. It is all a part of our Country. But our connection to the coastal and marine parts of our Country is rarely recognised, so we now need to be explicit about its significance to us.*
>
> (GLaWAC 2015: 55)

4. Project Description

4.1. Overview

Marinus Link is proposed to be implemented as two 750 MW circuits to meet transmission network operation requirements in Tasmania and Victoria. Each 750 MW circuit will comprise two power cables and a fibre-optic communications cable bundled together in Bass Strait and laid in a horizontal arrangement on land. The two 750 MW circuits will be installed in two stages with the western circuit being laid first as part of stage one, and the eastern cable in stage two.

The key project components for each 750 MW circuit, from south to north, are:

- HVAC switching station and HVAC-HVDC converter station at Heybridge in Tasmania. This is where the project will connect to the North West Tasmania transmission network being augmented and upgraded by the North West Transmission Developments (NWTD).
- Shore crossing in Tasmania adjacent to the converter station.
- Subsea cable across Bass Strait from Heybridge in Tasmania to Waratah Bay in Victoria.
- Shore crossing at Waratah Bay approximately 3 km west of Sandy Point.
- Land-sea cable joint where the subsea cables will connect to the land cables in Victoria.
- Land cables in Victoria from the land-sea joint to the converter station site in the Driffield or Hazelwood areas.
- HVAC switching station and HVAC-HVDC converter station at Driffield or at Hazelwood, where the project will connect to the existing Victorian transmission network.

A transition station at Waratah Bay may also be required if there are different cable manufacturers or substantially different cable technologies adopted for the land and subsea cables. The location of the transition station will also house the fibre optic terminal station in Victoria. However, regardless of whether a transition station is needed, a fibre optic terminal station will still be required in the same location. The key project components are shown in Figure 2.

Approximately 255 kilometres (km) of subsea HVDC cable will be laid across Bass Strait. The preferred technology for Marinus Link is two 750 MW symmetrical monopoles using ±320 kV, cross-linked polyethylene insulated cables and voltage source converter technology. Each symmetrical monopole is proposed to comprise two identical size power cables and a fibre-optic communications cable bundled together. The cable bundles for each circuit will transition from approximately 300 m apart at the HDD (offshore) exit to 2 km apart in offshore waters.

In Victoria, the shore crossing is proposed to be located at Waratah Bay with the route crossing at the Waratah Bay–Shallow Inlet Coastal Reserve. From the land-sea joint located behind the coastal dunes, the land cable will extend underground for approximately 90 km to the converter station. From Waratah Bay the cable will run northwest to the Tarwin River Valley and then travel to the north to the Strzelecki Ranges. The route crosses the ranges between Dumbalk and Mirboo North before descending to the Latrobe Valley where it turns northeast to Hazelwood. The Victorian converter station will be at either a site south of Driffield or Hazelwood adjacent to the existing terminal station.

The land cables will be directly laid in trenches or installed in conduits in the trenches. A construction area of 20 to 36 m wide would be required for laying the land cables and construction of joint bays. Temporary roads for accessing the construction area and temporary laydown areas will also be required to support construction. Where possible, existing roads and tracks will be used for access, for example, farm access tracks or plantation forestry tracks.

Land cables will be installed in ducts under major roads, railways, major watercourses and substantial patches of native vegetation using trenchless construction methods (e.g., HDD), where geotechnical conditions permit. A larger area than the 36 m construction area will be required for the HDD crossings.

The assessment is focused on the Victorian section of the project. This report will inform the EIS/EES being prepared to assess the project's potential environmental effects in accordance with the legislative requirements of the Commonwealth and Victorian governments (see Figure 2).

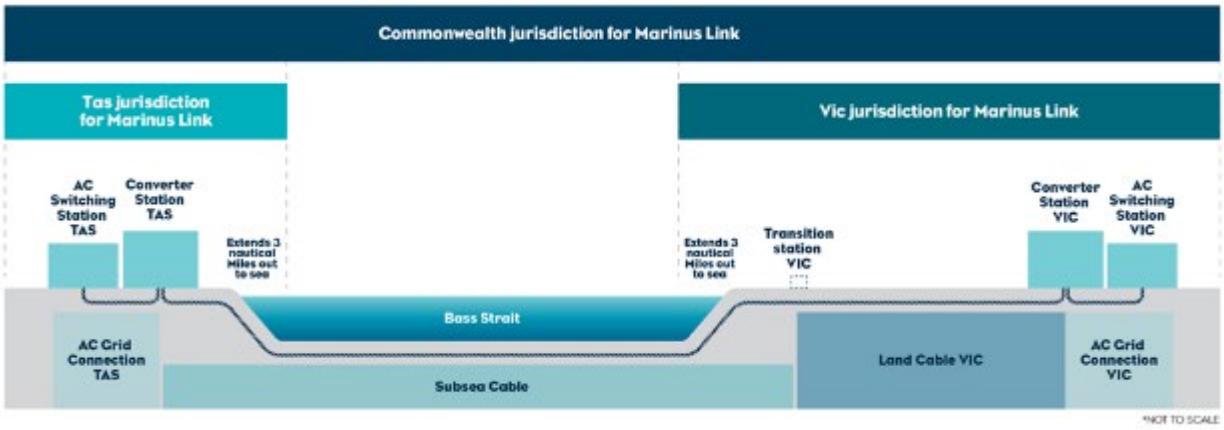

Figure 2: Project components considered under applicable jurisdictions (Marinus Link Pty Ltd 2022)

Marinus Link is proposed to be constructed in two stages over approximately five years following the award of works contracts to construct the project. On this basis, stage one of the project is expected to be operational by 2030 and stage two will follow with final timing to be determined by market demand. The project will be designed for an operational life of at least 40 years.

4.2. Construction

The majority of potential impacts on Aboriginal and historical cultural heritage will occur during the project's construction phase. Construction includes design, any pre-construction activities that inform construction or to establish baseline conditions, temporary works, work site establishment, reinstatement, rehabilitation of construction areas, and any commissioning activities. Key construction activities for the project with a potential to impact on cultural heritage are likely to include:

- Shore crossing:
  - horizontal directional drilling (HDD)
- Transition stations:
  - civil works
  - access roads

  - transition station bench
  - foundations
  - hardstand area
- Land cables:
  - site establishment
  - topsoil stripping and stockpiling
  - haul road construction
  - excavation of trenches, installation of ducts and backfilling
  - horizontal directional drilling (HDD)
- Converter station:
  - site preparation
  - earthworks
  - civil works

4.3. Operation

The project will ideally operate 24 hours per day, 365 days per year over an anticipated minimum 40-year operational lifespan.

Operation and maintenance activities include:

- Routine inspections of the land cable easement for potential operational and maintenance issues, including:
  - unauthorised activities and structures
  - land stability
  - rehabilitation issues
  - weed infestations resulting from construction activities
  - cover at watercourse crossings.
- Periodic inspection of the subsea project alignment by remotely operated vehicles.
- Remote monitoring of shipping activity near the subsea cables for potential anchoring issues.
- Servicing, testing and repair of the subsea and land cables, transition station and converter stations equipment and infrastructure including scheduled minor and major outages.
- Maintenance of access tracks.

4.4. Decommissioning

The operational lifespan of the project is a minimum of 40 years. At this time the project will be either decommissioned or upgraded to extend its operational lifespan.

Requirements at the time will determine the scope of decommissioning activities and impacts. The key objective of decommissioning is to leave a safe, stable and non-polluting environment, and minimise impacts during the removal of infrastructure.

Decommissioning will be planned and carried out in accordance with regulatory and landowner or land manager requirements at the time. A decommissioning plan in accordance with approvals conditions

will be prepared prior to planned end of service and decommissioning of the project. The decommissioning plan will outline how activities will be undertaken and potential impacts managed.

5. Assessment Method

This section describes the method that was used to assess the potential impacts of the project on historical and aboriginal cultural heritage. A significance-based approach was applied to assess the key issues and to inform measures to avoid, minimise and offset potential impact on historical and Aboriginal cultural heritage.

The approach used in the assessment has been guided by the evaluation framework that applies to the project comprising the regulatory framework (that is, applicable legislation and policy) as well as the scoping requirements for the EES set by the Victorian Minister for Planning and EIS assessment guidelines developed by DCCEEW.

5.1. Survey Area

A 220 m wide survey area is being assessed for the land cables in Victoria which will accommodate a 20 – 36m wide construction corridor for the cable and minor laydown areas. The final location of the project infrastructure and alignment is expected to be within this survey area (Figure 2), and will be informed by detailed ongoing environmental assessments including Aboriginal and historical tangible and intangible cultural heritage, ongoing engineering investigations, the preferred contractors design and landowner negotiations.

A broader survey area is being assessed to provide flexibility to allow the ultimate siting and design of the cable to respond to values present and avoid potential significant impacts to the environment and landowners, where practicable.

5.2. Study Area

The study area for the Aboriginal and historical cultural heritage technical study is based on the survey area established for the project by MLPL. A 2.5 km to 5 km-wide buffer either side of the survey area derived on the basis of relevant geologies, landforms, vegetation and watercourses was also developed as a geographic region to provide a relevant regional context for the study area. The study area and geographic region are shown in Figure 3.

5.3. Historical Cultural Heritage Baseline Assessment

5.3.1. Desktop assessment

The historical cultural heritage desktop assessment was completed prior to the ground survey reported in Section 6.2, and subsequently updated during the drafting of this report.

The aims of the desktop assessment were to assess:

- the level of previous investigation of the study area
- evidence for the presence of historical cultural heritage places within the study area
- prior use of the study area, especially regarding evidence for prior disturbance to ground surfaces and subsurface deposits.

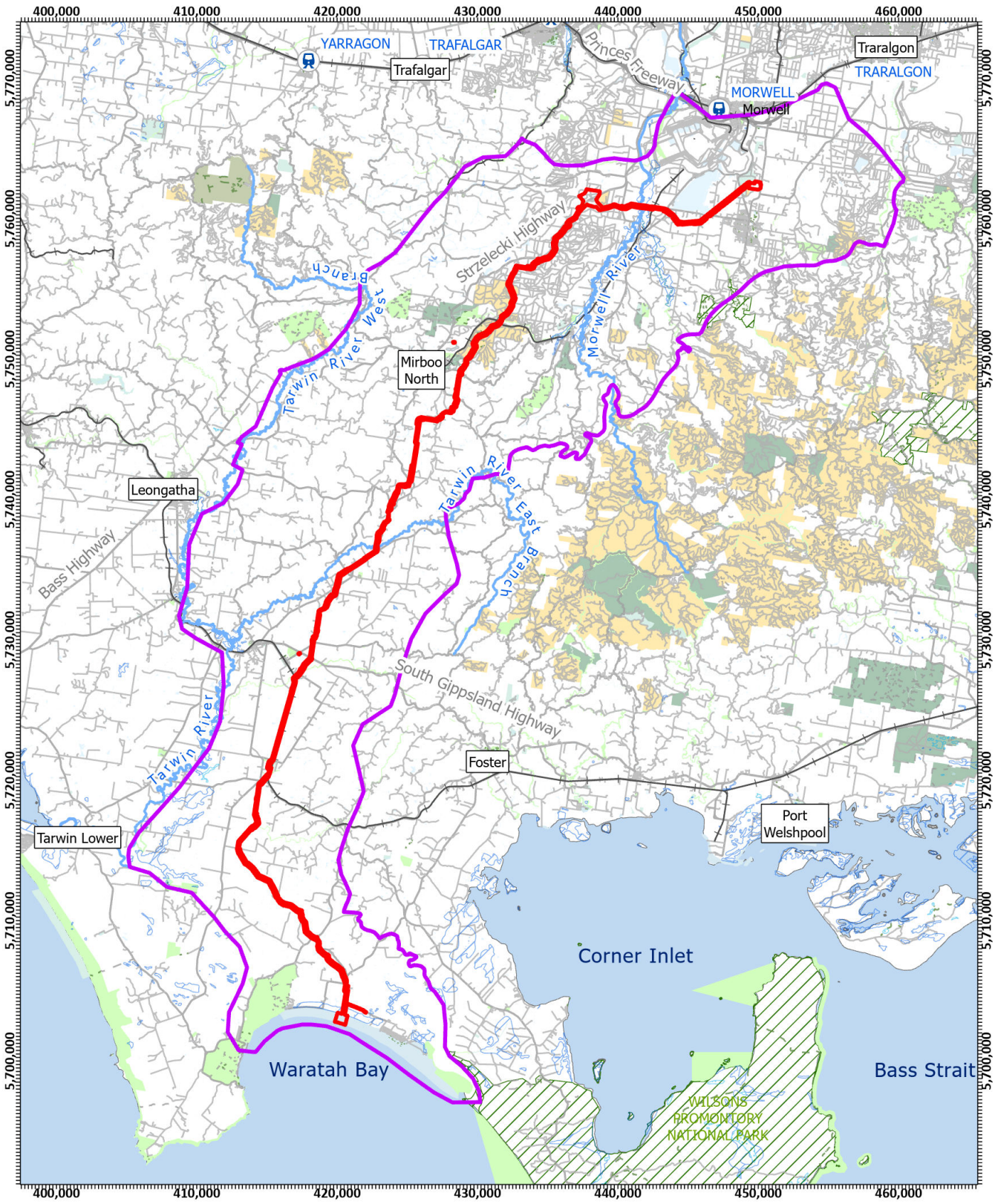

Figure 3: Cultural heritage study area and geographic region

Legend

- Study area
- Main roads
- Roads
- Streets
- Minor streets
- Tracks
- Trail
- Rail
- Major watercourse
- Water area
- Area subject to inundation
- Wetland swamp
- Park or Reserve
- Other public land
- Plantation
- National park
- State forest
- State park
- Coastal reserve
- Coastal waters
- Geographic region

N

Scale: 1:400,000

5 2.5 0 5 km

Coordinate System: GDA 1994 MGA Zone 55
Projection: Transverse Mercator
Datum: GDA 1994

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The methods used to undertake the desktop assessment included:

- Searching relevant Victorian government online information systems.
- Searching archaeological resources (e.g., consultancy reports, academic research) for information relating to the study area.
- Searching the Australian Heritage Database, Victorian Heritage Database, and local government authority (LGA) planning schemes for information relating to the study area and geographic region. These databases comprehensively cover the following statutory historical cultural heritage databases:
    - World Heritage List
    - National Heritage List
    - Commonwealth Heritage List
    - Victorian Heritage Register
    - Victorian Heritage Inventory
    - LGA planning scheme heritage overlays
- Reviewing and analysing this information to identify and characterise the historical cultural heritage site types and locations likely to be present within the Study area.

5.3.2. Archaeological ground survey

The aims of the historical cultural heritage archaeological ground survey were to:

- inspect 100% of the construction corridor (20 -36m) and expand to the full width of the study area at water crossings and other areas of defined cultural heritage sensitivity, as well as access tracks, converter station footprints, etc, for the presence of historical archaeological sites or standing structures, subject to land access being permitted
- undertake a general assessment of the overall historical archaeological potential of the study area.

The archaeological ground survey was completed as a series of pedestrian surveys across the study area undertaken by ELA heritage advisors and archaeologists. The surveys were conducted concurrently with the Aboriginal archaeological ground surveys outlined in Section 5.4.3, using the same field methodologies.

HISTORICAL ARCHAEOLOGICAL POTENTIAL RATING

As a component of the archaeological ground survey, each IA was assessed in terms of its overall historical archaeological potential within the IA and assigned an archaeological potential rating (APR). The archaeological rating then assigned to each IA based on the outcomes of the desktop assessment. Based on the desktop research, no previous historical sites were identified within the study area, and therefore the initial rating was determined as low. The ratings were then adjusted as a result of the observations made during the ground survey.

5.4. Aboriginal Cultural Heritage Baseline Assessment

The Aboriginal cultural heritage desktop assessment, archaeological ground survey and subsurface testing program were prepared pursuant to regulation 61 (What does a [CHMP] desktop assessment include), regulation 63 (What does a [CHMP] standard assessment include), and reg 65 (what does a

[CHMP] complex assessment include) respectively of the *Aboriginal Heritage Regulations 2018* (Vic). The requirements of these regulations were followed to maintain a consistent approach during the preparation of this report and the two CHMPs that are also required pursuant to s 49 of the *Aboriginal Heritage Regulations 2018* (Vic).

5.4.1. Desktop assessment

The desktop assessment was completed prior to the archaeological ground survey and excavation program described below, and subsequently updated during the drafting of this report.

The aims of the desktop assessment were to assess:

- The level of previous archaeological investigation of the study area and the wider geographic region (e.g., consultancy reports, academic research).
- Evidence for the presence of registered Aboriginal cultural heritage places within the study area.
- The environmental context of the study area with regard to landform, geomorphology and geology, and the vegetation which would have characterised the area prior to European contact.
- Historical and ethnohistorical evidence for the presence of Aboriginal people in the study area and geographic region.
- Evidence for the presence of intangible Aboriginal cultural heritage values within or associated with the study area, and which may be impacted by the activity.
- The land use history of the study area and how this may affect the potential for Aboriginal cultural heritage places and objects to still be present in surface and/or subsurface deposits.

The methods used to undertake the desktop assessment included:

- Searching relevant Victorian government online information (VicPlan, Naturekit, GeoVic and Landata).
- Searching the Victorian Aboriginal Heritage Register (VAHR) and other archaeological resources (e.g., consultancy reports, academic research) for information relating to the study area and the geographic region.
- Reviewing and analysing this information to identify and characterise the Aboriginal cultural heritage site types and locations likely to be present within the study area.

5.4.2. Digital predictive model

A GIS-based digital predictive model designed to provide further insights into the potential for Aboriginal archaeological sites to be present within the study area was generated using ESRI's ArcGIS. The methods underpinning the modelling process are presented in Appendix A**.**

In summary, an array of digitally recorded environmental variables were each considered for the ways in which they would have influenced the creation and location of a range of Aboriginal archaeological site types in the past. These environmental variables were rated internally against each site type to determine if one expression of the variable is more or less likely to influence site location. The environmental variables were then weighted against each other to determine if one variable is more important that another variable in influencing site location. These ratings and weightings were then geospatially processed using ArcGIS and a likelihood map was generated for each site type depicting the relative probability that a particular site type will occur at any given location.

For example, the likelihood of artefact scatters being present in an area might be based on an assessment of geology, distance from freshwater and slope. Based on the experience of the modeller, different kinds of surface geology, distances from freshwater and slopes would each be rated as either positively, neutrally or negatively correlated with an artefact scatter location. The relative importance of geology vs. distance to freshwater, geology vs. slope and distance to freshwater vs. slope would then be weighted. The ratings and weightings would then be applied to spatial data representing the digitally captured environmental datasets using a formula derived in ArcGIS. The result is a map which plots the relative likelihood of artefact scatters being present at any given location based on a combined consideration of geology, distance from freshwater and slope.

A consolidated Aboriginal archaeological site digital predictive model derived for the study area is presented in Figure 4 to Figure 8. The digital predictive model was used to assist with the identification of priority properties requiring access during the archaeological fieldwork program if land access is not uniformly and readily available across the entire study area, and for this reason it was not deemed essential to invite participation from relevant First Peoples groups during the development of the model.

5.4.3. Archaeological ground survey

The Aboriginal archaeological ground survey was required to examine all landforms identified within the study area. This resulted in a detailed characterisation of the major landforms present across the study area based on the outcomes of the desktop assessment and observable landform features identified during the survey.

The archaeological ground survey was undertaken as a series of pedestrian transects focused on the easement within the study area where most project-related disturbance will occur, but also expanding out to include the full width of the study area at water crossings and other areas of defined cultural heritage sensitivity, as well as access tracks, converter station footprints, etc. The intention of the archaeological ground survey was to cover 100% of the construction corridor and expand to the full width of the study area at water crossings and other areas of defined cultural heritage sensitivity, as well as access tracks, converter station footprints, etc, subject to land access being permitted. At the time of writing, the target of 100% of the construction corridor has not been achieved as land access has not been available for the entire corridor.

The following landforms were identified during the archaeological ground survey – each has been assigned an Investigation Area (IA) number which became the framework used to organise the survey results presented in Section 6.2:

- IA-1: Waratah Bay Beach
- IA-2: Waratah Bay dunes
- IA-3: Floodplains and river/creek corridors
- IA-4: Terraces
- IA-5: Plains
- IA-6: Low rolling hills
- IA-7: Rounded hills and rises
- IA-8: Ridge

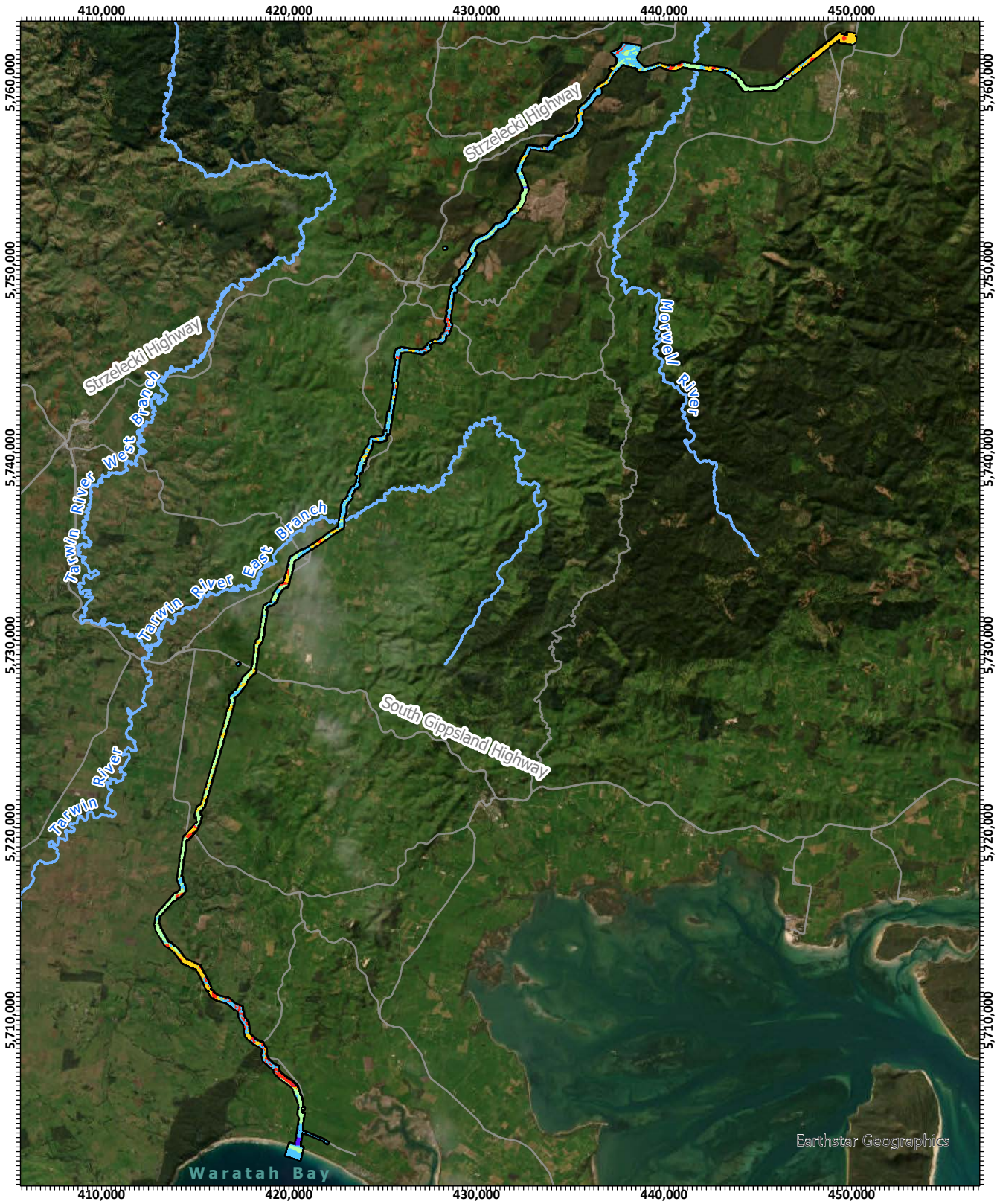

Figure 4: Aboriginal archaeological site predictive model (overview)

Legend

- Study area

Combined predictive models

- Highly likely (7 - 7.5)
- Likely (7.6 - 8)
- Somewhat likely (8.1 - 10)
- Somewhat unlikely (10.1 - 30)
- Highly unlikely (30.1 - 262.1)

N

Scale: 1:300,000

5 2.5 0 5 km

Coordinate System: GDA 1994 MGA Zone 55
Projection: Transverse Mercator
Datum: GDA 1994

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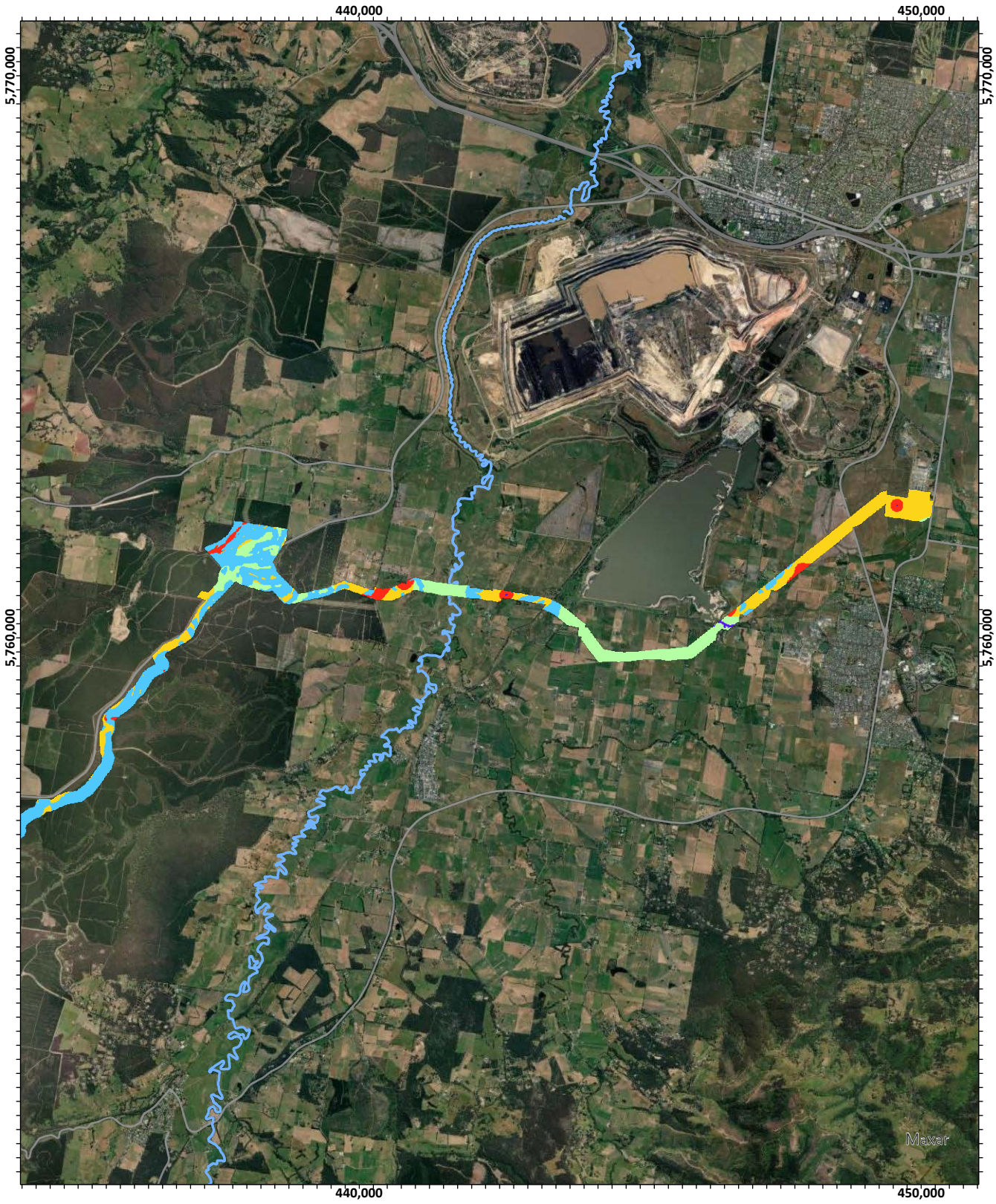

Figure 5: Aboriginal archaeological site predictive model (detail map 1)

Legend

- Study area

Combined predictive models

- Highly likely (7 - 7.5)
- Likely (7.6 - 8)
- Somewhat likely (8.1 - 10)
- Somewhat unlikely (10.1 - 30)
- Highly unlikely (30.1 - 262.1)

N

Scale: 1:100,000

5 2.5 0

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Projection: Transverse Mercator
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Figure 6: Aboriginal archaeological site predictive model (detail map 2)

Legend

- Study area

Combined predictive models

- Highly likely (7 - 7.5)
- Likely (7.6 - 8)
- Somewhat likely (8.1 - 10)
- Somewhat unlikely (10.1 - 30)
- Highly unlikely (30.1 - 262.1)

N

Scale: 1:100,000

5 2.5 0

Coordinate System: GDA 1994 MGA Zone 55
Projection: Transverse Mercator
Datum: GDA 1994

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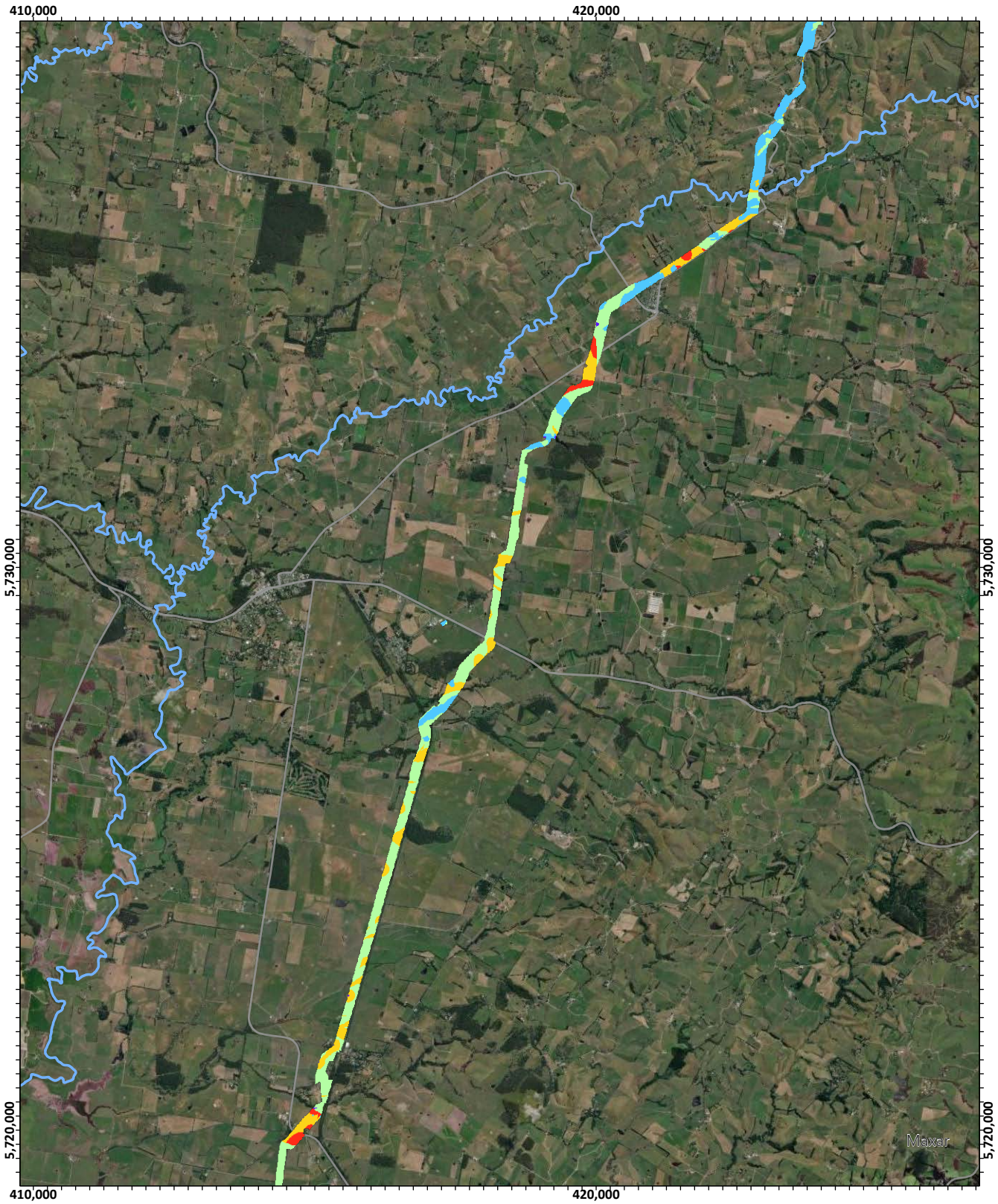

Figure 7: Aboriginal archaeological site predictive model (detail map 3)

Legend

- Study area

Combined predictive models

- Highly likely (7 - 7.5)
- Likely (7.6 - 8)
- Somewhat likely (8.1 - 10)
- Somewhat unlikely (10.1 - 30)
- Highly unlikely (30.1 - 262.1)

N

Scale: 1:100,000

5 2.5 0

Coordinate System: GDA 1994 MGA Zone 55
Projection: Transverse Mercator
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Figure 8: Aboriginal archaeological site predictive model (detail map 4)

Legend

- Study area

Combined predictive models

- Highly likely (7 - 7.5)
- Likely (7.6 - 8)
- Somewhat likely (8.1 - 10)
- Somewhat unlikely (10.1 - 30)
- Highly unlikely (30.1 - 262.1)

N

Scale: 1:100,000

5 2.5 0

Coordinate System: GDA 1994 MGA Zone 55
Projection: Transverse Mercator
Datum: GDA 1994

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ARCHAEOLOGICAL POTENTIAL RATING

As a component of the archaeological ground survey, each IA was assessed in terms of its overall Aboriginal archaeological potential and evidence for disturbance across the IA and assigned an archaeological potential rating (APR).

An initial archaeological sensitivity rating for each IA was assigned based on the outcomes of the desktop assessment and the digital predictive model. If necessary, the archaeological sensitivity rating was adjusted as a result of observations made during the ground survey.

Aboriginal archaeological sensitivity ratings were based on a variety of factors including elevation, distance to water, First Peoples viewpoints, the presence or absence of previously identified cultural heritage places and the presence or absence of newly identified cultural heritage places.

An initial archaeological disturbance rating for each IA was assigned based on the outcomes of the desktop assessment. Each IA was then surveyed, with the rating adjusted to reflect the level of disturbance observed. Disturbance ratings assigned to each IA were based on the extent of landscape modification by past and current activities.

Archaeological sensitivity ratings were derived as follows:

- Low: associated with landforms >1 km from waterways/water sources or other sensitive landforms (i.e., areas of high elevation) displaying little to no evidence of Aboriginal cultural heritage.
- Moderate: associated with landforms >500 m from water sources/ watercourses and with moderate evidence of Aboriginal cultural heritage.
- High: associated with landforms closest to waterways or other potentially sensitive landforms with increased concentrations of *in situ* Aboriginal cultural heritage.

Investigation areas were also assigned intermediate archaeological potential ratings of low-moderate or moderate-high.

Each IA was also assigned a disturbance rating based on the level of disturbance observed during the ground surveys. Disturbance ratings were based on factors such as the extent of accidental and deliberate human activity (ploughing, construction, removal); animal activity including domestic animals, native animals and insects (grazing, trampling, burrowing, digging, nesting, eating); and plants (tree roots, vegetation, overgrowth) (Burke, Morrison and Smith 2017:107). The disturbance rating reflects the compounded impact of past and present land uses.

A disturbance rating for each IA was assigned based on the findings of the desktop assessment and the outcomes of the ground survey. The disturbance rating included factors such as the extent of landscape modification and disturbance of subsoil deposits by various activities.

Disturbance ratings were derived as follows:

- Low: associated with minor surface impacts with no visible or listed subsurface utilities or prior farming practices.
- Moderate: associated with moderate surface impacts including unsealed roads, drainage, minimal subsurface utility infrastructure and minor landscape modification due to ploughing, grazing and animal burrowing.

- High: associated with highly disturbed landscapes including existing roads, modified road reserves and rail corridors, numerous subsurface utilities, and mining and quarrying activities including dam construction.

Investigation Areas were also assigned moderate-high or low-moderate levels of ground disturbance where disturbance ratings could not be clearly distinguished.

An APR rating scheme (Table 6) was used to assign both an archaeological sensitivity rating and a disturbance rating to each IA. The archaeological sensitivity and disturbance rating values are then multiplied together to determine an overall APR for each IA.

Table 6: Archaeological sensitivity and disturbance rating scheme

Archaeological Sensitivity		Disturbance		Archaeological Potential Rating	
1	Low	1	High	1-4	Low
2	Low-moderate	2	Moderate-high	5-7	Low-moderate
3	Moderate	3	Moderate	8-13	Moderate
4	Moderate-high	4	Low-moderate	13-17	Moderate-high
5	High	5	Low	17-25	High

5.4.4. Subsurface testing program

An archaeological subsurface testing program was undertaken at selected locations across the study area to:

- Further investigate the archaeological potential of landforms identified during the desktop assessment and archaeological ground survey as likely to be sensitive for the presence of Aboriginal or historical archaeological cultural heritage.
- Determine the nature, extent and significance of archaeological places identified during the archaeological ground survey.

A sampling strategy was developed for the subsurface testing program, designed to target areas within the cable trench and transition station footprints across the project easement. The strategy was implemented as a way of providing insights into the subsurface character of each of the investigation areas identified during the archaeological ground survey. This testing was completed as part of the CHMP complex assessment program.

The sampling strategy for the subsurface testing program was informed by:

- The Aboriginal archaeological site predictive model, with subsurface testing occurring within each of the ground survey investigation areas at locations rated as likely (including slightly likely, likely and highly likely) to contain Aboriginal cultural heritage. The sampling strategy also includes a requirement to investigate locations considered unlikely to contain Aboriginal cultural heritage, to test the accuracy of the predictive model.
- The need to archaeologically 'pre-clear' the locations of all geotechnical investigations being undertaken for the project, including mechanical test pits and geotechnical boreholes (mechanical and manual).
- Advice received from the First Peoples groups consulted during the preparation of this report.

The subsurface testing program included a formal archaeological excavation program, and a non-invasive program using ground penetrating radar (GPR) in IA-1.

5.4.4.1. GPR program

GPR is a non-invasive geophysical survey technique that can be used to identify subsurface features. It is commonly employed to identify underground services, such as gas and water pipes, and can also be used to contribute to the aims of archaeological and cultural heritage management investigations (Kurpiel et al. 2019). In these contexts, GPR survey is used identify historical archaeological building foundations/features, and Aboriginal cultural heritage features such as middens, earth mounds and burials.

GPR uses electromagnetic (EM) wave propagation to determine the electrical and magnetic properties of subsurface deposits. The GPR equipment transmits EM waves at a frequency determined by the type of antenna used. The propagation and return rate of the signal varies depending on several factors including the conductivity and relative dielectric permittivity (RDP) conditions of the ground. The returned reflection is collected, sampled, and digitised, providing outputs in the form of stacked traces in sequence over the distance travelled. These raw reflection profiles are displayed on screen as the survey is conducted. The relative ease with which the radar penetrates the subsurface deposits forms the basis of the data that are produced.

After the data has been collected, it is processed using dedicated software to produce outputs for interpretation. Horizontal slices of interpolated reflection profiles are sampled at different time-depths to produce plans of the GPR survey results at specific depths, referred to as permittivity heat maps.

A GPR survey was undertaken within IA-1 (Waratah Bay beach landform) as a requirement of the approved geotechnical program methodology. Survey grids were established using a 800MHz transmitting antenna to provide GPR data. Two 20m x 20m and one 20m x 25m area were surveyed in a south easterly to north westerly orientations. Transect spacing was 250 mm, following a 'zig-zag' pattern. Spatial data was then uploaded to a Leica dGPS unit which identified any subsurface anomalies.

5.4.4.2. Excavation program

The subsurface testing program included a mix of manual and mechanical techniques. Munsell colour and soil pH observations were recorded for all excavations completed during the subsurface testing program.

5.4.4.2.1. Manual excavations

The subsurface testing program included the controlled hand excavation of 1x1 m test pits and the excavation of 50x50 cm test pits using shovels (shovel test pits or STPs). This is a standard approach routinely implemented in CHMP-based excavation programs, allowing investigations to sample a larger number of locations across the study area through the use of STPs, while also including more intensive investigations at high sensitivity locations through the use of controlled, stratigraphically excavated 1x1 m test pits. This strategy is in keeping with guidance from First Peoples State Relations,[5] and is a deliberate excavation strategy advocated by GLaWAC.

[5] Practice-Note-Subsurface-Testing.docx (live.com)

The 1x1 m test pits involved the systematic excavation of sediments in 100 mm spits with a focus on the identification of artefacts *in situ* within their stratigraphic context. Test pit depths ranged from 235 mm to 730 mm below the current ground surface. Excavations were undertaken initially by shovel and then by trowel to depths of 410 mm below the current ground surface. All deposits were 100% hand sieved using a 5 mm mesh. Dumpy levels were used to maintain vertical control during the excavations based on the establishment of a datum using the highest corner of each excavation. Excavation of the 1x1m test pits was used as the means for establishing a representative stratigraphic profile within each investigation area and to investigate disturbance and bioturbation.

50x50 cm test pits were excavated stratigraphically by shovel in 100 mm spits to depths ranging between 200 mm and 560 mm below the current ground surface. All excavated shovel test pit (STP) materials were 100% hand sieved using a 5 mm mesh. Good vertical control over depth was maintained in all STP excavations given the generally shallow nature of the STP soil profiles.

5.4.4.2.2. Mechanical excavations

Controlled mechanical excavation of 3x1 m test pits involved the systematic excavation of sediments in 100 mm spits with a focus on the identification of artefacts *in situ* within their stratigraphic context. Excavations were undertaken using a mechanical excavator with a 1 m wide flat edged mud bucket to depths ranging between 250 mm and 500 mm below the current ground surface. All deposits were 100% hand sieved using a 5 mm mesh. As for the 1x1 test pit program, dumpy levels were used to maintain vertical control during all mechanical excavations based on the establishment of a datum using the highest corner of each excavation.

5.4.5. Aboriginal cultural values assessment

The EES evaluation objective relating to cultural heritage is to:

> *Protect, avoid and, where avoidance is not possible, minimise adverse effects on historical heritage values, and tangible and intangible Aboriginal cultural heritage values, in partnership with Traditional Owners.*

Table 1 in Section 2.2.2 above lists components of the EES scoping requirements underpinning this assessment. The following are of immediate relevance to the investigation of intangible Aboriginal cultural heritage:

- Key issues –
  - Recognition and respect for First Peoples' connection to Country.
  - Potential for adverse effects on Aboriginal cultural heritage values (including…Aboriginal cultural heritage, tangible and/or intangible), both known and unknown.
- Existing environment –
  - Informed by meaningful engagement with Registered Aboriginal Parties and First Peoples groups, identify and characterise Aboriginal cultural heritage sites, areas of sensitivity, cultural landscapes, or other intangible cultural heritage.
- Likely effects –
  - Assess the potential effects on Aboriginal cultural heritage.
- Mitigation –

- Describe any plan(s) or partnerships with First Peoples, including any opportunities to respond to Country Plans and to protect intangible cultural heritage.

A critical goal of the project, therefore, is to understand the full range of tangible and intangible cultural heritage values that relevant First Peoples associate with the study area. To be truly effective, the impact assessment must document the emotional and spiritual sense of place that First Peoples associate with the study area, as well as identifying and documenting the full range of intangible cultural values that connect them to their country within the study area.

This can only be achieved by talking directly with the First Peoples groups, represented by GLaWAC, the Bunurong Land Council Aboriginal Corporation (BLCAC) and the Boonwurrung Land and Sea Council (Aboriginal Corporation) (BLSC). In doing so, the impact assessment will be better informed about the range of First Peoples cultural values that must be understood and then incorporated into strategies designed to avoid or, if avoidance is not possible, minimize impacts to these values.

The project has determined that the best way to achieve this is to undertake a series of Aboriginal CVAs in partnership with GLaWAC, BLCAC and BLSC. This approach is in line with the aspirations and objectives of the Gunaikurnai Whole-of-Country Plan (GLaWAC 2015) (see Section 3.3 for further details).

5.4.5.1. Objectives and approach

The objectives of the CVA program are to:

- Contribute to a more holistic understanding of the nature, location and significance of tangible and intangible Aboriginal cultural values associated with the project study area.
- Inform the Aboriginal cultural heritage EES impact assessment.
- Inform the Aboriginal cultural heritage assessments currently being prepared for CHMP projects 18201 (Mirboo North to Hazelwood) and 18244 (Waratah Bay to Hazelwood).

There are currently no published guidelines that describe the purpose, objectives and methods for preparing an Aboriginal CVA in Victoria. However, CVAs are rapidly becoming an integral component of the Aboriginal cultural heritage management landscape, and many First People groups in Victoria have been involved in the preparation of CVAs supporting a range of development initiatives including large infrastructure projects such as Marinus Link.

Most CVAs produced to date focus on recording intangible living cultural heritage; identifying Aboriginal cultural values at both a local and regional scale; understanding the ways in which a project may impact on these recognised cultural values; and providing recommendations that may be incorporated into the design and planning of a project.

Cultural values identified in these CVAs include:

- song lines
- economic and culturally significant animals and plants
- language, naming, and design opportunities
- culturally significant landforms including waterways and viewsheds
- important ethnohistorical accounts
- contemporary First Peoples values.

Three CVAs will be prepared for the project, one each for:

- GLaWAC, covering the activity areas defined for CHMPs 18201 and 18244 (i.e., the entire study area).
- BLCAC, covering the activity area defined for CHMP 18244 (i.e., the portion of the study area south of Mirboo North).
- BLSC, covering the activity area defined for CHMP 18244 (i.e., the portion of the study area south of Mirboo North).

The aim of the CVAs is to:

- map Aboriginal cultural values within the nominated study area
- include a statement of cultural values for the study area
- make recommendations regarding actions, requirements and guidelines the project should implement or follow when preparing the EES impact assessment and the CHMP(s)
- confirm the ways in which sensitive cultural information contained in the CVAs can be publicly presented (if permitted) within the EES and/or CHMP(s).

5.4.5.2. Methodology

A principal goal in developing a methodology for the CVA program was to ensure that the cultural autonomy of the study area's First Peoples is acknowledged at all stages during the assessment process. In keeping with this principle, CVA program inception meetings were held with each of the three First Peoples groups to brief them on the need for a CVA program, and to ask them how they would want the program to be managed and delivered in each instance. Three options were presented to each First Peoples group as possibly methodologies for their CVA program:

1. Management of the CVA process and responsibility for drafting CVA reports will rest with the Marinus Link team, working closely with nominated First Peoples representatives.
2. Management of the CVA process and responsibility for drafting CVA reports will rest solely with the First Peoples group, funded by the project.
3. A mix of options 1 and 2.

The option selected by each First Peoples group are as follows:

- GLaWAC and BLSC will work with ELA, who will prepare a CVA for each group (Option 1).
- BLCAC has elected to prepare the CVA themselves (Option 2).

The methodology followed under Option 1 includes:

Stage A: Initial consultation

- Establish an agreed framework for the proposed project requirements including (if required) involvement of other specialists at key points in the consultation process (geomorphology, biodiversity, historical heritage, landscape and visual).
- Collate relevant GIS datasets for development of preliminary mapping.

Stage B: Desktop documentation of cultural values

- Undertake an assessment of previous studies to verify the existing conditions, review any subsequent changes and develop a provisional methodology to evaluate the study area.
- Undertake an ethnohistorical review of sources relevant to the study area.

Stage C: Workshop 1

- Host a workshop with nominated First Peoples representatives designed to:
    - introduce the project
    - establish a dialogue
    - provide participants with an opportunity to identify any cultural values they associate with the study area and discuss concerns they may have about the potential for the project to impact these values.

Stage D: Site visit

- Undertake a targeted cultural values site visit based on the outcomes of stages B and C.
- Record spatial data defining the locations/extents of identified cultural values.

Stage E: Workshop 2

- Prepare a cultural values map.
- Host a workshop with nominated First Peoples to:
    - present and confirm the outcomes of the CVA assessments regarding the nature, location and significance of tangible and intangible cultural values identified by First Peoples as having a potential to be impacted by the project.
    - provide the First Peoples representatives with a further opportunity to express their views regarding appropriate strategies that would avoid, manage or mitigate impacts to these cultural values.

Stage F: Reporting

- Prepare final report and mapping outputs, including:
    - executive summary
    - background and context
    - purpose and objectives
    - methodology
    - First Peoples engagement framework and consultation log
    - desktop assessment outcomes
    - site visit outcomes
    - description of nature, location and significance of tangible and intangible cultural values identified during workshops and/or site inspection programs.
    - a clear statement of the ways in which sensitive cultural information contained in the CVA can be publicly presented (if permitted) within the EES and/or CHMP(s).

5.5. Impact Assessment

The impact assessment framework used in this study incorporates the following sequential elements:

- Identification of the cultural heritage sites and values to be included in the assessment. For this study, these include all cultural heritage sites and values known to be located within the study area at the conclusion of the baseline assessment.
- Assessment of the significance of each cultural heritage site or value using established, internationally recognised criteria developed by Australia ICOMOS (the Burra Charter), as well as the opinions of relevant First Peoples groups.
- Assessment of the magnitude of the impact from proposed project activities on cultural heritage sites and values, based on an assessment of the severity, geographical extent and duration of the impact.
- Determination of the significance of a potential project impact on identified cultural heritage sites and values, based on the consideration of the site's/value's cultural heritage significance and the magnitude of the impact it is likely to experience.
- Identification of avoidance, management and mitigation measures that, if implemented, could either avoid project impacts to cultural heritage sites and values altogether or reduce the significance of these impacts.
- Developing environmental performance requirements based on the outcomes of the impact assessment and consideration of possible mitigation measures that could be implemented.
- Determination of residual project-related impacts to cultural heritage sites and values by assessing the significance of a potential impact after the implementation of recommended avoidance and management measures.

5.5.1. Cultural heritage significance

The assessment of cultural heritage significance is a fundamental component of cultural heritage management. Such assessments can assist in determining which items, sites, places, values, landscapes and even environments are of sufficient cultural importance that they require preservation, and if this is not possible, they can inform the development of appropriate management measures to mitigate impacts. The significance assessment establishes the assessment criteria and significance ratings to be applied to each cultural heritage site or value, both tangible and intangible.

A statement regarding the significance of each cultural heritage site or value is an essential step in the process of developing appropriate cultural heritage management recommendations. Although it may seem self-evident, it is important to state that while all known cultural heritage sites and values have at least some level of 'cultural heritage significance', the preservation of all cultural heritage may not be possible. In this context, management is not necessarily synonymous with preservation, and may involve disturbance or destruction, or partial disturbance through controlled above-ground, ground surface and subsurface salvage investigations where archaeological material is present.

A process for establishing cultural significance is provided in the *Australia ICOMOS Charter for Places of Cultural Significance 2013*, otherwise known as 'The Burra Charter' (Australia ICOMOS 2013; Marquis-Kyle & Walker 2004). Article 1.2 of the Burra Charter states that:

> *Cultural significance means aesthetic, historic, scientific, social or spiritual value for past, present or future generations.*

Cultural significance is embodied in the place itself, its fabric, setting, use, associations, meanings, records, related places and related objects.
Places may demonstrate a range of these significance criteria for different individuals or groups.

Definitions of the criteria used in the assessment of cultural significance have been outlined by Australia ICOMOS in a Practise Note[6]; these are summarised in Table 7.

Table 7: Cultural heritage significance assessment criteria (Australia ICOMOS, November 2013)

Criterion	Description
Aesthetic	Refers to the sensory and perceptual experience of a place—that is, how we respond to visual and non-visual aspects such as sounds, smells and other factors having a strong impact on human thoughts, feelings and attitudes (Kerr 1990:10). Aesthetic qualities may include the concept of beauty and formal aesthetic ideals. Expressions of aesthetics are culturally influenced. Despite the poorly defined nature of aesthetic significance, it remains one of the most important criteria for official registration of heritage sites in many parts of the world (e.g., Schapper 1993).
Historic	Intended to encompass all aspects of history—for example, the history of aesthetics, art and architecture, science, spirituality and society. It therefore often underlies other values. A place may have historic value because it has influenced, or has been influenced by, an historic event, phase, movement or activity, person or group of people. For any place the significance will be greater where the evidence of the association or event survives at the place, or where the setting is substantially intact, than where it has been changed or evidence does not survive. However, some events or associations may be so important that the place retains significance regardless of such change or absence of evidence.
Scientific	Refers to the information content of a place, or its ability to reveal something about the past through the use of scientific techniques such as archaeology. The relative scientific value of a place is likely to depend on the importance of the information or data involved, on its rarity, quality or representativeness, and its potential to contribute further important information about the place itself or a type or class of place or to address important research questions. To establish potential, it may be necessary to carry out some form of testing or sampling. For example, in the case of an archaeological site, this could be established by a test excavation.
Social	Refers to the associations that a place has for a particular community or cultural group and the social or cultural meanings that it holds for them. Places of social significance are usually important in maintaining a community's integrity and *sense of place*; that is, a sense of belonging to a particular area as a distinctive cultural group (Hall and McArthur 1993:8). For many peoples, Indigenous archaeological sites (e.g., burials) and European-Indigenous contact sites (e.g., missions, plantations) have strong social significance. Archaeological sites with materials deemed to be markers of the prior presence of the cultural groups may also assume a strong social significance during land ownership disputes.
Spiritual	Refers to the intangible values and meanings embodied in or evoked by a place which give it importance in the spiritual identity, or the traditional knowledge, art and practices of a cultural group. Spiritual value may also be reflected in the intensity of aesthetic and emotional responses or community associations and be expressed through cultural practices and related places. The qualities of the place may inspire a strong and/or spontaneous emotional or metaphysical response in people, expanding their understanding of their place, purpose and obligations in the world, particularly in relation to the spiritual realm.

[6] Understanding and assessing cultural significance 8-10-13 (icomos.org)

For the purposes of this study, the cultural heritage significance of each site or value was assessed using four of these five criteria: the historic, scientific, social and spiritual values of each cultural heritage site or value were individually assessed and rated as being either low, medium or high according to the criteria set out in Table 8, which incorporates specific criteria outlined in the Practice Note produced by Australia ICOMOS (2013: 3-4). An assessment of aesthetic value was not included in the current significance assessment given its somewhat subjective nature and the lack of established criteria that could be applied to an independent assessment of this criterion with regard to cultural heritage sites and values in Victoria.

Table 8: Cultural heritage significance criteria ratings (based on Australia ICOMOS 2013)

Criterion	Examples	Rating
Historic	The place or value may be associated with an important event or theme in history, or a particular person or cultural group important to the history of the local area, state or nation	Historical value was rated as follows: • Low (1) for places or values which are not associated with any known historical event, person or theme. • Medium (2) for sites or values which are associated with a moderately significant historical event, person or theme at either the local and/or state and/or national level. • High (3) for sites or values which are associated with a highly significant historical event, person or theme at either the local and/or state and/or national level.
Scientific	Using scientific techniques such as archaeology, the place of (if relevant) value has the potential to reveal new information or understandings about people, places, processes or practices	Ratings for scientific value are mostly applied to archaeological sites, and consider: • Site contents (e.g., size and patterning of site where 0 = no materials remaining, 1 = small number of artefacts with limited diversity (0-10 artefacts), 2 = larger number but limited range of artefacts, 3 = large and diverse range of artefacts). • Site condition (0 = destroyed, 1 = deteriorated, 2 = fair to good, 3 = excellent). • Site representativeness (1 = common, 2 = occasional, 3 = rare). The rating for overall significance is calculated based on the cumulative score for site contents, site condition and site representativeness where: • cumulative score 1-3 = Low (1) • cumulative score 4-6 = Medium (2) • cumulative score 7 or greater = High (3)
Social	The place or value may be an important local marker or symbol or contribute to the identity of a particular cultural group	Social value was rated as follows: • Low (1) for places or values which do not appear to have any clear social connection at either the local and/or state and/or national level. • Medium (2) for places or values which have a moderately significant social connection for a cultural group at either the local and/or state and/or national level. • High (3) for places or values which have a highly significant social connection for a cultural group at either the local and/or state and/or national level.
Spiritual	The place or value may contribute to the spiritual identity or belief system of a cultural group and/or may be important to	Spiritual value was rated as follows: • Low (1) for places or values which do not appear to have any clear spiritual connection with a cultural group at either the local and/or state and/or national level.

Criterion	Examples	Rating
	maintaining the spiritual health and wellbeing of a culture or group.	• Medium (2) for places or values which have a moderately significant spiritual connection for a cultural group at either the local and/or state and/or national level. • High (3) for places or values which have a highly significant spiritual connection for a cultural group at either the local and/or state and/or national level.

Numeric values were assigned to objective criteria differentiating low (1), medium (2) and high (3) scientific value. These criteria included the contents of the site, the condition of preservation of the site, and the representativeness of the site in terms of the wider (regional) cultural heritage site inventory.

Criteria differentiating low, medium and high historic, social and spiritual value were based on professional experience and information obtained during First Peoples group consultation. Each criterion was assigned a numerical rating (low (1), medium (2) or high (3)).

Equal weight was given to all four criteria when determining the overall significance of each cultural heritage site. The potential to variably weight the contribution of each criterion was initially considered but not pursued owing to the subjective nature of the factors used to determine historic, social and spiritual sensitivity.

The overall significance rating determined for each cultural heritage site was derived as a cumulative score across the four cultural heritage criteria, according to the following classification system:

- 3-4 – Very low significance
- 5-6 – Low significance
- 7-8 – Moderate significance
- 9-10 – High significance
- 11-12 – Very high significance

5.5.2. Impact magnitude

The magnitude of an impact on a cultural heritage site or value is an assessment of the geographical extent, duration and severity of the impact. The magnitude of the impact is determined before and after the application of management measures.

The impact magnitude criteria used in this Aboriginal and historical cultural heritage technical study are presented in Table 9.

Given that the impact magnitude criteria identified above may not all apply equally in terms of their severity in any given instance, an overall impact magnitude rating was calculated based on the cumulative score for each criterion, as follows:

- Negligible (cumulative score = 3)
- Minor (cumulative score = 4)
- Moderate (cumulative score =5-6)
- Major (cumulative score = 7-8)
- Severe (cumulative score = 9)

Table 9: Impact magnitude criteria and ratings

Criterion	Nil	Low (Rating 1)	Medium (Rating 2)	High (Rating 3)
Severity	No impact	Loss of up to one third of site contents. Site condition rating decreases by one rating point. Site representativeness rating unchanged. Minor loss of archaeological knowledge contained within the site. Minor impact to the site's scientific value. Minor community reaction; attracts stakeholder concern at a local level.	Loss of up to two thirds of site contents. Site condition rating changes by two rating points. Site representativeness rating decreases. Moderate loss of archaeological knowledge contained within the site. Moderate impact to the site's scientific value. Substantial community reaction; results in stakeholder concern at local and state levels.	Loss of greater than two thirds of site contents. Site condition rating changes by three rating points. Site representativeness rating decreases. Major loss of archaeological knowledge contained within the site. Major impact to the site's scientific value. Major community reaction; results in stakeholder concern at a national or international level (i.e., media, shareholder, government, international non-government organisation concern).
Extent	No impact	Impact damages less than one third of site. No loss of access to site.	Impact damages up to two thirds of site and/or access to site restricted.	Impact damages greater than two thirds of site and/or permanent loss of access to site.
Duration	No impact	Temporary or short-term impact or loss of access to site limited to project construction phase.	Medium-term impact or loss of access to site that will alleviate within life of the project.	Long-term (extends beyond the life of the project) or permanent impact.

5.5.3. Impact significance

The significance of impacts on a value is determined by the sensitivity of the value itself and the magnitude of the change it experiences. Table 10 shows how, using the criteria described above, the significance of impacts is determined having regard to the sensitivity of the value and the magnitude of the expected change. This approach adopts a five-by-five matrix.

Characteristics for each impact significance rating are presented in Table 11.

Table 10: Assessment of significance of impacts

Impact magnitude	Cultural heritage sensitivity				
	Very high	High	Moderate	Low	Very low
Severe	Major	Major	Major	High	Moderate
Major	Major	Major	High	Moderate	Low
Moderate	High	High	Moderate	Low	Low
Minor	Moderate	Moderate	Low	Low	Very low
Negligible	Moderate	Low	Low	Very low	Very low
Nil	Nil	Nil	Nil	Nil	Nil

Table 11: Impact significance rating characteristics

Impact Significance	Characteristics
Major	Destruction of place(s) and/or associated cultural values of exceptional value. A place identified by the Victorian Government and/or cultural values identified by First Peoples or a local non-Aboriginal community of exceptional value, the destruction of which would major. Likely to result in major widespread community and stakeholder concern at the state and/or national/international level. The effect significantly disrupts a cultural group's spiritual connection to land and in turn their spiritual identity and/or spiritual health and wellbeing. Archaeological place conditions are destroyed such that potential understandings about people, places, processes or practices associated with the project area are irrevocably lost. Avoidance through appropriate design responses is the only effective management option.
High	Likely to result in a strong community and stakeholder reaction at the local or state level. The effect is intense with people experiencing a relatively rapid rate of change. The effect starts in a short time and/or endures for, and potentially beyond, the duration of the project. The effect disrupts a cultural group's spiritual connection to land and in turn their spiritual identity and/or spiritual health and wellbeing. The effect disrupts a cultural group's social connection to land which contributes to their cultural identity. Archaeological site condition is damaged such that the ability to derive potential understandings about people, places, processes or practices associated with the project area is reduced.
Moderate	Could attract community and stakeholder concern being voiced at the local or state level. Affects a moderate number of people in the area of influence. The effect is moderate with people experiencing a moderate rate of change. The effect is gradual and/or endures for the duration of the project. The impact affects a cultural group's spiritual connection to land and in turn their spiritual identity. The impact affects a cultural group's social connection to land which contributes to their cultural identity. Archaeological site condition is damaged such that the ability to derive potential understandings about people, places, processes or practices associated with the project area is somewhat reduced.
Low	May result in community and stakeholder concern being voiced in a localised area. Affects a small number of people in the area of influence. The effect is not very intense with people experiencing a slow rate of change. The effect is delayed, medium-term and/or confined to the duration of the project. A cultural group's spiritual or social connection to the land, and therefore spiritual or cultural identity, is largely undisturbed or maintained. Archaeological site condition is largely undisturbed resulting in little effect on the ability to derive understandings about people, places, processes or practices.
Very low	Unlikely to create any concern in the community and among project stakeholders. Affects a very small number of people in the area of influence. The effect is not intense with people experiencing a very slow rate of change. The effect is immediate or delayed, short-term and/or confined to the duration of the project. A cultural group's spiritual or social connection to the land is preserved resulting in the maintenance of their spiritual or cultural identity. Archaeological site condition is preserved resulting in little effect on the ability to derive understandings about people, places, processes or practices.

5.5.4. Cumulative impact assessment

The EIS guidelines and EES scoping requirements both include requirements for the assessment of cumulative impacts. Cumulative impacts result from incremental impacts caused by multiple projects occurring at similar times and within proximity to each other.

To identify possible projects that could result in cumulative impacts, the International Finance Corporation (IFC) guidelines on cumulative impacts have been adopted. The IFC guidelines (IFC, 2013) define cumulative impacts as those that 'result from the successive, incremental, and/or combined effects of an action, project, or activity when added to other existing, planned, and/or reasonably anticipated future ones.'

The approach for identifying projects for assessment of cumulative impacts considers:

- Temporal boundary: the timing of the relative construction, operation and decommissioning of other existing developments and/or approved developments that coincides (partially or entirely) with Marinus Link.
- Spatial boundary: the location, scale and nature of the other approved or committed projects expected to occur in the same area of influence as Marinus Link. The area of influence is defined as the spatial extent of the impacts a project is expected to have.

Proposed and reasonably foreseeable projects were identified based on their potential to credibly contribute to cumulative impacts due to their temporal and spatial boundaries. Projects were identified based on publicly available information at the time of assessment. The projects considered for cumulative impact assessment in Victoria are:

- Delburn Wind farm
- Star of the South Offshore Wind farm
- Offshore wind development zone in Gippsland including Greater Gippsland Offshore Wind Project (BlueFloat Energy), Seadragon Project (Floatation Energy), Greater Eastern Offshore Wind (Corio Generation).
- Hazelwood Rehabilitation Project
- Wooreen Energy Storage System

The projects relevant to this assessment have been determined based on the potential for cumulative impacts to Aboriginal Cultural Heritage values. Projects assessed as relevant to this assessment are:

- Delburn Wind Farm
- Star of the South Offshore Wind Farm (SOTS)
- Hazelwood Rehabilitation Project
- Wooreen Energy Storage System (WESS)

5.6. Stakeholder engagement

The development of the project and the preparation of the EIS/EES Aboriginal and historical cultural heritage technical study have been informed by consultation with a range of stakeholders including First Peoples-State Relations (FP-SR), Heritage Victoria (HV) and relevant Traditional Oner groups including the Gunaikurnai Land and Waters Aboriginal Corporation (GLaWAC), the Bunurong Land Council

Aboriginal Corporation (BLCAC) and the Boonwurrung Land Sea Council Aboriginal Corporation (BLSC). Table 12 summarises the range of issues raised during the cultural heritage stakeholder engagement program.

Preliminary engagement with FP-SR and the three First Peoples groups, which included a vehicle inspection of the preferred route option accompanied by First Peoples representatives, was undertaken in 2019 to inform the preparation of a Preliminary Baseline Assessment to support the project's EES and EPBC Act referrals.

Formal meetings were held with the four Aboriginal cultural heritage stakeholder groups (FP-SR, GLaWAC, BLSC and BLCAC) between September 2021 and July 2023. These meetings consisted of formal online or in person discussions with each stakeholder and included project specific information relating to:

- project design and project description
- cultural heritage desktop/ background information,
- geotechnical program
- survey and excavation field methodologies
- subsequent result meetings of the fieldwork that occurred between January-December 2022
- the CVA program.

Informal emails were also exchanged between September 2021 and January 2023 to further highlight any project design changes or to assist the stakeholders with requested information. Feedback from the groups was then considered during the preparation of the report and fieldwork programs. Representatives of the three First Peoples groups also participated in fieldwork for the surveys and the excavation program between January 2022 February 2023. Representatives were informally consulted during fieldwork regarding Aboriginal cultural heritage values that may be associated with the study area.

Table 12: Stakeholder engagement summary

Stakeholder	Timing	Matters discussed
Heritage Victoria	November 2022	Discovery of brick cistern (Moores Road 1).
First-Peoples-State Relations	April 2022	CHMP 18244 – project inception meeting.
	April/September 2022	First Peoples group requirements for cultural heritage 'preclearance investigations' at all proposed geotechnical testing locations, relationship with CHMP 18244 complex assessment subsurface testing program.
	September 2022	CHMP 18244 – standard assessment ground survey results meeting.
	January 2023	CHMP 18244 – proposed complex assessment subsurface testing methodology.
Gunaikurnai Land and Water Aboriginal Corporation	September 2021	CHMP 18201– project inception meeting, concern that Aboriginal Ancestral Remains may be present at Waratah Bay dunes.
	April 2022	CHMP 18244 – project inception meeting.
	April/September 2022	Requirements for cultural heritage 'preclearance investigations' at all proposed geotechnical testing locations, relationship with CHMP 18201 and 18244 complex assessment subsurface testing program.
	September 2022	CHMP 18201 – standard assessment ground survey results meeting.
	January-June 2023	Cultural Values Assessment program.
Bunurong Land Council Aboriginal Corporation	April 2022	CHMP 18244 – project inception meeting.
	January 2023	Requirements for cultural heritage 'preclearance investigations' at all proposed geotechnical testing locations, relationship with CHMP 18244 complex assessment subsurface testing program.
	January-June 2023	Cultural Values Assessment program.
Boonwurrung Land and Sea Council Aboriginal Corporation	April 2022	CHMP 18244 – project inception meeting.
	January 2023	Requirements for cultural heritage 'preclearance investigations' at all proposed geotechnical testing locations, relationship with CHMP 18244 complex assessment subsurface testing program.
	January-June 2023	Cultural Values Assessment program.

5.7. Assumptions and Limitations

The following assumptions and limitations apply to the present study:

- At the time of writing, fieldwork investigations (survey and excavations) supporting CHMPs 18201 and 18244 are ongoing. The baseline assessment characterising the Aboriginal cultural heritage present within the study area is therefore not as comprehensive as the archaeological database that will be used to finalise the two CHMPs. Consequently, the impact assessment presented in this report is based only on the outcomes of the Aboriginal and historical archaeological fieldwork programs and progress to date on the Aboriginal CVAs. Further mitigation measures may be identified during the preparation of the CHMPs, which may continue to be in preparation beyond the completion of the EIS/EES.
- Land access has not been available to all properties within the study area, including properties identified through preliminary assessments as requiring survey.
- Alternative approaches have been applied, where possible, to complement targeted field assessments and to ensure areas most likely to contain, or have the potential to contain, important historical or Aboriginal cultural heritage values are assessed (refer to Section 6.5.1).
- The cultural heritage databases investigated during the preparation of the desktop assessment contain information only on registered or listed cultural heritage places, usually those identified during field work and research. A location should not be presumed to be free of cultural heritage values if it does not appear on these databases.
- The interpretation of subsurface Aboriginal cultural heritage in this study is based on field observations from widely spaced sampling locations. Aboriginal cultural heritage may exist in areas that were not investigated during the archaeological subsurface testing program.

These limitations and their impact on the outcomes of the baseline assessment are discussed in further detail in Section 6.5.1.

6. Existing conditions

6.1. Desktop Assessment

6.1.1. Natural environment

6.1.1.1. Landforms, Geomorphology and Geology

Unless otherwise referenced, the following landform, geological and geomorphological descriptions are derived from online resources developed by the Victorian Government, including GeoVic 3 (Department of Economic Development, Jobs, Transport and Resources 2021) and Victorian Resources Online (Agriculture Victoria 2021). The geomorphology and geology of the study area and geographic region are mapped in respectively.

6.1.1.1.1. Landforms/Geomorphology

The study area and geographic region intersect ten geomorphological subunits within the Southern Uplands, Eastern Plains and Coast units, as defined under Victoria's Geomorphological Framework (Table 13 and Figure 9).

Elevation across the study area is variable, commencing at sea level along the Waratah Bay coastline and rising to 275 m above sea level (ASL) within the Hancock Plantation and along Mardan Road near Mardan.

The study area intersects the following waterways (from north to south):

- Eel Hole Creek
- Morwell River
- Stony Creek (Morwell River Tributary)
- Toomey Creek
- Little Morwell Creek
- Berrys Creek
- Tarwin River East Branch
- Stony Creek (Tarwin River Tributary)
- Buffalo Creek
- Fish Creek
- Dividing Creek

Table 13: Geomorphology of the study area and geographic region

Geomorphological Units		Description	Area (ha)
Unit	Subunit		
Southern Uplands (SU)	3.1.2: Ranges (high relief)	Rugged topography with developed ridges and spurs separated by deeply dissected steep valleys. The drainage from the central regions of the ridges generally runs either to the southeast or northwest. Most soils developed on the lower Cretaceous sediments are friable brown and yellow gradational soils (Dermosols) and are generally less than 2 m deep. Similar but deeper soils occur on colluvium and	193.23 (10.76%)

Geomorphological Units		Description	Area (ha)
Unit	Subunit		
		landslide debris. High relief (moderate elevation, about 250-600 m).	
	3.2.2 Ranges (low relief)	Dissected ranges with soil types likely to include sands and sands with pans ("coffee rock"), tenosols and podosols, gradational soils (dermosols) in the wetter areas and mottled texture contrast soils (Chromosols) on drier areas.	122.82 (6.84%)
	3.2.3: Basaltic residuals	This area is representative of residuals of the extensive basalt flows of the Older Volcanics that occurred during the Palaeogene. The landform is described as undulating low hills with rounded crests, flats and open depressions, often described as swamps. Soils developed on these basalts are deep red friable gradational soil (Ferrosols) and almost all have been cleared for intensive agriculture.	87.45 (4.87%)
Eastern Plains (EP)	7.2.1: Flood plains and morasses	The present flood plains and morasses include recent alluvial deposits such as those in the Tarwin, Powlett, Moe and Latrobe River valleys. These areas are subject to inundation in times of flood. Most of the alluvium comprises fine sands, silt and clay sized sediments. The resulting soils are generally dark grey to black soils lacking texture contrast (Dermosols) and are of high natural fertility.	244.19 (13.59%)
	7.2.2: Prior Stream plains	The prior stream plains are higher in elevation than the present floodplains and are on alluvium deposited by meandering streams that were active prior to the last glacial period. As the streams flooded, natural levees were formed on either side of the streambeds, with back swamps and floodplains further away. The resulting soils are reasonably permeable red texture contrast soils (sodosols or Chromosols), but on flatter areas they are less permeable and sodic yellow and brown texture contrast soils (sodosols). Some dark grey clay soils (vertosols) occur in the former back swamps.	114.87 (6.39%)
	7.3.1: Plains without dunes	Around Darnum, Loy Yang, Giffard and Leongatha South are plains of very low relief, although there are a few incised streams. They are comprised of Neogene and Early Quaternary alluvial and fluvial sediments derived from the Eastern Uplands immediately following the Kosciuszko Uplift. Soils developed on these sediments have a bleached subsurface soil (A2 horizon). Around Leongatha South, where the rainfall is higher, the soils are also texture contrast but are acidic (Kurosols), with some of the more sandier surface soils developing "coffee rock' layer at the base of the A2 horizon (Podosols).	290.69 (16.18%)

Geomorphological Units		Description	Area (ha)
Unit	Subunit		
	7.3.2 Plains with dunes	Most of the plains within this unit are similar to 7.3.1) but are partly mantled by wet-east trending sand dunes likely to have originated from the tertiary Neogene sandstones of the southern uplands. The soils on the plains are generally sodic texture contrast soils (sodosols), with the dunes being comprised of leached acidic sands, usually with a B horizon of iron cemented sand (Podosols).	23.98 (1.33%)
	7.3.3: Dissected Plains (Yallourn North, Inverloch)	These plains are comprised of Neogene sediments derived from the Eastern Uplands. After the deposition of these sediments, later streams have incised into the former plains, resulting in a landform best described as undulating to rolling low hills. The soils that have developed on these plains all have a bleached subsurface soil (A2 horizon) and are acidic and lack texture contrast (Dermosols), but in South Gippsland they are texture contrast acidic soils (Kurosols) with some of the sandier surface soils developing "coffee rock" layer at the base of the A2 Horizon.	703.72 (39.18%)
Coast	8.4: Coastal Barriers (Ninety Mile Beach)	No information provided	7.25 (0.40%)
	8.6.1: Tidal (Westernport Bay, Corner Inlet)	No information provided	8.13 (0.45%)

6.1.1.1.2. Geology

The study area is underlain by nine geological units (Table 14 and Figure 10).

Table 14: Geology of the study area and geographic region

Geology units	Location	Description	Area (ha)/%
Haunted Hills Gravel (Nxh)	Sedimentary deposits (Pliocene to Miocene formation) identified throughout the study area.	Fluvial: sand, silt, gravel of various shades of brown, yellow, red, white that are variably sorted and rounded. These sediments are crudely to well embedded and are commonly strongly oxidised with ironstone near the top and also within the formation.	907.63 (50.74%)
Wonthaggi Formation (Ksw)	Sedimentary, non-marine alluvial deposit (Cretaceous) identified north of the study area, with small pockets within the Middle Tarwin.	Fluvial: lithic sandstone, siltstone, minor conglomerate, coal.	181.16 (10.13%)
Unnamed alluvium (Qa1)	Sedimentary (non-marine) deposits (Holocene) identified along Fish Creek	Fluvial: alluvium, gravel, sand, silt	133.12 (7.44%)

Geology units	Location	Description	Area (ha)/%
Unnamed alluvium (Qa2)	Igneous (extrusive) deposits (Pleistocene formation) associated with Waratah Bay.	Fluvial: gravel, sand, silt	156.03 (8.72%)
Older Volcanic Group (-Po)	Sedimentary deposits associated to the north (between Dumbalk and Mardan South)	Extrusive: tholeiitic and minor alkaline basalts. The basalts are black, fine grained with small olivine phenocrysts. Interflow sediments, mudstone.	351.10 (19.63%)
Unnamed swamp and lake deposits (Qm1)	Sedimentary coastal deposits (Holocene) associated with Waratah Bay/Sandy Point	Paludal (lagoon and swamp) deposits: silt, clay	26.33 (1.47%)
Unnamed colluvium (Qc1)	Sedimentary deposits (Holocene) associated with Waratah Bay	Fluvial ("gully" alluvium, colluvium): gravel, sand, silt	21.05 (1.18%)
Liptrap Formation (Dxl)	Sedimentary marine deposit (Devonian formation) identified north of Waratah Bay.	Marine: sandstone, siltstone, minor conglomerate	10.14 (0.57%)
Unnamed coastal dune deposits (Qdl1)	Sedimentary coastal deposits (Holocene) associated with Waratah Bay/Sandy Point	Aeolian: coastal and inland dunes: dune sand, some swamp deposits	2.16 (0.12%)

6.1.1.2. Climate

The climate of Australia has altered and fluctuated since the time of earliest human occupation during the Pleistocene, around 60,000 ya. During the Pleistocene, lower sea levels were present across Australia, and the southern coastline extended southwards, connecting Tasmania to the Australian mainland (Cosgrove 1999: 362). During the late Pleistocene and early Holocene, sea levels began to rise in response to post-glacial marine transgression resulting from the melting of Late Pleistocene ice sheets (Lambeck and Nakada 1999: 143). This rise in sea levels separated Tasmania from the mainland and reduced the Australian coastline. Victorian sea levels stabilised and reached modern levels before around 6,000 years ago (Lambeck and Nakada 1990: 149).

During the period of Aboriginal occupation of the Victorian region, the climatic conditions varied greatly with regard to temperature and rainfall levels. During the Last Glacial Maximum (21,000-15,000 ya), temperatures were approximately 10 degrees lower than today (Mulvaney and Kamminga 1999:116). During the late Pleistocene there was less precipitation throughout the continent, reducing the woodland forest areas of southern Australia and resulting in a predominance of grasslands. Within this time there is evidence for dry/shallow lakes with conditions likely to have been too dry to support swamp or open-water environments (Bowler 1981: 436-437; Aitken and Kershaw 1993:76). The inland of Australia was characterised by arid and dry conditions, with areas such as the Willandra Lakes in western NSW going completely dry. Within Victoria these climatic conditions generally discouraged tree growth, although some trees survived in particularly sheltered and watered areas (Mulvaney and Kamminga 1999, 119). In the late Pleistocene to early Holocene (12,000 to 9,000 ya), warmer temperatures and increased precipitation resulted in the expansion of woodland and forest areas dominated by eucalypts (Aitken and Kershaw 1993: 67). Fluctuating environmental conditions persisted

throughout the Holocene, with data indicating that after 5,000 ya, rainfall was lower which resulted in a more open eucalypt canopy with an understory mosaic of heath, bracken and grassland. This may also be connected to evidence for increased burning, which is indicated by relatively high levels of charcoal (Aitken and Kershaw 1993: 78).

The climate of the geographic region is generally described as temperate with warm dry summers and cool winters. The mean annual average rainfall for the area is 75.1 mm (Mirboo North Water Board). Mean average temperatures in the East Tarwin are range from a mean maximum of 24.6 ˚C in February to mean minimum 11˚C in July (Mirboo Pastoral Company)[7].

6.1.1.3. Pre-1750 vegetation

The study area is currently characterised by extensive areas of cleared land containing modified native vegetation including introduced grasses, and on this basis, it is difficult to ascertain what the native vegetation would have looked prior to European contact and the early years of European settlement. However, given the diverse landforms and geologies present across the study area, it is likely that the study area would have traversed a range of different environments with permanent and seasonal water-supplies, as well as intersecting various major resource terrains including lakes, swamps, and plains. As such, the region would likely have have provided a rich source of fish and birdlife for Aboriginal people. The following section relies on modelling of pre-1750 ecological vegetation classes (EVCs) by the Department of Environment, Land, Water and Planning (2018).[8]

The study area intersects two bioregions:

The **Strzelecki Ranges** bioregion comprises 70% of the study area and extends from the north-west section of the geographic region and the study area near Leongatha until Narracan East and consists of moderate to steep slopes and deeply dissected blocks of alternating beds of sandstone, siltstone and shales, and swampy alluvial flats. The Strzelecki Ranges area is a deeply dissected range of hills that form the headwaters of several rivers. The soils are mainly gradational textured acidic soils (Dermosols) together with friable red earths (Ferrosols). The dominant vegetation is Wet Forest and Damp Forest on the higher slopes, and Shrubby Foothill Forest and Lowland Forest on the lower slopes.

The **Gippsland Plain** bioregion is located north and south of the Strzelecki Ranges and comprises 30% of the study area. The Gippsland Plain includes flat low lying coastal and alluvial plains with a gently undulating terrain dominated by barrier dunes, floodplains and swampy flats. The soils associated with the upper terrain are both texture contrast soils (Chromosols, sodosols) and gradational texture soils (Dermosols), and typically support a Lowland Forest ecosystem. The dunes are predominantly sandy soils (Podosols and Tenosols) supporting Heath Woodland and Damp Sands Herb-rich Woodland ecosystems. The fertile floodplains and swamps are earths and pale yellow and grey texture contrast soils (Hydrosols) and support Swamp Scrub, Plains Grassy Woodland, Plains Grassy Forest, Plains Grassland and Gilgai Wetland ecosystems. The bioregion is generally below 200 m above sea level while the coastline includes sandy beaches backed by dunes and cliffs, and shallow inlets with extensive mud and sand flats. The bioregion has a temperate climate, averaging between 500 to 1100mm a year. The majority of rain falls in

[7] Daily Rainfall - 085049 - Bureau of Meteorology (bom.gov.au)

[8] NatureKit Victoria (biodiversity.vic.gov.au)

winter, and the Strzelecki Ranges create a rain-shadow to the east. Several rivers drain the bioregion including the Avon, Bass, Latrobe, Macalister, Mitchell, Tambo, Tarwin, Thompson and Yarra.

The majority of pre-1750 EVC vegetation within the study area comprises the Plains Grassy Woodland (EVC 55) (Figure 11). This EVC comprises an open, eucalypt woodland to 15m tall occurring on a number of geologies and soil types and includes an understorey of a few sparse shrubs over a species-rich grassy and herbaceous ground layer, with chenopods often present. [9] Common large tree species include *Eucalyptus* spp, *Eucalyptus largiflorens* (black box) and *Allocasuarina* spp (Sheoaks).

EVC 55 and other EVCs intersecting the study area and geographic region are described in Table 15.

Table 15: Pre-1750s modelled EVCs within the study area and geographic region

Bioregion	EVC	Description
Strzelecki Ranges	EVC 793: Damp Heathy Woodland	Woodland to 10 m tall with tall dense heathy understorey which becomes tall scrub if long unburnt in high rainfall areas. The ground layer consists of grasses, herbs, small shrubs and sough-leaved monocots. Developed on sandy soils of moderate to low fertility, typically wet in winter due to impeding layer in soil and dry in summer.
	EVC 55: Plains Grassy Woodland	Open, eucalypt woodland to 15m tall occurring on a number of geologies and soil types. Occupies poorly drained, fertile soils on flat or gently undulating plains at low elevations. The understorey consists of a few sparse shrubs over a species-rich grassy and herbaceous ground layer.
	EVC 16: Lowland Forest Mosaic	Open forest to 25m tall. It grows on a wide variety of geology and soils mostly on north and north westerly aspects. Characterised by an often-heathy understorey with a variety of other life forms including shrubs, grasses and herbs
	EVC 29: Damp Forest	Grows on a wide range of geologies on well-developed generally colluvial soils on a variety of aspects, from sea level to montane elevations. Dominated by a tall eucalypt tree layer to 30 m tall over a medium to tall dense shrub layer of broad- leaved species typical of wet forest mixed with elements from dry forest types. The ground layer includes herbs and grasses as well as a variety of moisture-dependent ferns.
	EVC 30: Wet Forest	Grows on fertile, well-drained loamy soils on a range of geologies and elevation levels. It is largely restricted to protected sites in gullies and on southern aspects of hills and mountains where rainfall is high and cloud cover at ground level is frequent. Characterised by a tall eucalypt overstorey to 30 m tall with scattered understorey trees over a tall broad-leaved shrubby understorey and a moist, shaded, fern-rich ground layer that is usually dominated by tree-ferns.
	EVC 16: Lowland Forest	Open forest to 25m tall. It grows on a wide variety of geology and soils mostly on north and north westerly aspects. Characterised by an often-heathy understorey with a variety of other life forms including shrubs, grasses and herbs.
Gippsland Plain	EVC 53: Swamp Scrub	Closed scrub to 8 m tall at low elevations on alluvial deposits along streams or on poorly drained sites with higher nutrient availability. The EVC is dominated by Swamp Paperback which often forms a dense thicket.
	EVC 83: Swampy Riparian Woodland	Woodland to 15 m tall generally occupying low energy streams of the foothills and plains. The lower strata are variously locally dominated by a range of large and medium shrub species on the stream levees in combination with large tussock grasses and sedges in the ground layer.

[9] http://www.environment.vic.gov.au/__data/assets/pdf_file/ 027/48753/VRiv_EVCs_combined.pdf

Bioregion	EVC	Description
	EVC 45: Shrubby Foothill Forest	Eucalypt forest to 25 m tall over an understorey characterised by a distinctive middle stratum dominated by a diversity of narrow leaved shrubs and paucity of ferns, graminoids and herbs in the ground stratum.
	EVC 55: Plains Grassy Woodland	Open, eucalypt woodland to 15m tall occurring on a number of geologies and soil types. Occupies poorly drained, fertile soils on flat or gently undulating plains at low elevations. The understorey consists of a few sparse shrubs over a species-rich grassy and herbaceous ground layer.
	EVC 151: Plains Grassy Forest	Open forest to 20 m tall often above a heathy shrub layer and a diverse grassy, sedgy and herbaceous ground layer. Occurs on lowland plains and old river terraces made up of gravelly sandy clays
	EVC 160: Coastal Dune Scrub	Closed scrub to 5 m tall with occasional emergent occurring on secondary dunes along ocean and bay beaches and lake shores. Occupies siliceous and calcareous sands that are subject to high levels of salt spray and onshore winds.
	EVC 879: Coastal Dune Grassland Mosaic	Consists of grasses and halophytes (succulents) that colonise the foredunes of ocean beaches. Soils are siliceous sands that have a very low humus content.
	EVC 10: Estuarine Wetland	Grows on anaerobic peat-rich muds on the edges of estuarine waterbodies such as creeks, rivers and lagoons with intermediate salinity conditions. Vegetation is determined by fluctuating salinity, which varies in time from occasionally fresh to brackish or occasionally saline according to river flood and marine tide events.

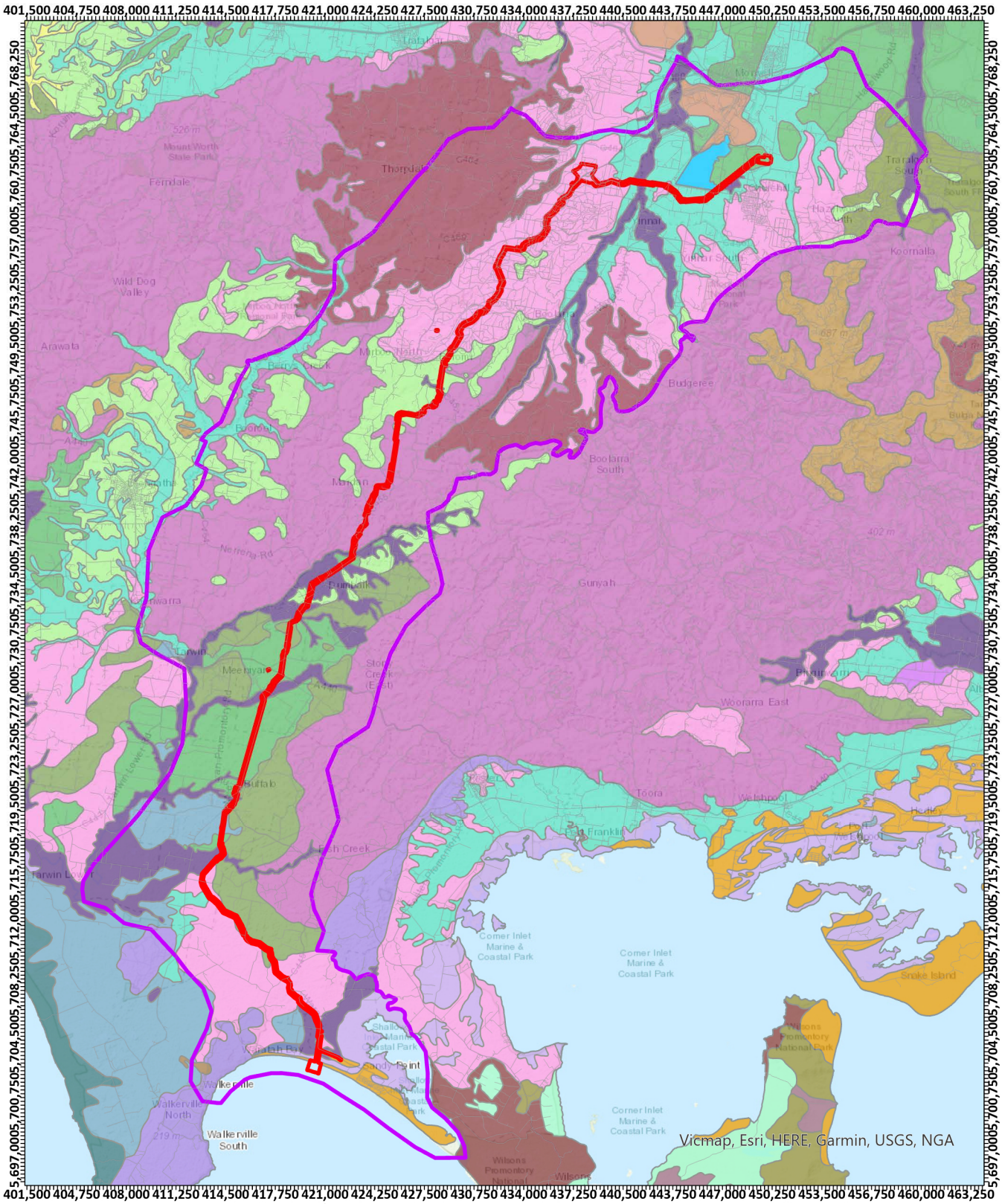

Figure 9: Geomorphology of the study area and geographic region

Legend

- Activity area
- Geographic region
- Roads

Geomorphological units

- 3.1.1 Plateaux and broad ridges (Beech Forest, Wyelangata, Balook)
- 3.1.2 Ranges (Forrest, Barramunga, Poowong, Fish Creek)
- 3.1.3 Basalt residuals (Thorpdale, Nerrim South)
- 3.1.4 Prominent hills (Wilsons Promontory)
- 3.2.2 Ranges (Barrabool Hills, Athlone)
- 3.2.3 Basaltic residuals (Warragul, Red Hill)
- 3.3.2 Hills and low hills (Barwon Downs, French Island)
- 7.1.2
- 7.2.1 Flood plains and morasses (Powlett, Tarwin, Moe, Latrobe, Thomson, Avon, Mitchell, Jack and Tarra Rivers, Dowd's Morass)
- 7.2.2 Prior stream plains (Agnes, Yarram, Yinnar, Tinamba, Clydebank)
- 7.2.3 Older alluvial plains (Stratford, Briagolong)
- 7.2.4 Plains with dunes (west of the Perry River)
- 7.3.1 Plains without dunes (Darnum, Loy Yang, Giffard, Leongatha South, Munro plains)
- 7.3.2 Plains with dunes (Woodside, Longford, Munro plains with dunes)
- 7.3.3 Dissected plains (Yallourn North, Inverloch)
- 7.3.5 Dunefields (Gormandale, Wonthaggi South, Liptrap)
- 8.3 Stranded cliffs (Gippsland Lakes)
- 8.4 Dunefields (Gormandale, Wonthaggi South, Liptrap)
- 8.5 Transgressive dunes
- 8.5.2 Sea level (Discovery Bay)
- 8.6.1 Tidal (Westernport Bay, Corner Inlet)
- 8.6.2 Lagoonal (Nelson, Tamboon Inlet)
- Mine
- Waterbody
- wland

N

Scale: 1:368,000

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Coordinate System: GDA 1994 MGA Zone 55
Projection: Transverse Mercator
Datum: GDA 1994

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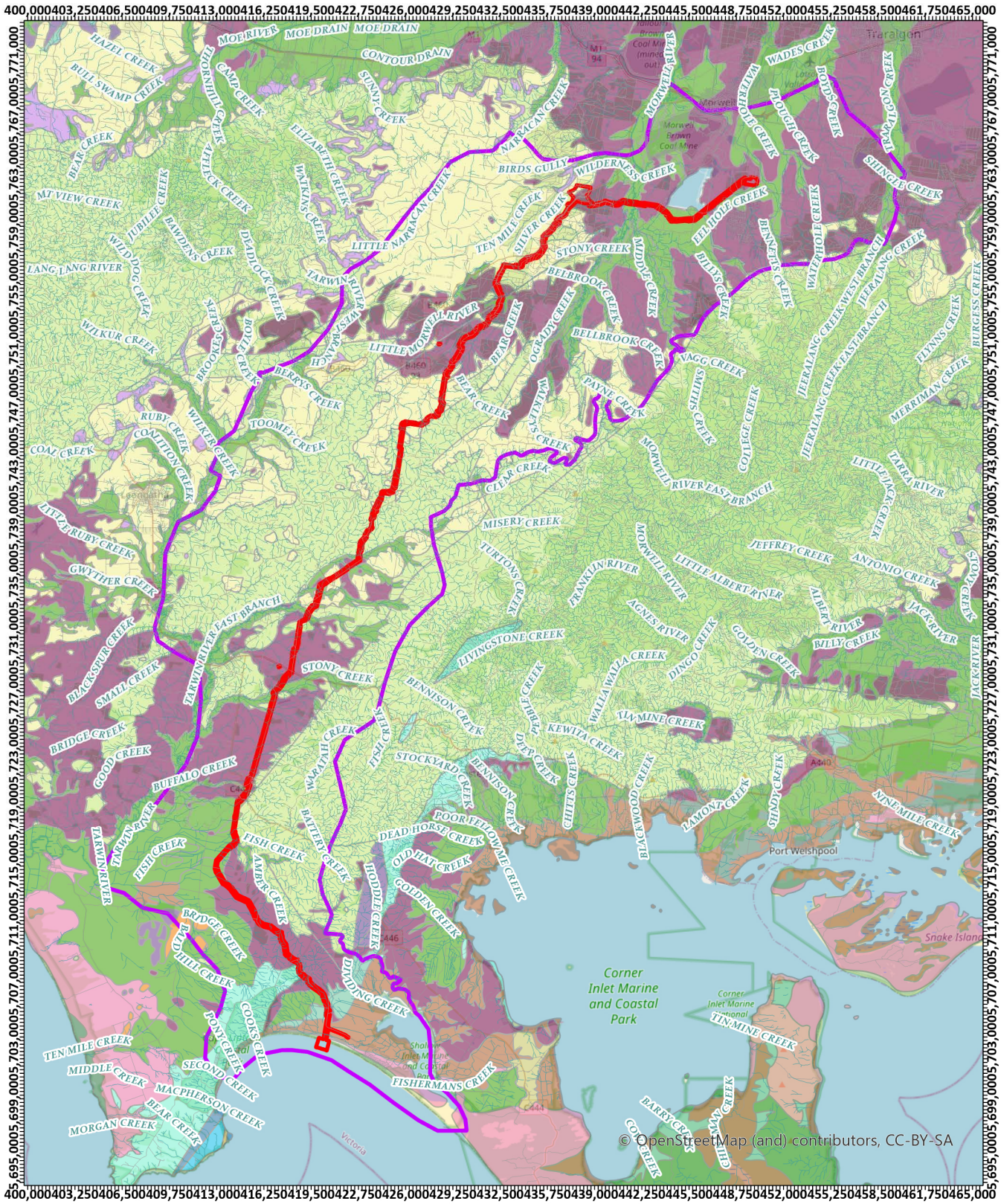

Figure 10: Geology of the study area and geographic region

Legend

- Activity area
- Watercourse
- Roads

Geology

- Childers Formation
- Digger Island Limestone
- Haunted Hills Gravel
- Howqua Chert
- Lilly Pilly Granite
- Liptrap Formation
- Mount Easton Shale
- Mount Singapore Granite
- Older Volcanic Group
- Undifferentiated Silurian Sedimentary Rocks
- Undifferentiated Silurian-Devonian Rocks
- Unnamed Cambrian 'greenstone'
- Unnamed alluvium
- Unnamed coastal dune deposits
- Unnamed colluvium
- Unnamed dune deposits
- Unnamed swamp and lake deposits
- Walhalla Group
- Waratah Limestone
- Wonthaggi Formation
- Yanakie Granite
- GeographicRegion_Merged

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Coordinate System: GDA 1994 MGA Zone 55
Projection: Transverse Mercator
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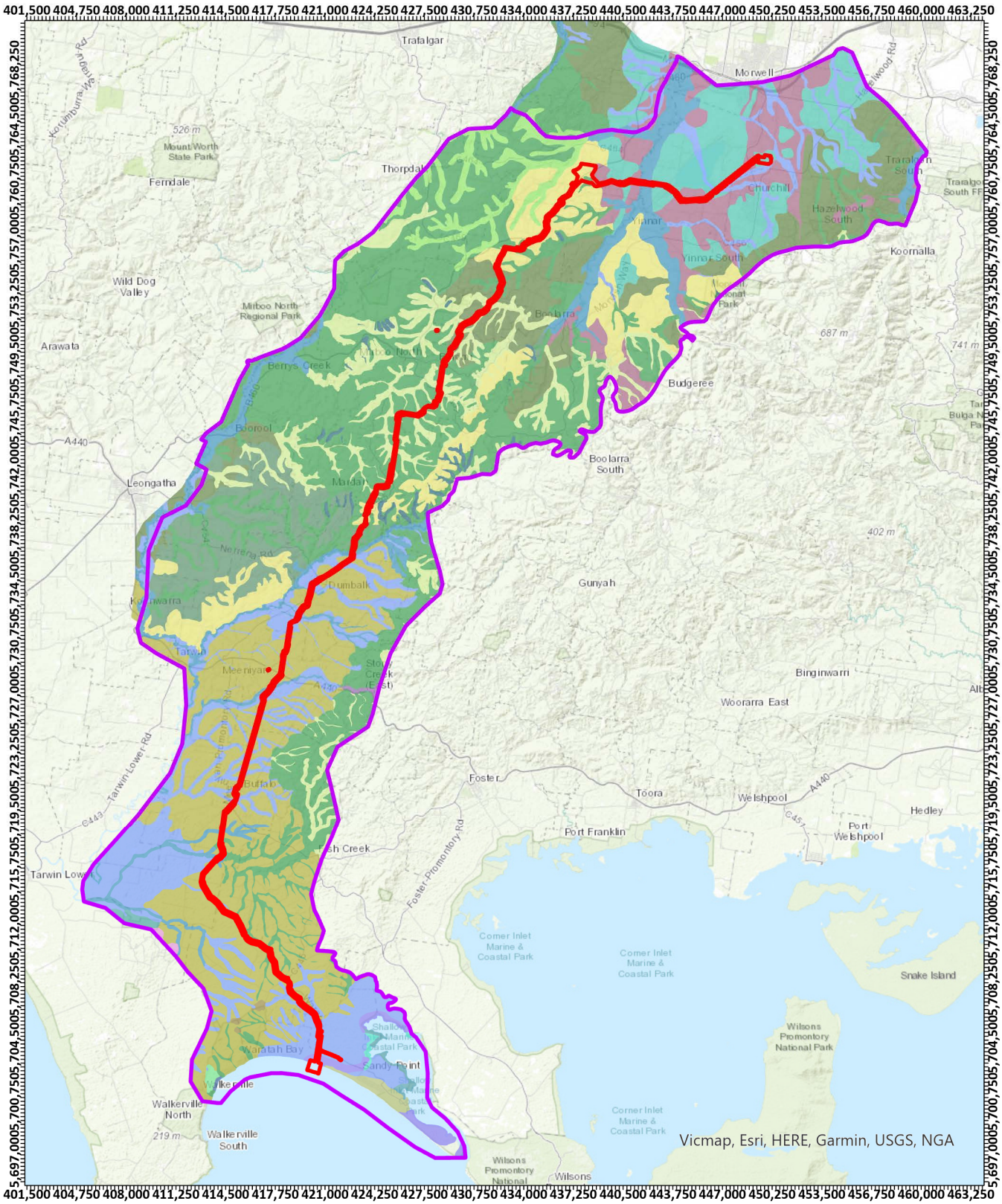

Figure 11: EVCs in the study area and geographic region

Legend

- Activity area
- Geographic region

Ecological vegetation class

- Coast Banksia Woodland
- Coastal Alkaline Scrub
- Coastal Dune Scrub/Coastal Dune Grassland Mosaic
- Coastal Saltmarsh
- Damp Forest
- Damp Heathy Woodland/Lowland Forest Mosaic
- Damp Sands Herb-rich Woodland/Swamp Scrub Complex
- Estuarine Wetland
- Herb-rich Foothill Forest
- Lowland Forest
- Mangrove Shrubland
- Plains Grassy Forest
- Plains Grassy Woodland
- Riparian Forest/Warm Temperate Rainforest Mosaic
- Sand Heathland/Wet Heathland Mosaic
- Sandy Beach
- Shrubby Foothill Forest
- Swamp Scrub
- Swamp Scrub/Wet Heathland Mosaic
- Swampy Riparian Complex
- Swampy Riparian Woodland
- Warm Temperate Rainforest
- Wet Forest
- Wet Heathland
- Wet Heathland/Damp Heathland Mosaic
- Wetland Formation

N

Scale: 1:368,000

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Coordinate System: GDA 1994 MGA Zone 55
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6.1.2. Historical cultural heritage

6.1.2.1. Local History

Wealthy landowners in New South Wales (NSW) became interested in the Gippsland region by the late 1830s, with many funding explorations (Hill 2017, 30). During the 1840's, European settlement of the Gippsland Lowlands continued to thrive after Angus McMillan established Port Albert during explorations of the area (LCC 1982, 15-16). Prior to this, the settlement of Gippsland was slow (Spreadborough & Anderson 1983, xvi). Count Paul Strzelecki's reports of the region during his efforts to determine a country route from Tambo River to Port Phillip stimulated interest, with squatters arriving from Port Albert, Port Phillip, and Omeo. The region Strzelecki traversed was named Gippsland after Sir George Gipps, governor of NSW (Harding 1992: 5). From the late 1840s to the 1850s, early settlement in the Gippsland region typically comprised of squatter's pastoral runs (Spreadborough & Anderson 1983).

Despite difficulty in accessing the Gippsland region, European settlement flourished. By 1844, 2,000 head of cattle, and 62,000 sheep were under the jurisdiction of 327 settlers on the central plain between the Latrobe and Tambo rivers (Synon 1994, 19). Large tracts of land unsuitable for grazing livestock remained either partly occupied or under the jurisdiction of the Crown until the 1860s (Spreadborough & Anderson 1983, xii-xxvi; LCC 1982, 15-16). During this period, pastoral land use centred predominantly on sheep and cattle (LCC 1982, 22). Squatters contributed significantly to the development of the Gippsland region throughout the mid-late 19th century. The size of the pastoral leases issued in Gippsland averaged around 30,000 acre (Morgan 1997, 45). These squatting stations grew from hastily constructed bark huts with an emphasis on establishing main farm buildings to buildings with clay chimneys, slab walls, kitchens, floors, and multiple rooms (Morgan 1997, 48). Many of these early houses (including fences) were sourced from slabs of local redgum (Huffner 1979, 14). The transition from temporary dwellings to substantial housing typically indicated ownership of selector's land, rather than leasing.

The Gippsland economy was stimulated by the gold rush in Walhalla and Omeo during the 1850's (LCC 1982, 23). Port Albert became the most active port in Victoria during this time (Hill 2017, 31). Miners retrained as farmers during the decline of alluvial gold mining. Changes to the Land Acts and significant reduction in the profitability of alluvial gold mining brought the squatting era to an end in the 1860's (LCC 1982, 12, 23). The pastoral squatting runs were then opened up as small parcels of land for selection. The cultivation of barley, oats, maize, and potatoes continued to occur in river valleys in the Gippsland region. However, there was opportunity for coal mining in South Gippsland in Korumburra and Jumbunna for 30 years, as well as Wonthaggi. Wonthaggi mine was closed in 1968 (Harding 1992, 5).

Changes to the character of rural occupation and ownership in Victoria occurred during the 1870s and 1880s due to a series of parliamentary land acts (Legg 1984, 42). The changes resulted in smaller, freehold farm allotments from the division of large Crown squatting leases. This initiative encouraged a greater number of people to earn a living from the land whilst contributing to the needs of the colony. Prior to a Crown Grant, leased land was initially let for a period of three years at a rate of two shillings per acre per annum. At a price of fourteen shillings, ownership was conferred to the selector. It was a requirement for selectors to improve their allotments to become eligible for a Crown Grant. Improvements included a house, sheds, yards, boundary fences, water storage facilities, and the

expectation that one in every ten acres was under cultivation. However, failing selections were not uncommon, and resulted in successful neighbours purchasing these allotments.

The livestock trade from the 1840's to the 1860's with Van Dieman's Land boosted the economic growth of the Gippsland region prior to the gold rush (Caldow 2012, 19). In return for Gippsland sheep and cattle, settlers, provisions, and building materials were acquired for squatting runs from nearby Hobart. By the late 19th century, a decline in grazing was evident within the South Gippsland Shire (Hill 2017, 31). Agriculture, including the breeding of sheep, beef cattle and dairy cattle, had instead become the major occupations.

Until the 1860's the Gippsland region remained relatively isolated (LCC 1982, 17, 23). The establishment of east to west routes made accessibility and communication between Melbourne and the region easier. Prior to this, communications occurred between Port Albert and the north-east high plains via a pack track along the same alignment as the present-day Princes Highway. With these newly established routes, the main entry and exit point for Gippsland was through Pakenham (Morgan 1997, 87). Road reserves were established throughout the 1870s to accommodate selectors accessing their land legally (Huffer 1979, 40).

Large areas of forests were cleared for dairying pasture between 1870 and 1910 (Frost 1998, 131). Small farming enterprises dominated the South Gippsland region throughout the 1900's (Hill 2017: 32). However, two to three years after clearing the land for farming at a cost of 25 to 40 shillings, a secondary clearance of the land needed to be undertaken (Frost 1998, 135). The cost of this secondary clearance was almost as high as the initial clearance cost due to the presence of scrub such as sword-grass, adding to the high cost of farming by selectors with little capital. It is estimated that a total of 450,000 acres of land in South Gippsland was cleared by the 1920's (Frost 1998, 136). Of this total, 160 000 acres were neglected and left to become overgrown, and a further 150,000 completely abandoned. These abandoned lands were reallocated for Closer, Empire, and Soldier Settlement Schemes (Legg 1992, 168-170).

The construction of the railway in Gippsland saw a rise in timber milling in the region, already made profitable during land clearing efforts (Copeland 1934, 332; Huffer 1979, 14 & 34). By 1892, the South Gippsland Railway was opened (Morgan 1997, 91). This section of railway extended from Port Albert to Dandenong and boosted townships such as Leongatha which were located near the railway (Brooke 2017, 15). The introduction of the railway improved the viability of local farms in the Gippsland region (Hill 2017, 31). Prior to the railway, timber was sourced locally rather than purchased from large timber yards which were difficult to access. Tramways were constructed to aid in the transportation of timber to the railway project (Copeland 1934, 336-338). The number of forest sawmills in West Gippsland peaked in 1921 at 241, and steadily dropped to 169 in 1930.

Hazelwood/Churchill

The township of Hazelwood is located on the flats of the Morwell River, in the Latrobe Valley, Gippsland.[10] In 1844, Hazelwood was taken up as a pastoral run by William Bennet and named after his wife, Lavinia Hasell Bennett. Part of Hazelwood pastoral run was opened up for selection during the

[10] 'Hazelwood,' *Victorian Places.* 2021. Hazelwood | Victorian Places

1870s, becoming known as Hazelwood Estate. Crops, dairying, and the grazing of sheep and cattle were the main industries taken up in the area. Beef and dairying on the river flats were renowned in the district. Speculative mining of black coal in the area occurred in 1874 and 1888. Hazelwood became connected to the railway network (Morwell southwards to Mirboo North) in 1885. During the 1920s, Hazelwood Estate was further subdivided for the soldier settlement scheme in the 1950s, and was later acquired for the construction of the Hazelwood Power Station, which was completed in 1971. The land for a newly planned town, Churchill, was compulsorily acquired. Land acquisition and urban encroachment lead to a decline in large-scale farming industry, but also to a rise in hobby farming. Large eucalypt plantations are now farmed in the area, and pondage associated the Hazelwood power station is popular for sailing.

Dumbalk

The name 'Dumbalk' was an Aboriginal word[11] meaning bleak or chilly (Bunce 1859). The region was cleared of large amounts of dense forests to make way for hops, arrowroot, and onion crops in the 1880s. Dairying became a lucrative industry, with sheep and pig grazing as alternative forms of farming. A butter factory was built in 1893 to accommodate the industry. Cattle herd testing began in 1922, followed by an artificial breeding centre in 1957[12]. Additional butter factories were constructed in 1903 and 1930, with a move towards cheese manufacturing in 1941. Several mergers and the gradual phasing out of the factory saw milk being transported to nearby Leongatha for processing.

Mirboo North

According to Mirboo Country Development Inc, the name 'Mirboo' comes from an Aboriginal word for kidney.[13] The Shire of Mirboo was established in 1894 and today comprises 24,624 hectares of hilly country farmed for grazing, dairy, potato crops, and timber production. Almost forty years after Paul Strzelecki journeyed through the area, Europeans began to settle in 1877 at Baromi. Rudolph Benzley, Matthew Brenna, William Scarlett, and Robert Bair constructed stores for provisions and hotels during this early period. It was during this time that forested ranges were put up as farm selections.[14] The town of Baromi was surveyed and named Mirboo North in 1884, after the previous survey of Mirboo 12km to the south. The railway allowed for easier accessibility within the South Gippsland region, with the railway opening of 'Terminus', situated 1 km from Baromi, on the 7th January 1886. The first butter factory (Mirboo & Morwell Farmers' Cooperative Co. Ltd.) was constructed in the town in 1893. It was later amalgamated with Murray Goulburn in 1966 and eventually closed in 1974. The Grand Ridge Brewery has occupied this building since 1988.[15]

[11] Bunce did not specific the language from which this word is derived.

[12] 'Spotlight on Dumbalk,' South Gippsland Shire Council. 2021. Key Points in History | Spotlight on Dumbalk | South Gippsland Shire Council

[13] History of Mirboo North | Gunnaikurnai Country | South Gippsland, Victoria — Mirboo North

[14] 'Spotlight on Mirboo North,' *South Gippsland Shire Council.* 2021. Key Points in History | Spotlight on Mirboo North | South Gippsland Shire Council, accessed 7/9/21; 'Mirboo North,' *Victorian Places.* 2015.

[15] ibid

Sandy Point and Waratah Bay

The French navigator Baudin initially called what is now Waratah Bay, Paterson Bay during an expedition to map the coastline of Australia in 1803.[16] Paterson Bay was renamed after a ship called 'The Waratah' was beached in the area in 1858. In 1862, the portion of Waratah Bay intersected by the study area was sold as a squatters run called 'Sandy Point' to James Hanner (Spreadborough and Anderson 1983: 268) (Figure 12). The area of the allotment comprised 9,600 acres. The 'Sandy Point' run was sold to John Elliot in October 1865 and then to David Fraser in October 1867.

Aerial imagery of the portion of the study area intersecting the Waratah Bay coastline shows land that is largely devoid of native vegetation, although remnant vegetation is evident in small pockets associated with nearby ephemeral waterways (Figure 13. The land around Waratah Bay was heavily cleared and ploughed around the 1950's (Story 1993: 5). Cattle grazing has continued in the area since the 1990s as depicted within historical aerial photos.

Sandy Point was taken up as a squatters run until it was split into multiple farms for selection in 1898. The area was heavily cleared, and the swampy inlet drained. A sea wall was also built to prevent flooding. Livestock, including sheep and cattle, were a main source of income. From the turn of the 20th century, fishing commenced on a commercial scale. A road was constructed in 1938 to ease accessibility. By the 1950's property (160 acres) was subdivided to the west of Shallow Inlet, which later accommodated for its growth as a tourist town from the 1960s onwards.

Figure 12: Sandy Point squatters run (Waratah Bay) (Spreadborough and Anderson 1983)

[16] https://www.southgippsland.vic.gov.au/info/20001/planning_and_building/347/spotlight_on_waratah_bay/2 - Accessed 20/10/2022.

Figure 13: 2006 aerial photograph of the Waratah Bay shoreline crossing (Study area marked in yellow)

6.1.2.2. Register searches

Table 16 presents summary information on the results of Commonwealth, Victorian and local government register searches regarding the potential for historical cultural heritage places to be located within the study area.

No places of international, national, state or local government historical heritage significance are located within the study area.

Table 16: Summary information on historical heritage places within the study area

Jurisdiction	Register	Listed Historical Places
International	World Heritage List	Nil
National	National Heritage List	Nil
	Commonwealth Heritage List	Nil
State	Victorian Heritage Register	Nil
	Victorian Heritage Inventory	Nil
Local Government	Latrobe Shire Heritage Overlay	Nil
	South Gippsland Shire Heritage Overlay	Nil

6.1.3. Aboriginal cultural heritage

6.1.3.1. Historical and ethnohistorical accounts of Aboriginal occupation

In this section, the available historical and ethnohistorical information relating to Aboriginal occupation of the study area and geographic region is briefly reviewed. This information can assist in formulating a model of Aboriginal subsistence and occupation patterns in the study area. In conjunction with an analysis of the documented archaeological record of this area, the ethnohistorical information assists in the interpretation of archaeological sites in the wider area, and in predicting the potential location of archaeological site types within the geographic region.

The lives of Aboriginal groups in eastern Victoria were severely disrupted by the establishment and expansion of European settlement. As a result, little information is available regarding the pre-contact lifestyle of Aboriginal people in the area. A full ethnographic search was outside the scope of this assessment and the following section summarises major syntheses previously undertaken on Aboriginal associations with eastern and north-eastern Victoria in general in the pre-contact and postcontact period (i.e., Clark 1990, 1998; Dawson 1881, Edward Curr in Furphy 2013).

There are several problems concerned with correctly identifying and describing nineteenth century Aboriginal groups within the geographic region. This is largely a result of discrepancies in early European accounts and the difficulties early settlers had in understanding Aboriginal languages and social systems. Furthermore, the devastating effects on Aboriginal people of European presence, such as the loss of traditional lands and resources, spread of disease, social breakdown and removal of groups and individuals to reserves and mission stations compounded the difficulties associated with accurately recounting an early ethnohistory of Aboriginal people in Victoria (Barwick 1984, 13). These nineteenth century authors were also writing from an Anglocentric and gender biased viewpoint for a colonial audience who had a very limited and generally negative view on Aboriginal life, heritage, and culture. Despite these shortcomings, nineteenth century ethnographical accounts are a useful resource; the information has often been provided to the author by Aboriginal informants or by first-hand observations and experience. Such information may include knowledge regarding regional Aboriginal stories, life, culture and beliefs, and this data has been utilised to inform the ethno-historical section of this report.

Traditionally, reconstructions of tribal boundaries have been based on language groups documented in the ethnographic and ethnohistorical literature. It is important to note, however, that these reconstructions do not necessarily reflect the spatial distribution of Aboriginal peoples prior to European contact and instead provide an approximate guide to Aboriginal tribal boundaries during the contact period. During the early phase of European exploration, the few observations made of Aboriginal groups were generally limited to distant sightings of Aboriginal people and their fires (Sullivan 1981, 13).

Aboriginal peoples' occupation of the geographic region likely extends of thousands of years. This occupation would have taken the form of temporary camps used on a seasonal basis. The landscape was undoubtedly well known to generations of people, and it is probable that associations extended to spiritual attachments. A language group consisted of independent sub-groups of closely related kin, or 'clans', who were spiritually linked to designated areas of land through their association with topographic features connected to mythic beings or deities. Clan lands were inalienable, and clan members had religious responsibilities, (e.g., conducting rituals) to ensure "the perpetuation of species associated with the particular mythic beings associated with that territory" (Berndt 1982, 4).

The territories of two Aboriginal language groups, the Gunaikurnai[17] and the Bun wurrung[18], are likely to have intersected the study area at the time of European contact. Available ethnohistories for each group relevant to the study area are summarised in Section 6.1.3.1.1 and 6.1.3.1.2 respectively.

6.1.3.1.1. Gunaikurnai

Alfred Howitt, an early anthropologist who spent much time in Gippsland, noted that the Gunaikurnai comprised six distinct clans[19]: *Brataualung*, *Brayakaulung*, *Tatungalung*, *Brabralung*, *Krauatungalung* and *Bidawal*[20] (Clark 1998b). These clans were linked through marriage, with marriage between individuals in a single clan being occasional (van Waarden 1989, 6). Gunaikurnai men lived independently from their families and moved freely throughout their wife's country as well as their own (known as patrilocal marriage).

It is likely that two Gunaikurnai clans occupied the study area at the time of European contact Figure 14):

- the *Brayakaulung* clan (Clark 1998b), who occupied the Latrobe Valley and the valleys of the Thompson, Avon and Macalister Rivers. The southern boundary of this territory occurs along the Strzelecki Ranges (van Waarden 1989, after Howitt 1904).
- The *Brataualung* clan, who occupied the area south of the Strzelecki Ranges from Cape Liptrap in the north-east to around Mirboo, then eastward towards Merriman River and the ocean (Tindale 1975, 203; Harding 1992, 5).

Three Gunaikurnai dialects were spoken across the five clans (Ellender 2002, 12), with the *Brataualung*, *Tatungalung* and *Brayakaulung* clans all speaking a dialect called *Nulit* (Thomson et at 2002, 12).

The *Bunjil Kraura* (Clark 1998b, 187-188; Wesson 2000 Figure 6) have been identified as the *Brayakaulung* clan most closely associated with the Moe region. This group has also been known by the name of Woolloom/Woollam-ba-bellum-bellum (Hagenauer 1863 and 1866 in Wesson 2000, 28). The only known references regarding the *Bunjil Kraura* are in relation to a *birraark*, or medicine man who belonged to the clan (Howitt 1904, 393), a 'leading man', who carried the clan name of *Bunjil-kraura*, meaning 'West Wind' (Howitt 1904, 738). According to Howitt, Bunjil Kraura was the father of Billy Wood's wife, Sarah (or Warrawort), and he lived at the country between Morwell, Rosedale and Toongabbie (Howitt 1053/4a in Wesson 2000, 28).

[17] Historical writers variously refer to the Aboriginal language group occupying a significant proportion of Gippsland from the Latrobe Valley eastwards and southwards as either 'Gunai', 'Ganai' or 'Kurnai'. Members of this language group now refer to themselves as Gunaikurnai (sometimes GunaiKurnai), and this naming convention will be adopted throughout this report.

[18] The Bun wurrung were one of five language groups that comprised a confederacy known as the East Kulin. Other members included the Woi wurrung, Taungurung, Dja Dja wurrung and Wadawurrung.

[19] Spelling according to the language map currently used by the Gunaikurnai at Our Story | Gunaikurnai Land and Waters Aboriginal Corporation (accessed 29 December 2022)

[20] The Bidiwal are not currently recognised as a Gunaikurnai clan.

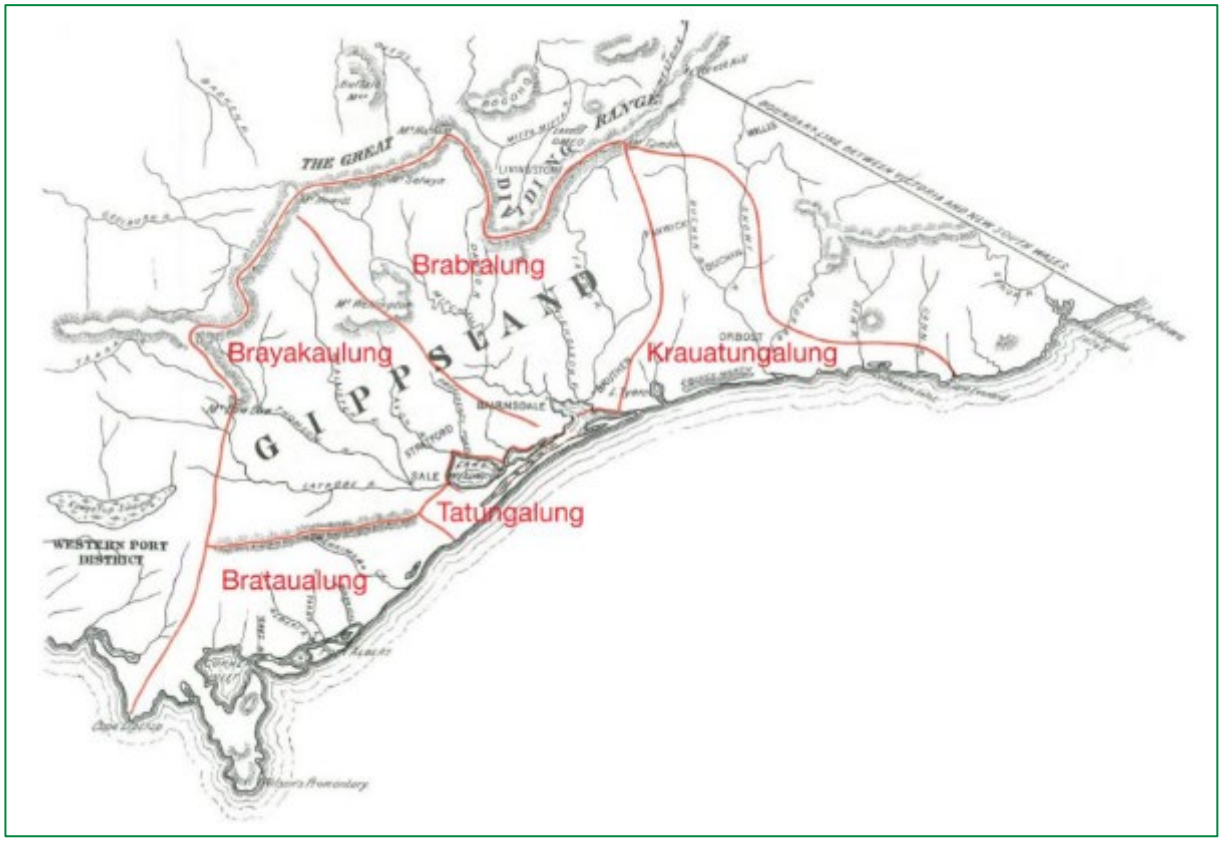

Figure 14: Gunaikurnai language group mapped in relation to the study area (source: Our Story | Gunaikurnai Land and Waters Aboriginal Corporation, after AW Howitt)

A review of the ethnohistorical literature indicates that there are few direct references to the *Braiakaulung* or the *Bratauaulung*, with most Gunaikurnai historical writings focused on the *Tatungalung* based around the Gippsland Lakes. In order to provide information on the Aboriginal occupation of the study area, the following section relies on references to the Gunaikurnai in general where specific information is not available for the *Brayakaulung* or the *Bratauaulung*.

Population estimates for the Gunaikurnai during the initial postcontact period range from 700 to nearly 5,000 (Fison & Howitt 1880, 181; Rhodes 1996, 15; Smyth 1876 vol 2, 36). In the period before pastoral settlement, the effects of introduced disease and resulting inter-tribal conflict effectively decimated the Aboriginal population of Victoria, while aggression, dispossession and alcohol abuse in the first 20 years of the postcontact period further reduced the survivors. By 1857 there were 50 people left in the *Brayakaulung*, and they were considered the largest language group among the Gunaikurnia people at this time (Pepper & de Araugo 1985, 113). According to the Rev. Hagenauer from Ramahyuck Mission, in 1862 there were 54 males and 51 females of the ‘’Woolloom” clan group (Hagenauer 1862 in Wesson 2000, 28). By 1864, Hagenauer reported that there were 51 persons (Wesson 2000, 28).

Almost all references to Gunaikurnai subsistence strategies relate to the people of Gippsland in general, or specifically to the Tatungalung who occupied the fringes of the Gippsland Lakes. As a result, there is very little information regarding the types of activities undertaken on the inland plains and foothills, particularly in the Latrobe Valley. The Rev. John Bulmer (Smyth 1876 vol. 1, 141-143) has described the seasonality of the Gunaikurnai, who moved between different resource zones on a regular basis. The spring and summer months were spent exploiting coastal and lake resources such as birds, eels and

mullet as well as plant foods including kangaroo apples. During summer, family camped along the beaches, lake entrances and estuaries, and would primarily exploit the local fish resources until moving inland in the autumn.

The archaeological record reflects the collection of certain species of shellfish which changed over time (Coutts 1970). This was in response to changes in coastal ecology and geomorphology, which also resulted in the adoption of new fishing technologies including the use of fishhooks (Frankel 2017, 51). There is evidence of fish being caught "…with bone or wooden gorges with two pointed ends elsewhere in Victoria…", however, hooks were only used along the Gippsland coast in sheltered waters. John Bulmer notes the used of bone fishhooks as well as spears and nets.

Autumn and winter were spent in the hinterland hunting kangaroo, koalas and wombats as well as collecting various root vegetables. Robinson was informed that all the tribes from Gippsland seasonally went to the mountains around Omeo to collect Bogong moths (Clark 1998a vol. 4, 88). Food procurement tasks were divided between men and women, with men being responsible for hunting, spearing fish, cooking, butchering and dividing meat, while women collected plant foods and shellfish, hunted small animals and fished with lines and nets from canoes on the lakes (Rhodes 1996, 17).

6.1.3.1.2. Bun wurrung

The Bun wurrung were part of the Eastern Kulin language confederacy (Barwick 1984, 101 & 104), which also included the Woi wurrung, Taungurong, Wadawurrung and Dja Dja wurrung language groups (Figure 15). The Bun wurrung are located south-west of the Gunaikurnai; their boundaries stretch westwards to the Werribee River along the eastern edge of Port Phillip Bay, Western Port, and the Mornington Peninsula.

The Bun wurrung language group comprised six clans: *Bun wurrung balug* (Point Nepean and Cape Shanck), *Yalukit willam* (East of Werribee River, Williamston, St Kilda), *Yallock balug* (Bass River, Tooradin), *Mayune balug* (Carrum Swamp, 'Mayune' Station), *Ngaruk willam* (Brighton, MordiaUoc, Dandenong), and *Yowengarra* (Tarwin River) (Ellender 2002, 12; Clark 1990, 365). The *Yowengarra* territory extended from the Tolengorme River (Chisholm) to Wilson's Promontory (*Wammung*) (Clark 1990, 369). Robinson (1844) mentioned that the '*Yowenjene*' or '*Boonwerong'* were once a powerful section at Western Port.

Bun wurrung clan membership was fixed at birth through inheritance from the father (Barwick 1984, 106). The rights of wives, unmarried daughters, sons, and other relatives were acquired through marriage or descent. Daughters were married to sons of other clans and their children would inherit the male's clan lineage. Associated clans of the same moiety gained certain privileges of access to land and resources.

Bun wurrung groups followed a semi-sedentary hunter-gatherer lifestyle. Resource rich watercourses and swamps containing a diversity of fish, shellfish, birds and other plant and animal foods formed a particular focus for regular Aboriginal occupation. William Thomas, the Assistant Protector of Aborigines for Westernport, observed Bun wurrung clans in the wider Westernport district living a hunter-gatherer lifestyle, moving within their lands to make use of seasonal plant and animal resources, trading opportunities and to meet ritual and kinship obligations. Thomas noted that during the winter months Bun wurrung clans moved between Port Phillip and Western Port bays whilst during the summer they moved to hinterland areas (Gunson 1968, 10).

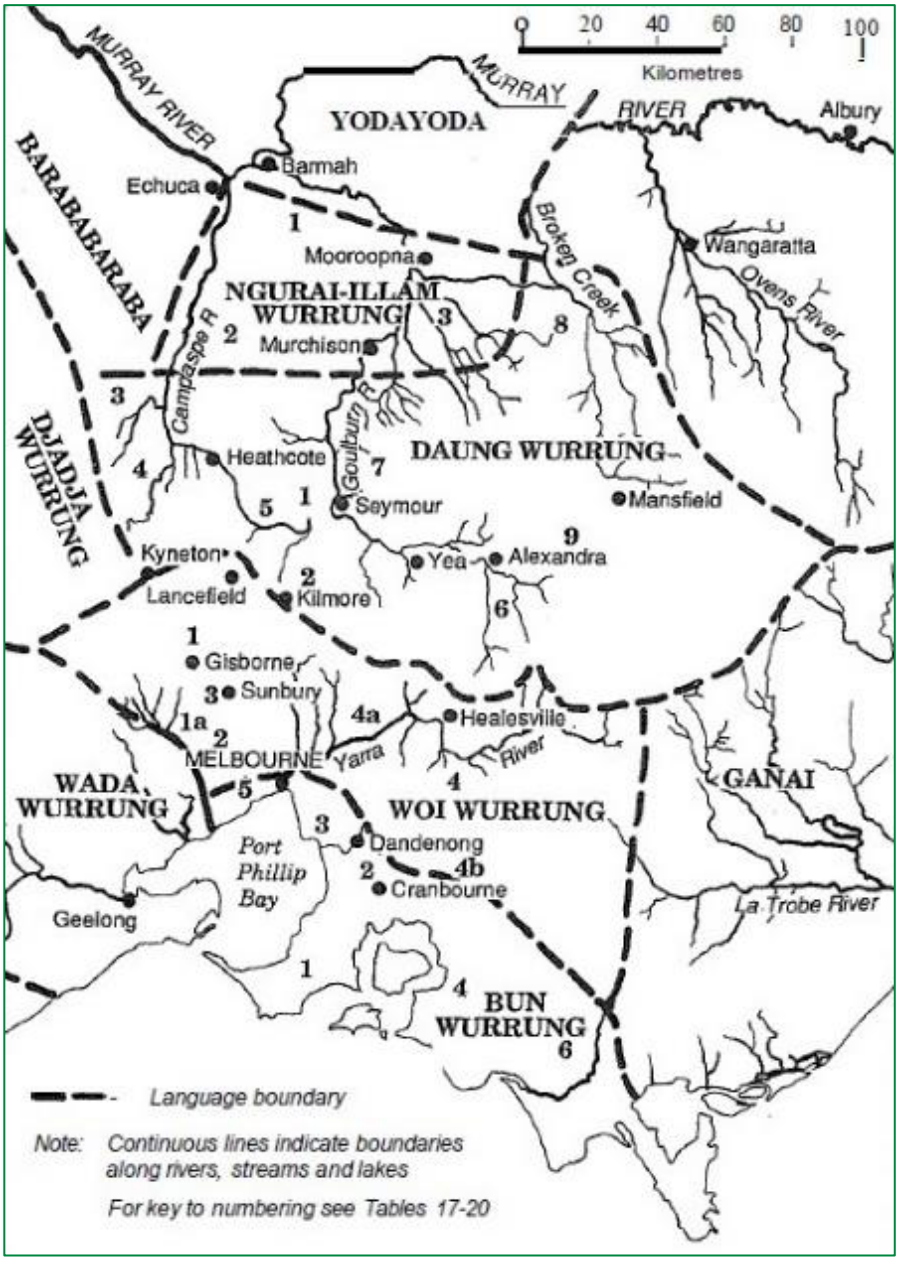

Figure 15: Kulin language groups mapped in relation to the study area (source: Clark 1990: 364)

A typical mobile Aboriginal encampment in the region was described by Thomas while travelling between Port Phillip Bay and Westernport in 1854:

> *…all are employed; the children in getting gum, knocking down birds etc.; the women in digging up roots, killing bandicoots, getting grubs etc.; the men in hunting kangaroos, etc., scaling trees for opossums etc. They mostly are at the encampment about an hour before sundown – the women first, who get fire and water, etc. by the time their spouses arrive…In warm weather, while on tramp, they seldom make a miam – they use merely a few boughs to keep off the wind, in wet weather a few sheets of bark make a comfortable house. In one half hour I have seen a neat village begun and finished.* (Thomas in Gaughwin and Sullivan 1984, 93-94).

Thomas recorded most of the limited documented information regarding the lifestyle of the Bun wurrung peoples occupying the littoral between Port Phillip Bay and Westernport Bay. Other settlers and travellers such as Daniel Bunce (1856) and George Haydon (1846) have contributed to a broader picture of Aboriginal life across the region in the decade following European contact.

The effective exploitation of resource diversity within a group's territory was integral to their success as hunter-gatherer communities. Hibbins (1984, 11) has noted that the coastal *Ngaruk willam* moved between three distinct environmental domains throughout the year, thus reducing their vulnerability to severe ecological fluctuations such as drought.

The permanently inundated part of Carrum Swamp formed a primary food source, providing the most reliable and diverse range of resources throughout the year, but especially in spring when birds, eggs, fish, yabbies and edible plants such as *myrnong* and swamp rushes were readily available (Hibbins 1984, 11).

The surrounding morass would dry out or swell according to rainfall and through-flow from the surrounding uplands channelled along Dandenong Creek and Eumemmering Creek, thus expanding the range and availability of swamp resources on a seasonal basis. In this wider swamp basin, the land surrounding the major creek inlets would probably have formed other foci for semi-permanent or recurrent activity, partly through the occurrence of accessible elevated ground and the welling of floodwater into ephemeral swamps and waterholes.

During the drier summer weather, people moved to the coast edge to gather shellfish and mutton birds, or to catch eels in the lower reaches of the larger creeks using wooden spears with bone tips and fish traps (Presland 1994, 75-6; Hibbins 1984, 12). In addition to the dwindling swamp resources, the increase of mosquitoes in stagnant pools may have added impetus to the coastal move (Hibbins 1984, 11).

The higher wooded ground and grassy plains surrounding the swamp were subject to more transient occupation in winter, when seasonal rains inhibited accessibility to the core swamp and regenerated smaller outlying water bodies. This broader area was useful for hunting kangaroo, as well as gathering smaller animals, fruits, roots and grubs. Huts or *mia mias* were rapidly erected during bad weather to form temporary settlements (Bunce 1856, 109), but these were swiftly abandoned when local resources were exhausted.

6.1.3.1.3. Conflict

During the postcontact period, relations between the Gunaikurnai and the neighbouring Woi wurrung and Bun wurrung language groups were strained, and there is extensive documentation of violent raids and reprisals between the Gunaikurnai and their Kulin neighbours (Gunson 1968, 7-9; Thomas in Legislative Council 1859, 62; Gaughwin 1983, 57-58; McBryde 1984, 277-278). The region of South Gippsland adjoining Westernport was considered to be disputed territory as a result of this antipathy, and presumably acted as a buffer zone to relieve social friction (Gunson 1968, 3; Smyth 1876 vol. 1, 412).

There are several recorded incidences where raiding parties from Gippsland travelled to the Melbourne region to enact vengeance, which generally resulted in further reprisals. It is not clear whether this conflict predates European contact but it may be related to the spread of disease prior to direct contact. In Aboriginal society, death is invariably interpreted as a malign act on behalf of traditional enemies,

usually a neighbouring but different group. However, AW Howitt (1904, 257) notes that the Bun wurrung intermarried with the Gunaikurnai, indicating that the two peoples were also on amicable terms under certain circumstances.

In 1840 a Bun wurrung group arrived at Yallock station (adjacent to Koo-Wee-Rup swamp) on their way to carry out a reprisal raid in Gippsland. The women, children and old men of the group remained at the station 'hunting and fishing' until the raiding party returned five weeks later (Gunson 1968, 6).

In 1844 the Chief Protector of Aborigines for Port Phillip, George Robinson journeyed to Gippsland with George Haydon, passing along the coastal plains between Port Albert and Lake Wellington, 40 km southeast of the study area. Although they did not observe Aboriginal people during this section of their trip, they were informed of intertribal conflict between Aboriginal people from the Melbourne area and the Gunaikurnai (Haydon 1983 vol. 2, 98-99):

> *...it gave them an opportunity of retaliating on their old and formidable enemies, the Gipp's Land Tribes, who had invaded Westernport some years since, and had nearly annihilated the whole tribe* (Haydon 1983, 99).

Around 1848, 30 Gunaikurnai (probably *Brayakaulung* people) living along the Latrobe River were killed in an attack by a band of Woi wurrung. This was followed by the Gunaikurnai making reprisal attacks over the following years (Pepper & de Araugo 1985, 92). Conflicts between different political groups within the Gunaikurnai are also known to have occurred. In April 1855 William Dawson, a settler in Sale, wrote of an attack by the *Brabralung* on the *Brayakaulung* while they were camped near settlers' houses, "…endangering the whites, for the weaker party tries to get shelter indoors…" (Pepper & de Araugo 1985, 108). The *Brabralung* then continued further east, where they attacked another group of Aboriginal people camped at 'The Heart'.

A final intratribal battle is said to have taken place on the Tambo River in 1855, involving members of the *Brayakaulong* (Pepper & de Araugo 1985, 108-9). This may have been a reprisal for the raid described by Dawson. In the early 1840s the rapid settlement of the region by squatters led to conflict with the Gunaikurnai as they were dispossessed of their land and forced to rely on Europeans for provisions.

As settlement increased in the 1830s, numerous massacres and murders on the Gunaikurnai were recorded (Hill 2017, 21). The Gunaikurnai continued to resist the imposed restriction of their movements across the land, the forced reduction of their land, and the destruction of local food sources by introduced grazing livestock (Hill 2017, 21). This resistance met with violent conflict between Aboriginal people and European settlers. Robinson arrived in Gippsland in 1844 to prevent further raids on settlers and livestock (Thomson et al 2002, 13). Between 1840 until 1850, at least 14 recorded Aboriginal massacres occurred in Gippsland (Hill 2017, 20).

In 1844 Charles Tyers, Commissioner of Crown Lands for Gippsland, responded to the conflict between Aboriginal people and settlers by sending an expedition which included the Native Police to search for a party of Gunaikurnai who had been stealing cattle. The party eventually tracked down a group on the Latrobe River. After being fired upon, the people ran into the scrub and Tyers proceeded to burn the 'beef' which they had left behind, to demonstrate that "…stealing and killing the settlers' stock must stop". Tyers later reported that no further complaints were made from Bushy Park and Mewburn Park,

although cattle were still being taken from other parts of Gippsland (Pepper & de Araugo 1985, 34). At Glencoe, John Campbell acquired a cannon as defence against the *Braiakaulung* who were in the area. In 1845 the Campbells fired a cannon above the heads of a group of *Brayakaulung* who then prepared to attack. According to J Darlot:

> *…[the Campbells] loaded the gun to the muzzle with nails, broken bottles and anything they could lay hands on, and awaited the final charge of the enemy. As was expected the blacks in a large body and armed with their native weapons made a determined rush to force their way into the building...the gun was discharged right amongst them...many of them were fatally wounded* (Pepper & de Araugo 1985, 42).

Despite the intensity of the conflict during the early 1840s, the Gunaikurnai on the Latrobe River were still frequently spearing cattle as late as 1844 (Synan 1994, 22), indicating a prolonged campaign of resistance to the occupation of their land.

The massacre of Aboriginal people by heavily armed groups of European settlers has been discussed at length by Gardner (1983). Some reported incidences were allegedly in retaliation for the murders of Europeans (1983, 8), while others were killed by 'government' sponsored expeditions carried out in 1847 in search of a 'white woman' thought to be held captive by the Gunaikurnai (*ibid*., 10). Henry Meyrick, a squatter who settled at Hastings on the Mornington Peninsula in 1846, wrote of the *Kurnai*:

> *No wild beast of the forest was ever hunted down with such unsparing perseverance...Men, women and children are shot whenever they can be met with...It is impossible to say how many have been shot, but I am convinced that not less than 450 have been murdered altogether...* (Meyrick 1939, 136-137).

Regardless of the recorded reasons for the massacres, it is probable that many of the atrocities were racially motivated and undertaken purely to eliminate 'competition' for resources.

6.1.3.1.4. Postcontact period

The following section documents the occupation of the region by Aboriginal people in the period after direct European contact (post-1839), and details the effects of land displacement, disease and social disruption to the nature of Aboriginal society and behaviour patterns.

Large seal colonies initially drew Europeans to Bass Strait in 1798 (Ellender 2002, 10). By 1851, around 77,345 Europeans resided within Victoria (Barwick 1984, 108). Accompanying the Europeans were 6,590,000 sheep, and 391,000 head of cattle. Within 10 years the European population of Victoria had expended 540,000 (Barwick 1984, 109), and the rapid increase in sheep and cattle numbers and the associated land clearance that was untaken to encourage pasture resulted in the dispossession and dislocation of First Peoples from their country.

Disease associated with European contact had a large effect on the decline of the Aboriginal population (Butlin 1983). Butlin (1983) argues that smallpox was by far the most important factor in the destruction of the Aboriginal societies in south-eastern Australia. Sealing was established on the Victorian coast from around 1800 to 1829, with major centres at Wilsons Promontory and Phillip Island (Gaughwin 1983, 46-7). The *Yowengarra, Brayakaulung* and *Brataualung* clans would all have been disrupted by the establishment of these colonies, and would have suffered from introduced diseases including smallpox, measles, and syphilis (Thomson et al 2002, 13; Hill 2017, 20).

Aboriginal Protectorate Scheme was established in Victoria in 1839. The Protectorates provided religious instruction, rations, homes, and medical care to Aboriginal people whilst recording population information (Broome, 2005). Official inquiries into the welfare of Aboriginal people were held in 1849 and again in 1858. Although informants at the inquiries remarked on the rapid fall in the Aboriginal population, it was several years before any action was taken. The latter inquiry led to the formation of the Aboriginal Protection Board in 1860 which encouraged Aboriginal people to move onto reserves (Edwards, 1988). In 1869, the Aborigines Act was passed to give the Governor of Victoria power to dictate where Aboriginal people could reside, what activities they could undertake on and off reserves, and the authority to take charge of Aboriginal children (Edwards, 1988).

Through the combined influence of disease, conflict and dispossession, the number of Gunaikurnai in the study region rapidly dwindled after European contact. People in search of food and other basic items began living on the fringes of Sale or on pastoral stations including Bushy Park at Maffra, where government rations were available (Penney 1997, 116). By 1857 the *Brayakaulung* population was listed as only 50 people (Pepper & de Araugo 1985, 113).

An Aboriginal camp existed in Sale until at least 1853, when Charles Tyers was told that this group of Aboriginal people were being supplied alcohol by some of the settlers (Pepper & de Araugo 1985, 98). Aboriginal people were also living at 'The Heart' station, 10 km east of Sale, and two *Brayakaulung people* worked for a settler in Sale in 1855. In the early 1860s, the *Brayakaulung* were still a distinct cultural entity; in 1861 the Rev. F. A. Hagenauer observed a large camp at the junction of the Thomson and Macalister Rivers where Ramahyuck Mission was later established (Pepper & de Araugo 1985, 127).

Eventually the remaining members of the *Brayakaulung* were forced to formally move onto Ramahyuck Mission (established in 1862 by the Presbyterian Church) or to Lake Tyers (established in 1863) (Synan 1994, 23). Gunaikurnai people, including some from Sale, gathered at Lake Tyers in 1863 to celebrate the reservation of the land (Pepper & de Araugo 1985, 125). When Ramahyuck mission closed in 1907, the remaining residents were sent to Lake Tyers Station. Gunaikurnai people continue to live at Lake Tyers today, with the granting of land under the *Aboriginal Lands Act 1970* (Vic) giving the station residents formal ownership of the land (Pepper & de Araugo 1985, 221-229 & 262).

Bun wurrung people also struggled with the newly arrived Europeans. The clearing of land and removal of natural resources resulted in starvation and killing of livestock, which in turn lead to arrests and killing of Bun wurrung people by European settlers. By 1869 only 38 Aboriginal people remained (Wesson, 2000, p. 76). The sharp decline in their numbers probably resulted from venereal disease, alcohol abuse, murder, executions, death at the hands of authorities and deaths in jail.

6.1.3.2. Victorian Aboriginal Heritage Register Search

A search of the Victorian Aboriginal Heritage Register (VAHR) covering the full extent of the study area and geographic region was initially conducted on 13 September 2021 and subsequently updated on 5 December 2022. The VAHR was searched using the online Aboriginal Cultural Heritage Research and Information System (ACHRIS) maintained by First Peoples-State Relations (Aboriginal Victoria 2018a).

A total of 96 Aboriginal cultural heritage places were included on the VAHR at the time of writing. These are individually described in Appendix B, mapped in Figure 16 to Figure 20, and summarised in Table 17.

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Table 17: Previously registered Aboriginal cultural heritage places within the geographic region

Place Type	No. of Sites	Percentage %
Artefact Scatter	62	65
Low Density Artefact Distribution (LDAD)	13	14
Shell Midden	11	11
Artefact Scatter; Object Collection	1	1
Artefact Scatter; Earth Feature	1	1
Artefact Scatter/ Quarry	1	1
Earth Feature	1	1
Quarry	2	2
Scarred Tree	4	4
Grand Total	**96**	**100**

The recording of low-density artefact distributions (LDADs) was introduced in 2012. An LDAD is defined as the occurrence of stone artefacts at densities of up to 10 counted artefacts in any area of approximately 10 m by 10 m, or 100 m^2, including within a single test pit of up to 1 m^2. Of the 62 registered artefact scatters located within the geographic region, only 23 of these sites would constitute an artefact scatter using today's definitions.

Registered places within the geographic region are clustered at five locations:

- Within 1 km of the Waratah Bay coastline in proximity to Waratah Road.
- Locations along the Strzelecki Highway, and land between Kings Road and Creamery Road, south of Driffield.
- Locations along waterways between the townships of Ten Mile Creek and Driffield, including Silver Creek, Ten Mile Creek, Birds Gully and Wilderness Creek (including 19 artefact scatters), although none of the registered places are situated within the study area.
- Locations along the Morwell River and its tributaries, east and south of Hazelwood.
- The south-eastern portion of the Hazelwood Cooling Pond.

The desktop assessment identified 13 previously registered Aboriginal cultural heritage places located within the study area, noting that VAHR 8121-0399 is a multicomponent site. These are summarised in Table 18.

Table 18: Registered Aboriginal cultural heritage places in the study area

VAHR No.	Place Name	Description
VAHR 8120-0212	Heywood 1	A surface artefact scatter identified during a survey on a coastal landform. The place comprises a single silcrete core artefact (Story 1993).
VAHR 8120-0213	Heywood 2	A surface artefact scatter identified during a survey on a coastal landform. The single isolated artefact is a quartzite, possibly sandstone, hammerstone manuport (Story 1993).

VAHR No.	Place Name	Description
VAHR 8120-0214	Heywood 3	A surface artefact scatter identified during a survey on a coastal landform. The place comprises white quartzite flake artefacts (n=2): retouched and chipped (Story 1993).
VAHR 8121-0052	SMITHS ROAD 1	This artefact scatter was originally recorded by Wesson and Beck in 1980 with 11 stone artefacts identified and removed. A subsurface testing program was subsequently conducted for CHMP 13061, which identified one additional subsurface silcrete artefact.
VAHR 8121-0060	Mountain Hut Road 1	This place was registered as an artefact scatter, and comprises an isolated surface artefact on a flat, level ridge between intermittent creek landforms. The place comprises a single fine-grained silcrete scraper identified on road reserve 430 m east of Smith's Road.
VAHR 8121-0061	Mountain Hut Road 2	This place was registered as an artefact scatter and comprises an isolated surface artefact located on a ridge between intermittent creeks landforms. The place comprises a single fine-grained silcrete core identified in a road cutting.
VAHR 8121-0062-1	Kings Road Extension 1	This place is a surface LDAD identified on top of a hill slope landform. The place comprises three flaked stone artefacts: fine-grained silcrete (n=2), and quartz (n=1) on a road reserve.
VAHR 8121-0063	Kings Road Track 1	This place is a surface LDAD extending 10 m (L) x 4 m (W), identified on a flat, level landform. The place comprises 14 flaked quartz, quartzite, silcrete, and flint stone artefacts. The place has previously been ploughed, cut and graded during road construction, and subjected to wind and water erosion.
VAHR 8121-0068	Kings Rd Extension 2	This place is a surface LDAD extending 10 m, identified on top of a hill slope landform road reserve. The place comprises eight stone artefacts: quartz (n=3), silcrete (n=4), flint (n=1) consisting of cores, flakes, blades, and angular fragments.
VAHR 8121-0069	Mountain Hut Rd 3	This place is a surface LDAD extending 5 m, identified on a ridge between intermittent creek valley landforms. The place comprises four stone artefacts: quartz (n=3), silcrete (n=1) consisting of flakes, and tools.
VAHR 8121-0354	Strzelecki Highway 1	This place is an LDAD identified in surface and subsurface contexts (Orr and Butler 2014), comprising 51 stone artefacts: silcrete (n=44), quartz (n=2), quartzite (n=3), rhyolite (n=1), and chert (n=1), consisting of flakes, cores, blades, and angular fragments. The artefacts were identified on the surface or in shallow and disturbed subsurface contexts (0-500 mm deep in disturbed sandy humic loam to mixed silty clay with the majority in the upper 250 mm) on dissected plains. Although disturbed, the location of the artefacts correlates with slight rises and low densities of artefacts present. Potential for artefacts deposited during travel or acquiring resources. A high number of tools along ridges indicates dry access routes through the landscape. Long term activity in area inhibited by absence of permanent water source in immediate vicinity.
VAHR 8121-0398-1	Eel Hole Creek 3	This place is a surface artefact scatter extending 100 m along a section of the former Eel Hole Creek alignment on a low-rise creek line landform. The place comprises 101 stone artefacts: silcrete (n=48), quartz (n=34), quartzite (n=15) and unspecified material (n=4), consisting of flakes, blades, cores, angular fragments, and pebbles (or cobble). The artefacts were subjected to deflation, sheet erosion, and pondage wave wash which has removed all topsoil disturbances.
VAHR 8121-0399-1	Eel Hole Creek 4	This place is a surface artefact scatter identified on low-rise creek line floodplain landform. The place comprising 60 stone artefacts: silcrete (n=55), quartzite (n=4), quartz (n=1), consisting of flakes, cores, and angular fragments. Low artefact concentrations (<1m^2) were identified over the majority of the place

VAHR No.	Place Name	Description
		with denser concentrations on higher ground near the former creek bank (25m x 10m), and on a promontory junction of Eel Hole Creek and a tributary (25m x 25m) comprising 1-5 artefacts per m². VAHR 8121-0399-1 is separated from VAHR 8121-0400-1 to the west by a 20 m wide tributary creek channel. The topsoil of the site had been eroded by the Hazelwood pondage, exposing bare subsoil.
VAHR 8121-0399	Eel Hole Creek 4	This place is a quarry identified in surface and subsurface contexts on a lowland creek line within a floodplain landform. The quarry comprises eroding of a clay, not yet solidified, bedrock. This place was quarried for ochre. Extractions of ochre found at varied distances from site. The topsoil of the site has been eroded by the Hazelwood pondage, exposing bare subsoil.

6.1.3.3. Previous studies

Previous Aboriginal cultural heritage studies (including CHMPs) relevant to the study area and geographic region are summarised in Table 19.

6.1.3.4. *Aboriginal Places Predictive Statement*

By comparing the results of the background research, the archaeological investigations previously undertaken and the digital predictive modelling, the following predictive statements regarding the landforms where different types of Aboriginal cultural heritage places are likely to be found can be formulated.

Art sites are considered somewhat unlikely to occur within the study area, as they are generally identified within shelters, such as limestone caves or other geological formations that offer extensive flat pavements or smooth vertical surfaces (particularly sandstone) which would provide optimal opportunities for engravings or painting (Mulvaney and Kamminga 1999:369). Based on current elevation data and geomorphological/geological data, the identification of art sites within the study area is unlikely. No art sites or rock shelters have previously been identified within the geographic region to date.

Artefact scatters or isolated artefacts are very likely to occur within the study area. Despite the absence of registered Aboriginal cultural heritage places within geographic region as it traverses the Tarwin River valley and the lower slope foothills of the Strzelecki Ranges south of Dumbalk and north towards Darlimurla, this is likely to be the result of a lack of archaeological surveys having been conducted in this area. Similar foothill landforms 10 km west of the study area near Koonwarra and Leongatha contain significant numbers of artefact scatters and LDADs. Registered place VAHR 8021-0403/0404/0405/0406/0407 is a complex of five LDADs recorded at the Springs Estate southeast of Leongatha overlooking the Tarwin River West Branch, comprising a total of 332 stone artefacts. It is likely that stone artefacts will be situated with the study area in the Tarwin River valley and lower slope foothills south of Dumbalk and possibly north towards Mirboo North and Darlimurla, at low densities.

Based on registered site locations there will also be a low to moderate potential for artefact scatters and LDADs to be present within the northern section of the study area along the Strzelecki Highway, where the study area traverses pine and blue gum plantations in the Driffield area. The same is true of the final approach into Hazelwood, where the study area crosses gently undulating ground surfaces within the Latrobe Valley south of Morwell towards Churchill. A cluster of artefact scatters, quarries, an

earth feature, and an LDAD are found either within or immediately adjacent to the study area to the south east of the Hazelwood Cooling Pond (VAHR 8121-0396, 8121-0397, 8121-0398, 8121-0399 and 8121-0400). A significant number of registered artefact scatters, LDADs and scarred trees have also been recorded on similar landforms northwest of Hazelwood and southwest of Morwell.

Ancestral Remains or Aboriginal burials are normally found as clusters of human bones eroding from the ground or exposed during ground disturbance. Whilst Aboriginal burials are rare in Victoria, they have been identified within almost every landscape from coastal dunes to mountain valleys. They tend to be situated near watercourses or in dunes surrounding ancient lake beds. Additionally, burials have been found on high points such as dune ridges within surrounding flat plains. Previous reports along Waratah Bay 15-20 km from the geographic region have identified Ancestral Remains locations (n=4) within the dune swales 200 to 500 m inland from the coastline, and on this basis there is a moderate potential for Ancestral Remains to be present in the study area within the coastal dunes at Waratah Bay.

Quarries are considered likely to occur within the study area, as the landforms between Waratah Road and the Tarwin River may support rocky outcrops. Quarries are generally identified on slopes above creeks and rivers and on ridges where erosion has exposed the underlying stone. Quarries can consist of a single protruding stone or may incorporate many outcrops and cover great distances.

Scarred trees are considered somewhat likely to be identified within the study area. Numerous watercourses intersect the study area along with corresponding floodplains, conditions that are more likely to contain mature trees. Particular pre 1750s EVCs were more likely to contain mature/favoured trees. However, extensive land clearing within Gippsland between 1870 and 1930 will have had a devasting effect with many scarred trees having been destroyed. Only four scarred trees have been previously recorded in the geographic region. On this basis, there is a low to moderate likelihood of identifying scarred trees in stands of remnant vegetation along watercourses.

Shell middens are likely to be present within the study area. The nearest registered shell middens on the Waratah Bay coastline are located 1.5 km west and 1.2 km east of the study area. A further five registered shell middens are located 2.6–4.1 km southeast of the study area in the Waratah Bay-Shallow Inlet Coastal Reserve. Given clear similarities between the sandy beach environments at these registered places locations and the coastline within the regional study area, it is likely that shell middens would have occurred on the coastline within the study area. However, the active nature of the coastal environment within the study area would mitigate against the longevity of any middens that may have been present.

Freshwater middens are also identified along riverbanks and floodplains, near swamps and lakes and in sand dunes. The low plains of South Gippsland coupled with the sandy sediments makes it likely for shell middens to occur.

Stone features/arrangements are generally considered to be somewhat unlikely to occur within the study area based on the outcomes of the digital predictive modelling. Certain locations in the southern half and far northern portions of the study area are deemed to have suitable elevation/slope and distance to water measures likely to support stone features/arrangements. Nevertheless, it is important to note that no stone features/arrangements have previously been identified in the study area or the wider geographic region.

Table 19: Previous Aboriginal cultural heritage studies

Year	Reference	Type	Study Area or Geographic Region	Summary
1981	Wesson and Beck, *Report on an Archaeological Survey of the site of the proposed Driffield Project, for the State Electricity Commission of Victoria*	Ground survey	Geographic region	Wesson and Beck (1981) conducted an archaeological survey for the proposed Driffield Project comprising two power stations, a diversion of the Morwell River for a new open cut mine, and an overburden dump in a worked-out section of the Yallourn open cut. The field investigation comprised a detailed pedestrian survey which covered 1% of 107 km² of the area. The study area lay within the western limit of the Gippsland Basin, where it meets the South Gippsland Highlands. A smaller part of the study area consisted of the Latrobe Depression, part of the larger Gippsland Basin depression. Ground surface visibility (GSV) across the study area was poor (<20%), with potential identified for subsurface sites to be found during development in areas of sensitivity. A total of 137 new Aboriginal archaeological places and 20 historical archaeological sites were recorded during the field survey. Aboriginal site types included surface stone artefact scatters (n=22), isolated artefacts (n=109), scarred trees (n=4), and stone source sites (n=2), most identified within 1 km of watercourses with a bias towards the tops of ridges and slopes of hills. Sites on the sides of a hill tend to occur on spurs, and some sites were identified along the edge of the plain. Scarred trees were identified along riverbanks, low rises between intermittent creeks, and on slight rises on plains near the river. The stone source sites comprised flaked silcrete boulders, suggesting stone artefact material needs were met locally. Many artefact scatters comprised fine-grained silcrete flakes and backed blades. A small number of tools and cores were identified during the survey. Wesson and Beck identified a distinct lack of cortex, which may have been attributed to: • cores brought to sites from elsewhere • parent pebbles large with high ratio of usable rock to cortex; and • most fine-grained silcrete artefacts did not come from pebble cores, but were most likely quarried stone from the Haunted Hills Gravels. It is probable that there are many sources, so that one large source site for the area cannot be identified. Only eight of the collections identified on the survey were analysed. Higher concentrations of artefacts were identified on hill landforms, river terraces, and along floodplain land systems. Insufficient exposures along the Morwell River were identified as the reason for the lack of finds. Places were generally in a poor state of preservation, with scarred trees recorded to be in poor health near the Morwell River. Landscaping around power stations and ponds requiring earthworks, roads, and the diversion of the Morwell River were considered a management strategy to stabilise the surface and prevent the erosion of undisturbed places. The authors recommended that during the early stages of development, minor and specific testing should be undertaken to located places, and identify place extents, with periodic monitoring during construction works for area beside watercourses, quarries/stone sites, or at the junction of two or more major environmental zones.
1987	VAS, *Project Raleigh*	Ground survey	Geographic region	Rhodes and Stuart (1987) conducted a survey on behalf of the Victoria Archaeological Survey. The survey area comprised 100 km of the Gippsland coastline including high cliffs, salt marshes and sandy coastline. Site records for 55 previously recorded Aboriginal sites were updated, and an additional 160 sites were identified on Wilson's Promontory.
1992	M. Harding, *An Archaeological Survey of Waratah Bay.*	Ground survey	Study area	Harding (1992) conducted an archaeological research survey in preparation for construction of a proposed underground cable within Waratah Bay, encompassing the southern section of the study area. The survey was undertaken from 21-24 October 1991, with low to poor GSV (<5%). A total of 11 sites were identified, including nine shell middens (VAHRs 8120-0201, 8120-0202, 8120-0203, 8120-0203, 8121-0204, 8120-0206, 8120-0206, 8120-0208 and 8120-0209), two isolated artefacts (VAHR 8120-0205 & VAHR 8120-0107), as well as a private object collection. Harding (1992, p.8) identified two distinct landforms: the coastal lowlands east of Waratah Bay and the rocky headlands west of Waratah Bay. Shell middens contained rocky platform shellfish near the rocky headlands and sandy shore shellfish in the sand dunes adjacent to the sandy shore. The distribution of common shellfish species identified within the middens correlates with the local environment. Eight of the middens are situated on sandy dune ridges, with one located on a rocky headland. The two isolated artefacts comprised a silcrete flake/tool found behind sandy dunes, and a pebble chopper at Grinder Point. Two greenstone flakes, two basalt grindstones, a silcrete flake, one greenstone axe comprise the private collection acquired through ploughing or digging fence post-holes.
1993	A. Story, *Telecom Optical Fibre Cable Route Waratah Bay to Leongatha: An Arch. Survey of The Landfall Site*	Ground survey	Geographic region	Story (1993) conducted a survey on behalf of Telecom Australia Network Construction Group for a proposed optical fibre cable route between Tasmania and Waratah Bay, south-west Gippsland through Tarwin Lower to Leongatha. The landform comprises coastal sand and marshy swamp deposits. A desktop assessment identified shell middens (n=9), isolated artefacts (n=2), and a small private collection of stone artefacts within the Waratah Bay area. The survey was conducted on 26 May 1993, covering an area of 40ha. The GSV of the survey was extremely poor (<5%). A total of four artefacts were identified during the pedestrian survey. The artefacts comprised a silcrete core (n=1), and quartzite flakes (n=2),and a quartzite or sandstone river cobble that had been used as a hammerstone (n=1). The nearby sand dune was not surveyed as it had been previously surveyed Harding (1992). The artefacts indicate Aboriginal presence and use within the area, but without further associated archaeological material, they were deemed to be of low significance. The artefacts identified were all located on dry sandy ground overlooking the 'swamp'. The scarcity of places in the area is considered to be an accurate reflection of the existing archaeological record. Although the coast and the area behind the dune in the study area were probably exploited intermittently for both plant and animal resources, such activities are unlikely to leave sufficient material traces to be readily discernible in the archaeological record.
1998	Wood, *An Archaeological Survey of the Proposed Telstra Optical Fibre Cable between Driffield-Yinnar, Gippsland, Victoria*	Ground survey	Geographic region	Wood (1998) conducted an archaeological survey for a proposed Telstra optical fibre cable between south Driffield to the junction of Yinnar-Driffield Road and Kings Road, approximately 10 km in length primarily along road reserve and 250 m of rail reserve. A desktop assessment of the area identified the potential for stone artefact scatters, isolated artefacts, and scarred trees to be present along rises and ridges in the vicinity of watercourses. The field investigation comprised a detailed pedestrian survey, with low GSV. One potential scarred tree was identified during the survey near the current study area and was in the process of registration at the time of report publication. No other Aboriginal or European sites were identified during the survey. However, the registration of this tree was excluded from the report. Land modification associated with agricultural and pastoralism activities was identified as likely to have destroyed sites in those areas.
1998	Djekic, *Latrobe Coalfields Survey*	Ground survey	Geographic region	Djekic (1998) conducted a survey of the Latrobe Valley Coalfields in 1981, including a section of the Moe Township. The Moe township area included 26 km² of river valley that had been cleared for grazing and residential uses (Djekic 1998, 18). A vehicular survey of the area was undertaken. A total of 48 possible Aboriginal sites were recorded during the survey, although none of these were located in the Moe township survey area. The sites included 12 artefact scatters, 21 isolated artefact occurrences, 11 scarred trees, 2 middens, 1 quarry site (later determined to be a natural occurrence) and 1 grinding

Year	Reference	Type	Study Area or Geographic Region	Summary
				grooves site (Djekic 1998, 21). The majority of these Aboriginal places were found in association with waterways and elevated landforms. The sites were primarily located on the upper slopes of hills, on the plain and lower slopes of hills, with several sites also located on the crest of hills, the rolling terrain and the river terrace (Djekic 1998, 24). Aside from a basalt edge-ground axe, all of the artefact scatter and isolated artefact occurrences comprised flaked stone. Silcrete was the predominant raw material represented in the artefact assemblages. Chert and quartz were also present and consisted of either waste flakes or flaked pieces (Djekic 1998, 27). A low number of cores were identified, and Djekic surmised that this finding may indicate that the initial stages of stone artefact manufacture occurred closer to the source of the raw materials (Djekic 1998, 31).
2001	George, *An archaeological test excavation and monitoring program at H8121-0018, Macmillan Homestead, Hazelwood, Victoria*	Subsurface testing program	Geographic region	George (2001) conducted an archaeological test excavation and monitoring program of a non-Aboriginal historical site (H8121-0018) Macmillan Homestead for the proposed extension of the Hazelwood Open Cut Brown Coal Field for brown coal extraction, on behalf of Hazelwood Power. The monitoring program was undertaken between 21 and 27 February 2001 and used a backhoe to expose archaeological remains which were then hand excavated. The demolition of the house in the 1970s, along with several other incidents of disturbance and the long span of occupation at the site, resulted in a loss of stratified deposits at the site. During the monitoring program, four Aboriginal silcrete artefacts (VAHR 8121-0180) were recovered from disturbed deposits, comprising debitage (n=2), cores (n=1), and flakes (n=1). The core displayed evidence of burning. Three of the artefacts were identified with fairly modern structural rubbish, and one within the area of the house structure.
2002	Thomson et al., Waratah Bay Cultural Heritage Study	Survey	Geographic region	Thomson *et al* (2002) conducted a survey on behalf of South Gippsland Water for the proposed construction of a sewage pipeline and waste treatment plant near Waratah Bay on coastal plains, sand dunes and tidal marsh landforms. A desktop assessment identified four previously registered Aboriginal archaeological sites within a 5 km radius of the study area. These sites comprised one shell midden (VAHR 8120-0209), and three isolated artefacts (VAHR 8120-0212, VAHR 8120-0213, & VAHR 8120-0214). The ground survey was undertaken on 22 October 2002, with low GSV (<1%). One artefact scatter and one isolated artefact occurrence (VAHR 8120-0224) were identified on a secondary dune. Artefacts comprised silcrete flake (n=1), quartz fragment (n=1), and silcrete core (n=1). The site was located 250 m from a nearby ephemeral waterway and was recognized as an area of potential Aboriginal archaeological sensitivity. This area was deemed likely to contain subsurface archaeological deposits.
2002	Debney and George, *Report B: An archaeological and cultural heritage survey of the West Field Blacks 1A and 1B, Hazelwood, Victoria*	Ground survey	Geographic region	Debney and George (2002) conducted an archaeological and cultural heritage survey prior to an Environment Effects Statement (EES), on an area immediately west of the existing Hazelwood Open Cut Brown Coal Field, in Hazelwood, Victoria. A desktop review and preliminary assessment identified 11 Aboriginal archaeological places previously recorded within the study area. Of the eleven places, four were recorded prior to the preliminary assessment, were deemed to be highly disturbed by overburden deposition, and were considered to have been destroyed. Areas of sensitivity were identified on terraces (high visibility vantage points) surrounding the former course of the Morwell River. All places were deemed to be impacted by the Hazelwood coal mine extension. A ground survey was undertaken on 15-19 January 2001, with a GSV of <5%, targeting areas of sensitivity for a detailed survey. Ground disturbance across the majority of survey area was high due to agricultural activities, flooding events, and the diversion of the river. The alluvial floodplain was highlighted as likely to contain subsurface cultural material such as stone artefacts, shell remains, mounds, and charcoal. A total of seven Aboriginal archaeological places were recorded during the survey, including surface artefact scatters (n=4): VAHR 8121-0178, VAHR 8121-0180, VAHR 8121-0180, VAHR 8121-0179, and isolated artefacts (n=3): VAHR 8121-0002, VAHR 8121-0071, VAHR 8121-0072. Artefacts comprised silcrete, quartzite, quartz, and crystal quartz flakes, cores, and tools. A further four isolated artefacts places (VAHR 8121-0002, VAHR 8121-0071, VAHR 8121-0072, VAHR 8121-0073) were reinspected and collected. The places were found in all three major landforms: plains (n=4), terraces and floodplains (n=4), and hill areas (n=3). Terraces and a small catchment on the east side of Eel Hole Creek were identified during geomorphological testing as landforms with potential to contain undisturbed archaeological deposits.
2002	Amorosi et al., *Report F: An archaeological monitoring program of Aboriginal Sites at Hazelwood, West Field Blocks*	Subsurface testing program	Geographic region	Amorosi et al (2002) conducted a monitoring and subsurface testing program on behalf of Hazelwood Power for a proposed Hazelwood Power Open Cut Coal Field mine extension. The program was based on survey results obtained in preliminary report B (Debney and George 2001). A total of seven Aboriginal archaeological places were recorded during this survey. The monitoring program comprised mechanical (backhoes/graders) transects within less disturbed areas of previously recorded VAHR 8121-0178. A total of 41 transects wee excavated varying from 50 to 100 m in length and 1.4-3 m in width, achieving depths between 20 to 30 cm. At the conclusion of the program, twelve places comprising seven artefact scatters (VAHR 8121-0176, VAHR 8121-0178, VAHR 8121-0180, VAHR 8121-0181, VAHR 8121-0183, VAHR 8121-0184, & VAHR 8121-0185), four isolated artefacts (VAHR 8121-0177, VAHR 8121-0189, VAHR 8121-0188, VAHR 8121-0187), and one sub-surface deposit (VAHR 8121-0186) were identified. Four places (VAHR 8121-0181, VAHR 8121-0183, VAHR 8121-0184, and VAHR 8121-0185) were identified within lower, middle, and upper alluvial terrace landforms, comprising raw materials such as silcrete and quartz. All alluvial terrace profiles comprised a grey-brown medium loosely compact silty soil (0-60 mm), overlying a compacted silty fine soil with clay content, overlying a very compact clayey mottled pale grey-brown and orange silty soil with flecks of ironstone base. VAHR 8121-0180 comprised quartz artefacts within a hill slope landform. Two artefact scatter sites were identified along the embankment of Eel Hole Creek (VAHR 8121-0187, & VAHR 8121-0178). The hand excavation program comprised two 1x1 m test pits excavated in 5 cm spits, adjacent to high density sites identified during monitoring (VAHR 8121-0181). Sites comprised surface and subsurface quartz, quartzite, and silcrete artefact scatters. Artefacts included flakes, tools, cores, and unidentified fragments. In total, the archaeological monitoring program recorded 1,623 artefacts.
2003	Debney et al. *Report A: A preliminary archaeological assessment of the proposed Hazelwood coal-mine extension, Hazelwood, Victoria*	Ground survey	Geographic region	Debney et al (2003) conducted a preliminary archaeological assessment of a western extension of the existing Hazelwood Open Cut Brown Coal Field, on behalf of Hazelwood Power. A desktop review identified 123 previously recorded Aboriginal archaeological places extending in a 20 km radius around the study area. Twelve of those were previously recorded Aboriginal archaeological places within the study area (Wesson and Beck 1981). The majority comprised <5 artefacts. One scarred tree, VAHR 8121-0019, remained whilst VAHR 8121-0105 had been destroyed. Ethnographic observations by Howitt (1904:208) and Bulmer (1878: 141-143) recount the Brataualung establishing semi-permanent campsites near in the river valley, ridges, spurs, and hill crests used as pathways. Areas of predicted sensitivity included: • outcropping sources of silcrete and sandstone in the Haunted Hills Formation occurring in river and stream valleys on the sides of hills or on ridgetops; site types include silcrete quarries, artefact scatters, or isolated artefacts • river and creek valleys; base camps typically in association with older alluvial terraces; sites may include freshwater middens, surface artefact scatters, isolated artefacts, subsurface deposits, burnt bounds or cooking pits

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				• scarred trees along river and stream valleys • LDAD potential along sides of river and stream valleys • ridges, spurs, and crests of hills associated with LDAD's and isolated artefacts, particularly next to rivers. A ground survey was undertaken over three days on 19-21 January 2001 with poor GSV (<5%) in the valley of the Morwell River (including alluvial terraces) at the foot of the Haunted Hills, forming part of the lower members of the Latrobe Valley Group. Alluvial terraces comprised a variety of materials from clayey coarse sand to fine gravel/fine silt. Fans and slopes, forming foothills of the Haunted Hills Gravels, comprised clayey coarse sand and fine gravels. No new Aboriginal places were recorded during the survey. Several potentially archaeologically sensitive areas were identified.
2003	J. Freslov, *International Power Hazelwood West Field Project Environmental Effects Statement (EES): Aboriginal and Non-Aboriginal Archaeological Heritage Values Impact Assessment Study*	Ground survey	Geographic region	Freslov (2003) conducted an impact assessment study on behalf of International Power Hazelwood to provide environmental planning and assessment services for mine production to continue beyond lease boundaries. A desktop review identified 113 Aboriginal sites, primarily identified on fans and slopes of the Haunted Hills, and on the Morwell River terraces. Site types comprised small to large stone artefact scatters, isolated artefacts, a quarry, and a small number of scarred trees. A field survey was undertaken between in June and July 2003. A total of seven new Aboriginal places were identified, including silcrete isolated artefacts (n=5) (VAHR 8121-0195, VAHR 8121-0196, VAHR 8121-0196, VAHR 8121-0197, VAHR 8121-0198, & VAHR 8121-0199), and scarred trees (n=2) (VAHR 8121-0194, and VAHR 8121-0202). Of the seven places identified, five were located within the terraces above the Morwell River. Site disturbances included agricultural, pedestrian, vehicular, and naturally occurring activities. Areas of high potential for Aboriginal archaeological deposits included Varys Track creek corridors and lower slopes/fans, the Wilderness Creek/Morwell River confluence, Morwell River corridor and terraces, the Eel Hole Creek/Morwell River confluence, and the Strzelecki Highway deviation.
2003	J Freslov, *Aboriginal Cultural Heritage Values Impact and Mitigation Assessment for the Basslink Project Merriman McGaurans Alignment (Final IIAS Alignment): Stage 1B, 2 and 3, Background Review, Survey, Subsurface Testing, and Cultural Heritage Management Plan*	Ground survey and subsurface testing program	Geographic region	Freslov (2003) conducted an archaeological assessment on behalf of Basslink Pty Ltd, for the proposed construction of a 'High Voltage Direct Current Interconnector,' between Loy Yang and Bell Bay, Tasmania. A desktop assessment identified coastal terraces, back dunes, river and creek corridors, rock outcrops, gravel exposures, and foredunes as areas of high archaeological potential. Places were likely to comprise isolated artefacts, artefact scatters, burials, shell middens, quarries, campsites, or scarred trees. These places were likely to be identified adjacent to water courses and swamps. No previously registered Aboriginal places were identified within the study area, although, five adjacent historical references had been recorded including two stations (ID 1.3-60 & VAHR 1.3-61), a burial site (ID 9.2-8), a massacre site (ID 8.1-27), and one correspondent's depot (ID 5.4.59). A pedestrian ground survey was undertaken over March and April 2003, with very good (<80%) GSV. A total of nine Aboriginal archaeological places were identified during the survey, including two artefact scatters (VAHR 8321-0370 and VAHR 8221-0117) and seven isolated artefacts (VAHR 8221-0115, VAHR 8221-0116, VAHR 8221-0118, VAHR 8221-0119, VAHR 8221-0120, VAHR 8321-0371 and VAHR 8321-0372) on landforms including gentle slopes, terraces, floodplains, plains, and swales. Artefact raw materials typically comprised silcrete and quartz, with minimal quartzite, pink quartz, and chert cores, and artefact types included flakes, scrapers, and angular fragments. All sites were within 200-300 m of watercourses. A subsurface program comprised 25 0.5x0.5 m STPs to depths of 400-500 mm was also completed. Stratigraphic soil profiles typically consisted of a relatively thin layer of organic sandy brown-buff sandy sediments intersperse with fine gravels, overlying a cemented pale sandy sediment. No Aboriginal cultural heritage was identified at the conclusion of the program.
2008	Noble et al., *Meeniyan Sewerage Scheme South Gippsland Highway Meeniyan, Victoria. Cultural Heritage Assessment*	Ground survey	Geographic region	Noble *et al* (2008) conducted an Aboriginal cultural heritage assessment on behalf of South Gippsland Water for the proposed construction of a sewerage treatment complex and pipeline. A desktop assessment identified no previously recorded Aboriginal archaeological sites within the study area or immediate vicinity. The nearest recorded sites comprised four artefact scatters (VAHR 8020-0131, VAHR 8020-0192, VAHR 8020-0193 and VAHR 8020-0194) situated 6-8 km away. No previous survey of the area had been conducted. A ground survey as undertaken on 15 July 2008, with poor GSV (<5%). No areas of potential archaeological sensitivity or Aboriginal sites were identified during the survey. A subsurface testing program was not conducted as no cultural heritage sites or areas of sensitivity were identified.
2010	Barker, *Yinnar-Boolarra Distribution main, CHMP 11092*	CHMP standard and complex assessment ground survey and subsurface testing program	Geographic region	Barker (2010) prepared a mandatory CHMP for a water distribution main extension between Yinnar and Boolarra on behalf of the sponsor, Gippsland Water. The desktop assessment noted that hill and ridge landforms overlooking water courses were consistent with recorded sites in the region. A standard assessment ground survey was undertaken with poor GSV (<20%). Small and gentle rises overlooking the surrounding floodplain and Belbrook Creek bank were identified as landforms of sensitivity. No cultural heritage places were located during the standard assessment. A complex assessment subsurface testing program comprised six test pits (TPs), and 20 mechanical transects (MTs). Testing focused on rises and creek bank identified as areas of sensitivity. The stratigraphic profile typically consisted of a very dark greyish brown silty loam (0-100 mm), overlying a greyish brown silty clay soil (100-400 mm), with mottling transition to a yellow brown silty clay (400-800 +mm). The maximum depth achieved across the site was 850 mm. A total of seven artefact scatter sites were identified during subsurface testing – six identified on small rises (VAHR 8121-0306, VAHR 8121- 0307, VAHR 8121-0303, VAHR 8121-0304, VAHR 8121-0305, VAHR 8121-0308), and one on Belbrook Creek (VAHR 8121-0302), with no places identified in relation to the Morwell River floodplain. Archaeological sites were located near a convergence of past environmental resources on small but dry highpoints close to freshwater. Artefacts raw materials included silcrete (n=98), quartz (n=4), quartzite (n=3), vein quartz (n=2), and basalt (n=1) flakes, debitages, tools, and a grinding stone. VAHR 8121-0303 showed signs of remaining *in situ*. The site is situated near two water sources (Belbrook Creek and the Morwell River) on a small rise, comprised of a quantity of stone artefacts that suggest a pre-European campsite. The frequency of raw material types comprising the assemblage suggest that stone artefacts were made from local sources. However, stone working activities undertaken were associated with maintenance and re-use suggesting importation of stone rather than primary manufacture.
2010	Verduci and Nicolson, *Morwell Thorpdale Road and Holstons Road intersection improvement project,*	CHMP standard and complex assessment	Geographic region	Verduci and Nicolson (2010) preprared a mandatory CHMP for Morwell Thorpdale Road and Holstons Road intersection improvement on behalf of VicRoads. The desktop assessment identified two previously registered places recorded within a 50 m radius of the planned development. The desktop assessment identified isolated artefacts as the most likely site type to occur in the activity area. The standard and complex assessment fieldwork programs were undertaken on 11 May 2010. The subsurface testing program comprised one 1 x 1 m test trench (TT) and nine shovel test pits (STPs). The stratigraphic profile typically comprised four contexts: a friable dry mid brown loam topsoil (0-100 mm), overlying a firm mid brown silty loam to 450 mm, overlying a compact mid brown silty clay to 780

Year	Reference	Type	Study Area or Geographic Region	Summary
	Driffield, Gippsland, Victoria, CHMP 11201	ground survey and subsurface testing program		mm, transitioning to a compact orangey grey clay base with degrading stone inclusions or rock base. The maximum depth achieved across the site was 800 mm. One Aboriginal cultural heritage place, an artefact scatter (VAHR 8121-0312), was identified during subsurface testing on road batter on the west side of Holstons Road. VAHR 8121-0312 comprised one isolated quartz flake on a low hill landform at a depth of 250 mm.
2011	Murphy and Morris, 2 Old Thorpdale Road, 7 Lot Residential subdivision	CHMP standard and complex assessment ground survey and subsurface testing program	Geographic region	Murphy and Morris (2011) prepared a mandatory CHMP on behalf of JEM Custodians Pty Ltd, for a seven-lot subdivision of 2 Old Thorpdale Road, Mirboo North. A desktop assessment identified no previously registered Aboriginal cultural heritage places within the proposed subdivision activity area. The desktop assessment noted that elevated areas and creek/riverbeds within low-lying floodplain/swamp landforms contained potential for surface or subsurface artefact scatters within the geographic region. A standard assessment ground survey was undertaken on 3 June 2011, with very poor GSV (<1%). No Aboriginal heritage places were identified during the ground survey. Two areas of archaeological potential were identified during the survey: a gently sloping land south and north-west of the Little Morwell River, and steeply sloping land north of the Little Morwell River. A complex assessment subsurface testing program was undertaken over two days on 20 and 23 June 2010. The subsurface program comprised three 1x1 m TPs and twenty-seven 0.5x0.5 m STPs. Stratigraphic soil profiles typically consisted of a shallow grey-brown topsoil overlying grey-brown silty sand with ferruginous inclusion, underlain by orange-brown silty clays. All pits were excavated in 5 cm spits to a sterile clay base between 0.15 to 0.80 m in depth. No Aboriginal cultural heritage was identified during the complex assessment.
2013	Harbour, *Churchill West Development Plan, Churchill West, Victoria: Aboriginal and Historical Heritage Assessment*	Ground survey	Geographic region	Harbour (2013) conducted an Aboriginal and historical cultural heritage assessment on behalf of Gaskin Rise Pty Ltd, for the proposed development of a new Churchill West residential area, approximately 85 ha in size. The desktop assessment identified two previously recorded Aboriginal places within a 2 km radius of the activity area. No previously registered Aboriginal places were identified within the activity area. Potential site types comprises scarred trees and places contain stone artefact components. A ground survey was undertaken on 23 May 2013, with poor GSV (<3%). The landforms identified included undulating plains, a north-south ridge, and a series of low to medium rises. The ridgeline and a series of large rises within the activity area were assessed as having potential of Aboriginal subsurface heritage. No Aboriginal sites were identified at the conclusion of the survey.
2014	Orr and Butler, *Overtaking Lane, Strzelecki Highway, Smiths Road Junction, CHMP 13061*	CHMP standard and complex assessment ground survey and subsurface testing program	Study area	Orr and Butler (2014) prepared a mandatory CHMP on behalf of VicRoads for a proposed overtaking lane on the Strzelecki Highway at the Smiths Road junction, south of Morwell, approximately 1.3 km in length on a dissected plain. The desktop assessment identified a single previously registered artefact scatter (VAHR 8121-0052) comprising silcrete and quartz flakes within the 1.3 km activity area. A standard assessment ground survey was undertaken on 9 June 2014, with moderate (<50%) GSV. No Aboriginal artefacts or archaeological features were identified during the pedestrian survey. During the survey, VAHR 8121-0052 was reinspected, and high levels of disturbance were noted. A complex assessment subsurface testing program was carried out over several days in three stages in July and August 2014. The stage 1 subsurface program comprised two 1x1 m TPs, and 0.40 x 0.40 m STPs excavated at regular intervals along the alignment. Stage 2 comprised radial STPs excavated around three positive locations identified in Stage 1. Stage 3 involved the excavation of one 1x1 TP and nine radial STPs to determine site extents and nature. Soil profiles typically consisted of a loose acidic humic sandy loam (0-200mm) overlying a compact, acidic, grey clayey silt with occasional charcoal flecks (200-500+mm), on a sterile compact orange clay base (500+ mm). Maximum depth was 780 mm. Shallow, disturbed soil profiles comprised a mixed upper soil with modern material, a noted absence of soil between recently formed humic loam and ancient subsoil. A total of 25 artefacts were identified during the assessment: one at the junction of Smiths Road (VAHR 8121-0052), and twenty-four south of the alignment (VAHR 8121-0354). Artefacts from both places were identified from a shallow, disturbed context and comprised of silcrete (n=21), quartz (n=2), chert (n=1), and rhyolite (n=1) flakes, tools, and cores. The two Aboriginal places are located on areas of slight (<5m) elevation over the surrounding landscape. Although disturbed, the location of artefacts correlates with slight rises and low densities suggesting artefacts deposited during short term activities such as travelling or acquiring resources.
2014	Barker, *Proposed Twin Six Replacement at Churchill-Jumbuk, CHMP 12931*	CHMP standard and complex assessment ground survey and subsurface testing program	Geographic region	Barker (2014) prepared a mandatory CHMP on behalf of Gippsland Water Ltd, for the proposed "Twin Six" distribution water main replacement. A desktop assessment identified no previously registered Aboriginal archaeological sites in the proposed activity area. Previous archaeological assessments identified Aboriginal cultural heritage potential on landforms such as crests/upper slopes adjacent to watercourses and swamps in the geo graphic region, which were also evident within the activity area. Artefact scatters were identified as the site type most likely to occur within the geographic region. Prior land clearance reduced the chances of scarred trees being identified. A standard assessment ground survey was undertaken on 27 February 2014, with a low (1-2%) GSV. No new Aboriginal cultural heritage places were identified during the field survey. Potentially sensitive landforms such as rises and flats adjacent to Billy's Creek were identified as ideal Aboriginal camp sites. The activity area had been subjected to multiple disturbances such as native vegetation clearance and the construction of the existing water main. A complex assessment subsurface testing program was undertaken between 27 to 31 January 2014. The subsurface program consisted of one 1x1 m TP and eighty-four 0.50 x 0.50m STPs. Two Aboriginal cultural heritage places were identified (VAHR 8121-0340 and VAHR 8121-0339) on upper slope and hill crest landforms near Billy Creek. Both places comprised silcrete flakes, cores, blades, and angular fragments. Soil stratigraphic profiles typically consisted of a mixed greyish brown medium grained silty loam, dry and loosely compacted (0-100 mm) overlying a light greyish-brown silty and compact medium grained clayey-silt, dry and densely compacted with sandstone inclusions (100-350 mm), on top of a densely compacted brown clay (350-400+mm). The artefacts were identified primarily at depths between 200-350 mm.
2017	J Hill, *Installation of NBN Co Infrastructure at Sandy Point*	CHMP standard assessment ground survey	Study area	Hill (2017) prepared a mandatory CHMP on behalf of NBN Co for the installation of National Broadband Network (NBN) infrastructure at Sandy Point, along Waratah Road, Ennisvale Avenue, and Telopea Drive. A desktop survey identified sandy rises overlooking a lower lying swampy landscape with nearby freshwater resources and faunal activity. A total of 24 previously recorded Aboriginal cultural heritage places were identified within a 9km geographic region. The places comprised shell middens (n=12), artefact scatters (n=7) and earth features with earth deposits (n=5). Shell middens and earth features were identified along coastlines, and artefact scatters along sandy rises. Three of the artefact scatters are recorded within 200m of the current study area. A standard assessment ground survey was undertaken on 18-19 January 2017. The activity area was situated within a built-up road reserve above a low-lying swampy area. No Aboriginal cultural heritage places or area of archaeological sensitivity were identified. No complex assessment was undertaken due to significant ground disturbance.

Year	Reference	Type	Study Area or Geographic Region	Summary
2021	T Rymer, *Delburn Wnd Farm, Delburn, CHMP 16429*	CHMP standard and complex assessment ground survey and subsurface testing program	Study Area	Rymer (2021) prepared a mandatory CHMP on behalf of Delburn Wind farm. The desktop assessment identified numerous places within the activity area including landforms such as hills, rises, ridgelines, creek banks, terraces and elevated land within 200 m of waterways as having the highest potential for stone artefacts. The desktop assessment identified subsurface artefacts recorded in 2014 by Orr and Butler (VAHR 8121-0354) and registered as a subsurface LDAD with 24 artefacts, confirming a low density of stone artefacts along the ridgeline which the Strzelecki Highway follows. A standard assessment ground survey identified 96 surface stone artefacts within ploughed areas for firebreaks and deep-ripped for the planting of trees. A complex assessment subsurface testing program included 96 hand excavations, resulting in a further 69 subsurface artefacts being recovered from 18 excavations at a maximum depth of 350 mm. Additional surface artefacts were identified in conjunction with VAHR 8121-0354. Excavations along the Strzelecki Highway (within a firebreak – landform consisted of a ranges, ridgelines and hill crests) identified a disturbed silty clay with a gradual change to more compact clay to a depth of 60cm. Rymer concluded that it is highly likely for additional artefacts to be identified within 50 m of these sites. However, testing along this road identified no subsurface artefacts with the exception of one test pit (TP13) in which a single artefact was identified within disturbed deposits at a depth of 100 mm. The soil profile was described as a dark brown clayey silt with metal and glass fragments and road base (0-30 cm) above a silty brown clay (30-40 cm) and clay (40cm).

6.2. Archaeological Ground Survey

An archaeological ground survey was conducted over 15 days from January to September 2022. The survey was carried out by teams of variable size ranging from two to six participants[21] using a systematic sampling procedure based on linear pedestrian transects, where participants were generally spaced at 5-10 m intervals, although at three locations (IA-4f, IA-7a and IA-7c) the spacing was 30 m. Opportunistic pedestrian and vehicular surveys were also conducted at locations including access road alignments and tree clusters.

6.2.1. Investigation areas

The study area was assessed as eight separate investigation areas (IAs), based on the presence of eight identified landforms. Summary descriptions of the landforms comprising each IA are presented in Table 20, and their locations from north to south across the study area are mapped in relation to previously registered Aboriginal cultural heritage places and historical heritage places in Figure 59 to Figure 100 (see Appendix C).

Table 20: Archaeological ground survey Investigation Area summary descriptions

IA	IA Name	Description / Figure
IA-1	Waratah Bay beach	Located along the southern boundary of the study area within Waratah Bay (near the township of Sandy Point), comprising a sandy flat beach – Figure 64
IA-2	Waratah Bay beach dunes	Beach dunes situated immediately north of IA-1 approximately 0-15 m in height – Figure 64
IA-3	Floodplains and river/creek corridors	Includes nine floodplains and river/creek corridors associated with: Tarwin River East Branch (IA-3a) – Figures 46, 47 and 48 Buffalo Creek (IA-3b) – Figure 54 Stony Creek – Tarwin River tributary (IA-3c) – Figures 50 and 51 Toomey Creek (IA-3d) – Figures 43 and 44 Morwell River (IA-3e) – Figures 27 and 28 Little Morwell River (IA-3f) – Figures 36 and 41 Berrys Creek (IA-3g) – Figure 42 Stony Creek – Morwell River tributary (IA-3h)– Figures 24, 25 and 26 Eel Hole Creek (IA-3i) – Figure 24
IA-4	Terraces	Elevated terraces overlooking floodplains and river/creek corridors associated with: Tarwin River East Branch (IA-4a) – Figures 48 and 49 Toomey Creek (IA-4b) – Figures 43 and 44 Eel Hole Creek (IA-4c) – Figures 23, 24 and 25 Morwell River (IA-4d) – Figures 26, 27 and 28 Little Morwell River (IA-4e) – Figures 35 and 36 Berrys Creek (IA-4f) – Figures 41 and 42
IA-5	Plain	Plain landforms with a flat to very gently sloping incline towards the north/northeast – Figures 27, 49, 50 and 54

[21] The survey team included up to three ELA Heritage Advisors and three representatives from the First Peoples groups consulted during the preparation of this report.

IA	IA Name	Description / Figure
IA-6	Low rolling hills	The product of stream incisions into Neogene sedimentary plains. Identified at two locations: Waratah North (IA-6a) – Figures 57 and 58 Mirboo North and Hazelwood (IA-6b) – Figures 28, 29, 30, 31, 33, 34, 35, 36, 44 and 45
IA-7	Rounded hills and rises	Rounded hills and rises including ridges and spurs separated by deeply dissected steep valleys identified at: Hazelwood (IA-7a) – Figures 23 and 25 Mardan Farm (IA-7b) – Figure 44 Smallmans Road, Mardan (IA-7c) – Figure 43
IA-8	Ridges	A single elongated northwest to southeast ridge located approximately 3 km north-east of Mirboo North – Figure 45

The results of the archaeological ground survey are presented in Table 21 and discussed in detail in sections 6.2.1.1 to 6.2.1.8.

Table 21: Archaeological ground survey results – IA descriptions

	Survey					Visibility		Environment						Vegetation			Results					
IA	Survey Method	Sampling Strategy	No. of Participants	Transect Width	Transect Spacing	Exposures	Average Ground Surface Visibility	Altitude	Slope	Landforms	Water	Disturbance	Previous/Current Land Use	Condition	Type	Aboriginal Heritage Predictive Model Rating	Aboriginal Archaeological Sensitivity Rating	Disturbance Rating	Aboriginal Archaeological Potential Rating	Aboriginal Cultural Heritage Identified	Historical Cultural Heritage Potential Rating	Historical Cultural Heritage Identified
1	Pedestrian	Systematic	4	8m	2m	Good exposure along the beach; minimal vegetation	99%	Lowland (0-300m)	Level/Flat (<0.5°)	Beach	Permanent – coastal)	Natural erosion	Beach	N/A	N/A	Somewhat unlikely	1 (Low)	4 (Low-Moderate)	4 (Low)	No	Low	No
2	Pedestrian	Systematic	4	12m	2m	Minimal exposure along the southern side (from the beach); no exposures on the crest of the dune	<5%	Lowland (0-300m)	Steep (19°-30°)	Dune	Permanent – coastal)	Natural erosion	Dune	Modified native	Scrub	Somewhat unlikely	5 (High)	4 (Low - Moderate)	20 (High)	No	Low	No
3a	Pedestrian	Systematic	3	6m	2m	Minimal; within cleared vehicle tracks and grass dieback near fences	<5%	Lowland (0-300m)	Very gently inclined (0.5°-1.5°)	Floodplain	River tributary	Stock trampling	Farming	Agricultural	Grass	Somewhat likely	1 (Low)	4 (Low-Moderate)	4 (Low)	No	Low	No
3b	Pedestrian	Systematic	4	2m	8m	Minimal; within cleared vehicle tracks and grass dieback near fences	<5%	Lowland (0-300m)	Level/Flat (<0.5°)	Floodplain	Buffalo Creek	Heavy stock trampling	Farming	Agricultural	Grass	Somewhat likely	1 (Low)	4 (Low-Moderate)	4 (Low)	No	Low-Moderate	No
3c	Pedestrian	Systematic	5	2m	10m	No exposures	0%	Lowland (0-300m)	Level/Flat (<0.5°)	Floodplain	Stony Creek	Stock trampling	Farming	Agricultural	Grass	Somewhat likely	1 (Low)	4 (Low-Moderate)	4 (Low)	No	Low	No
3d	Pedestrian	Systematic	2	2m	4m	Cleared vehicle tracks and near fencing	<5%	Lowland (0-300m)	Level/Flat (<0.5°)	Floodplain	Toomey Creek	Stock trampling	Farming	Agricultural	Grass	Somewhat likely	1 (Low)	4 (Low-Moderate)	4 (Low)	No	Low	No
3e	Pedestrian	Systematic	3	2m	6m	Within small sections of overgrazing	<1%	Lowland (0-300m)	Level/Flat (<0.5°)	Floodplain	Morwell River	Stock trampling	Farming	Agricultural	Grass	Somewhat likely	1 (Low)	4 (Low-Moderate)	4 (Low)	No	Low	No
3f	Pedestrian	Systematic	3	6m	2m	Within small sections of overgrazing	<1%	Lowland (0-300m)	Level/Flat (<0.5°)	Floodplain	Little Morwell River	Stock trampling	Farming	Agricultural	Grass	Highly likely	1 (Low)	4 (Low-Moderate)	4 (Low)	No	Low	No
3g	Pedestrian	Systematic	3	6m	2m	Within small sections of overgrazing	<10%	Lowland (0-300m)	Level/Flat (<0.5°)	Floodplain	Berrys Creek tributary	Stock trampling	Farming	Agricultural	Grass	Somewhat unlikely	1 (Low)	4 (Low-Moderate)	4 (Low)	No	Low	No

	Survey					Visibility		Environment						Vegetation			Results					
IA	Survey Method	Sampling Strategy	No. of Participants	Transect Width	Transect Spacing	Exposures	Average Ground Surface Visibility	Altitude	Slope	Landforms	Water	Disturbance	Previous/Current Land Use	Condition	Type	Aboriginal Heritage Predictive Model Rating	Aboriginal Archaeological Sensitivity Rating	Disturbance Rating	Aboriginal Archaeological Potential Rating	Aboriginal Cultural Heritage Identified	Historical Cultural Heritage Potential Rating	Historical Cultural Heritage Identified
3h	Pedestrian	Systematic	3	6m	2m	Within cleared vehicle tracks	<10%	Lowland (0-300m)	Level/Flat (<0.5º)	Floodplain	Stony Creek	Heavy vehicle damage	Active plantation	Exotic	Pine trees and grasses	Highly unlikely	1 (Low)	3 (Moderate)	3 (Low)	No	Low	No
3i	Pedestrian	Systematic	3	6m	2m	Within cleared vehicle tracks	<10%	Lowland (0-300m)	Level/Flat (<0.5º)	Floodplain	Eel Hole Creek	Heavy vehicle damage and stock trampling	Agricultural	Agricultural	Grasses	Somewhat unlikely	1 (Low)	4 (Low-Moderate)	4 (Low)	No	Low	No
4a	Pedestrian	Systematic	4	8m	2m	No exposures	0%	Lowland (0-300m)	Level/Flat (<0.5º)	Terrace	Tarwin River East Branch tributary	Land clearance	Farming	Agricultural	Grasses	Somewhat unlikely	3 (Moderate)	5 (Low)	15 (Moderate-High)	No	Low	No
4b	Pedestrian	Systematic	2	2m	4m	Areas of overgrazing and cleared vehicle tracks	<5%	Lowland (0-300m)	Level/Flat (<0.5º) to Moderately inclined (5.5º-18º)	Terrace	Toomey Creek	Farming	Farming	Agricultural	Grasses	Likely	3 (Moderate)	4 (Low-Moderate)	12 (Moderate)	No	Low	No
4c	Pedestrian	Systematic	3	2m	6m	Areas of overgrazing and cleared vehicle tracks	<5%	Lowland (0-300m)	Level/Flat (<0.5º) to Moderately inclined (5.5º-18º)	Terrace	Eel Hole Creek	Stock trampling	Farming	Agricultural	Grasses	Likely	3 (Moderate)	4 (Low-Moderate)	12 (Moderate)	No	Low	No
4d	Pedestrian	Systematic	3	6m	2m	One vehicle track	<20%	Lowland (0-300m)	Level/Flat (<0.5º) to gently inclined (0.5º-1.5º)	Terrace	Morwell River	Ploughing	Active vehicle track	Agricultural	Grasses	Somewhat unlikely	5 (High)	4 (Low-Moderate)	20 (High)	Yes	Low	No
4e	Pedestrian	Systematic	3	2m	6m	Small areas of stock trampling	<1%	Lowland (0-300m)	Moderately inclined (5.5º-18º)	Terrace	Little Morwell River	Ploughing	Farming	Agricultural	Grasses	Somewhat unlikely	4 (Moderate-High)	4 (Low-Moderate)	16 (Moderate-High)	No	Low	No
4f	Pedestrian	Systematic	6	120m	30m	Small areas of stock trampling	<1%	Lowland (0-300m)	Level/Flat (<0.5º) to Moderately inclined (5.5º-18º)	Terrace	Berrys Creek	Ploughing	Farming	Agricultural	Grasses	Highly likely to somewhat unlikely	3 (Moderate)	5 (Low)	15 (Moderate-High)	No	Low	No
5	Pedestrian	Systematic	6	12m	2m	Areas of grass dieback between furrows, fence lines and trees	75%	Lowland (0-300m)	Level/Flat (<0.5º)	Plain	Nil	Stock trampling	Farming	Agricultural	Grasses	Somewhat likely	2 (Low-Moderate)	4 (Low-Moderate)	8 (Moderate)	No	High	Yes
6a	Pedestrian	Systematic	3	9m	3m	Areas of grass dieback between furrows, fence lines and trees	<20%	Lowland (0-300m)	Gently inclined (1.5º-5.5º)	Low hills	Nil	Drainage works, ploughing	Farming	Agricultural	Grasses	Likely	3 (Moderate)	4 (Low-Moderate)	12 (Moderate)	No	Low	No

	Survey					Visibility		Environment						Vegetation			Results					
IA	Survey Method	Sampling Strategy	No. of Participants	Transect Width	Transect Spacing	Exposures	Average Ground Surface Visibility	Altitude	Slope	Landforms	Water	Disturbance	Previous/Current Land Use	Condition	Type	Aboriginal Heritage Predictive Model Rating	Aboriginal Archaeological Sensitivity Rating	Disturbance Rating	Aboriginal Archaeological Potential Rating	Aboriginal Cultural Heritage Identified	Historical Cultural Heritage Potential Rating	Historical Cultural Heritage Identified
6b	Pedestrian	Systematic	6	90m	18m	Areas of grass dieback between furrows, fence lines and trees	<15%	Lowland (0-300m)	Flat to gently inclined (<0.5º-5.5º)	Low hills	Nil	Plantation	Plantation	Agricultural	Grasses	Somewhat likely	3 (Moderate)	4 (Low-Moderate)	12 (Moderate)	Yes	Low	No
7a	Pedestrian	Systematic	6	120m	30m	Areas of grass dieback between furrows, fence lines and trees	<10%	Lowland (0-300m)	Very gently inclined (<0.5º-1.5º)	Rounded hill/rise	Eel Hole Creek	Drainage works, ploughing	Farming	Agricultural	Grasses	Highly likely	4 (Moderate-High)	4 (Low-Moderate)	16 (Moderate-High)	No	Low	No
7b	Pedestrian	Systematic	2	6m	3m	Near buildings and trees	<10%	Lowland (0-300m)	Very gently inclined (<0.5º-1.5º)	Rise	Toomey Creek	Drainage works, house construction	Farming and residential	Agricultural	Grasses	Somewhat unlikely	4 (Moderate-High)	3 (Moderate)	12 (Moderate)	No	Low	No
7c	Pedestrian	Systematic	6	120m	30m	Areas of grass dieback between furrows, fence lines and trees	75%	Lowland (0-300m)	Very gently inclined (<0.5º-1.5º)	Rounded hill/rise	Nil	Drainage works, ploughing	Farming	Agricultural	Grasses	Likely	3 (Moderate)	3 (Moderate)	9 (Moderate)	No	Low	No
8	Pedestrian	Systematic	4	8m	2m	Areas of grass dieback, vehicle tracks and fences	<5%	Lowland (0-300m)	Very gently inclined (<0.5º-1.5º) along ridge, steep slopes north and south	Ridge crest	Nil	Ploughing	Farming	Agricultural	Grasses	Somewhat likely	4 (Moderate-High)	5 (Low)	20 (High)	No	Low	No

6.2.1.1. IA-1 Waratah Bay beach

IA-1 is located along the southern boundary of the study area within Waratah Bay (nearby the township of Sandy Point). Waratah Bay beach comprises a 15 km long, sandy and flat beach, the IA is a low coast, 0-10 asl. Waratah Bay beach is shaped by waves arriving at an angle to the coastline and are refracted around headlands which create an asymmetrical coastline (Bird 2008, 168). Ground surface visibility (GSV) during the survey was rated as good with little or any vegetation impacting visibility. A ground penetrating radar (GPR) survey undertaken on 4 August 2022 identified natural accumulations of beach sands up to depths of 2 m (Penzo-Kajewski et al. 2022) (Plate 1 and Plate 2).

- IA-1 was assessed as being of low Aboriginal archaeological sensitivity due to the landform comprising a beach with naturally accumulating sand.
- IA-1 was assessed as having undergone a low level of ground disturbance, other than the natural erosion and accumulation of sands.
- IA-1 was assessed as being of low historical archaeological sensitivity based on the fact that no historical features, artefacts or recorded historical places have previously been identified within it.

No Aboriginal or historical cultural heritage was identified within IA-1. IA-1 was assessed as having a low Aboriginal and low historical archaeological potential rating.

Plate 1: Waratah Bay beach (IA-1), showing sands and seaweed, view south

Plate 2: Waratah Bay beach (IA-1), view northwest with the dunes (IA-2) in the background and the beach sands in the foreground

6.2.1.2. IA-2 Waratah Bay dunes

IA-2 is located along the southern boundary of the project area within Waratah Bay. The Waratah Bay dunes overlook the beach and are approximately 0 – 15 m in height (Plate 3 and Plate 4). Access was limited only to the southern side of the dune, with no access to view or survey the northern side.

- IA-2 was assessed as being of high Aboriginal archaeological sensitivity. The dunes are situated between coastal marine and inland freshwater sources and are likely have been extensively utilised in the past.
- IA-2 was identified as having undergone a low-moderate level of ground disturbance (4) through the impact of farming practices such as land clearance and dune stabilisation works (i.e., revegetation).
- IA-2 was assessed as being of low historical archaeological sensitivity based on the fact that no historical features, artefacts or recorded historical places have previously been identified within it.

No Aboriginal or historical cultural heritage was identified in IA-2. IA-2 was assessed as having a high Aboriginal archaeological potential and a low historical archaeological potential.

Plate 3: IA-2, view north from the Waratah Bay dune crest

Plate 4: IA-2, view north from IA-1 toward heavily vegetated Waratah Bay dunes

6.2.1.3. IA-3 Floodplains and river/creek corridors

Investigation Area 3 comprises seven floodplains and river/creek corridors. The floodplains include recent alluvial deposits and are subject to inundation in times of flood. The alluvium which comprises the surface material is mostly Quaternary (1.6-1.8 mya). During this period there were several rises and falls in sea level, either due to the changes in volume of the ice caps due to climate change or the sea levels may have been associated with uplift of the land surface. Main rivers and creeks intersect the study area, with numerous smaller tributaries.

6.2.1.3.1. IA-3a Tarwin River East Branch tributary

The Tarwin River East Branch is a major south-westerly flowing tributary of the Tarwin River, which drains the southern slopes of the Strzelecki Ranges before joining the Tarwin River West Branch. IA-3a is located 1 km southwest of Dumbalk, and approximately 700 m from the Tarwin River East Branch. This tributary flows north to south, and at the time of survey, the floodplain was mostly inundated. GSV was poor due to short dense grass and inundation (Plate 5 and Plate 6). Exposures were minimal and noted only near vehicle tracks and fences.

- IA-3a was assessed as being of low Aboriginal archaeological sensitivity due to the fact it is a floodplain landform.
- IA-3a was identified as having undergone a low-moderate level of ground disturbance through the impact of farming practices including land clearance and cattle grazing. Stock trampling was evident throughout the IA-3a.
- IA-3a was assessed as being of low historical archaeological sensitivity based on the fact that no historical features, artefacts or recorded historical places have previously been identified within it.

No Aboriginal or historical cultural heritage was identified in IA-3a. IA-3a was rated as having a low Aboriginal archaeological potential and a low historical archaeological potential.

Plate 5: IA-3a, view south across Tarwin River East Branch tributary floodplain

Plate 6: IA-3a, view northwest across Tarwin River East Branch tributary floodplain

6.2.1.3.2. IA-3b Buffalo Creek floodplain

Buffalo Creek is a west flowing tributary of the Tarwin River East Branch, which drains the southern slopes of the Strzelecki Ranges. IA-3b comprises the floodplain immediately north of the creek and includes the creek itself (Plate 7 and Plate 8). At the time of survey, the majority of IA-3b had undergone disturbance in the form of heavy stock trampling, and ground surfaces were also marshy after heavy rain.

- IA-3b was assessed as being of low Aboriginal archaeological sensitivity due to the nature of the floodplain landform.
- IA-3b was identified as having undergone a low-moderate level of ground disturbance through the impact of farming practices including land clearance and ploughing. Stock trampling was also evident throughout IA-3b.
- IA-3b was assessed as being of low-moderate potential for historical archaeological potential based on its close proximity to a location in an adjacent portion of IA-5 (Plain) containing an historic brick cistern (Moores Road 1; see sections 6.2.1.5 and 6.2.2.1 fir further details).

No Aboriginal or historical cultural heritage was identified in IA-3b. IA-3b was rated as having a low Aboriginal archaeological potential and a low-moderate archaeological potential due to the identification of an historical archaeological site within the property intersecting IA-3b.

Plate 7: IA-3b, view west across the Buffalo Creek floodplain

Plate 8: IA-3b, view south toward Buffalo Creek

6.2.1.3.3. IA-3c Stony Creek (Tarwin River tributary) floodplain

Stony Creek is a south-westerly flowing tributary of the Tarwin River. The Stony Creek tributary of the Tarwin River was inspected along its northern and southern banks. At the time of survey, the floodplain was mostly inundated and covered with thick green algae (Plate 9). Exposures were limited due to short dense grass and were only identified within some areas of stock trampling and near gates.

- IA-3c was assessed as being of low Aboriginal archaeological sensitivity due to the nature of the floodplain landform.
- IA-3c was identified as having undergone a low-moderate level of ground disturbance through the impact of farming practices including land clearance and ploughing. Stock trampling was also evident throughout IA-3c.
- IA-3c was assessed as being of low historical archaeological sensitivity based on the fact that no historical features, artefacts or recorded historical places have previously been identified within it.

No Aboriginal or historical cultural heritage was identified in IA-3c. IA-3c was rated as having a low Aboriginal and low historical archaeological potential.

Plate 9: IA-3c, view northwest across the Stony Creek floodplain

6.2.1.3.4. IA-3d Toomey Creek floodplain

Toomey Creek is an easterly flowing tributary of the Tarwin West Branch Creek. IA-3d is located north and south of the creek line and is inclusive of Toomey Creek (Plate 10 and Plate 11). There are moderately inclined terraces on both sides of the creek (IA-4b). The GSV was low due to water within the creek, and short dense grasses and scrubs along the creek banks. Exposures were identified within cleared tracks leading towards the creek.

- IA-3d was assessed as being of low Aboriginal archaeological sensitivity due to the nature of the floodplain landform.

- IA-3d was identified as having undergone a low-moderate level of ground disturbance through the impact of farming practices including land clearance and ploughing. Stock trampling was also evident around gates and along creekbanks.
- IA-3d was assessed as being of low historical archaeological sensitivity based on the fact that no historical features, artefacts or recorded historical places have previously been identified within it.

No Aboriginal or historical cultural heritage was identified in IA-3d. IA-3d was rated as having a low Aboriginal and low historical archaeological potential.

Plate 10: IA-3d, view south across Toomey Creek and floodplain

Plate 11: IA-3d, view west from the centre of the Toomey Creek floodplain

6.2.1.3.5. IA-3e Morwell River floodplain

The Morwell River is a north flowing tributary of the Latrobe River and drains the northern slopes of the Strzelecki Ranges. The river has been diverted several times to enable expansion of the Hazelwood Mine.

IA-3e includes the section of the Morwell River and associated floodplain that intersects the study area. The floodplain is located to north and south of the river, and both sides were surveyed. At the time of survey, most of IA-3e had undergone only low to moderate disturbance in the form of heavy stock trampling, and exposures were therefore limited (Plate 12).

- IA-3e was assessed as being of low Aboriginal archaeological sensitivity due to the nature of the floodplain landform.
- IA-3e was identified as having undergone a low-moderate level of ground disturbance through the impact of farming practices including land clearance and ploughing. Stock trampling was evident across IA-3e, with stock present in the IA during the survey.
- IA-3e was assessed as being of low historical archaeological sensitivity based on the fact that no historical features, artefacts or recorded historical places have previously been identified within it.

No Aboriginal or historical cultural heritage was identified in IA-3e. IA-3e was rated as having a low Aboriginal and low historical archaeological potential.

Plate 12: IA-3e, view east across the Morwell River floodplain

6.2.1.3.6. IA-3f Little Morwell River floodplain

The Little Morwell River is an easterly flowing tributary of the Morwell River, draining the northern slopes of the Strzelecki Ranges. IA-3f is located within Darlimurla and includes the section of the Little Morwell River and associated floodplain that intersects the study area. At the time of survey, the majority of IA-3f had undergone limited disturbance in the form of stock trampling (cattle grazing), and

exposures were therefore limited. The landform was generally flat (Plate 13 and Plate 14), with small, incised terraces to the south where it gently inclines and steeply inclined ground surfaces in the north within IA-4e. Sandy soil exposures were identified immediately adjacent to the river resulting from cattle grazing (Plate 15).

- IA-3f was assessed as being of low Aboriginal archaeological sensitivity due to the nature of the floodplain landform.
- IA-3f was identified as having undergone a low-moderate level of ground disturbance through the impact of farming practices including land clearance, artificial drainage and ploughing.
- IA-3f was assessed as being of low historical archaeological sensitivity based on the fact that no historical features, artefacts or recorded historical places have previously been identified within it.

No Aboriginal or historical cultural heritage was identified in IA-3f. IA-3f was rated as having a low Aboriginal and low historical archaeological potential.

Plate 13: IA-3f, view north across Little Morwell River floodplain with the steep incline in the background

Plate 14: IA-3f, view of the Little Morwell River with a fenced area for cattle grazing, view east

Plate 15: IA-3f, sandy exposure on the bank of the Little Morwell River

6.2.1.3.7. IA-3g Berrys Creek floodplain

Berry's Creek is a tributary of the Tarwin River West Branch that straddles the Grand Ridge east of Mirboo North. At the time of survey, the majority of IA-3g had undergone minor disturbance in the form of stock trampling (cattle grazing), and exposures were therefore limited. The landform was flat (Plate 16), with a small, incised creek. Terraces were identified to the south where the floodplain gently inclines, however, it steeply inclines in the north within IA-4f. Exposures due to the cattle grazing and vehicle tracks were identified immediately adjacent to the creek. Additionally, some minor mechanical

clearance had occurred north of the creek. Overall, exposures were very limited due to short dense grass, although a small section to the south within the floodplain contained very good visibility (Plate 17).

- IA-3g was assessed as being of low Aboriginal archaeological sensitivity due to the nature of the floodplain landform.
- IA-3g was identified as having undergone a low-moderate level of ground disturbance through the impact of farming practices including land clearance, artificial drainage and stock trampling.
- IA-3g was assessed as being of low historical archaeological sensitivity based on the fact that no historical features, artefacts or recorded historical places have previously been identified within it.

No Aboriginal or historical cultural heritage was identified in IA-3g. IA-3g was rated as having a low Aboriginal and low historical archaeological potential.

Plate 16: IA-3g, view north across Berry Creek floodplain and incised tributary

Plate 17: IA-3g, exposure identified within the floodplain immediately adjacent to Berrys Creek

IA-3h Stony Creek (Morwell River tributary) floodplain

A section of Stony Creek intersecting Ten Mile Creek Road was inspected along its northern and southern banks (Plate 18). At the time of survey, the creek was flowing and exposures were limited due to long dense grass (Plate 19).

- IA-3h was assessed as being of low Aboriginal archaeological sensitivity due to the nature of the floodplain landform.
- IA-3h was identified as having undergone a moderate level of ground disturbance through the impact of farming practices including land clearance, artificial drainage and stock trampling.
- IA-3h was assessed as being of low historical archaeological sensitivity based on the fact that no historical features, artefacts or recorded historical places have previously been identified within it.

No Aboriginal or historical cultural heritage was identified in IA-3h. IA-3h was rated as having a low Aboriginal and low historical archaeological potential.

Plate 18: IA-3h, view north across downward sloping ground surface on Ten Mile Creek Road toward Stony Creek

Plate 19: IA-3h, view south toward Stony Creek overlooking thick grass

IA-3i Eel Hole Creek floodplain

Eel Hole Creek is a west flowing tributary of the Morwell River, draining the northwest slopes of the Strzelecki Ranges. The creek flows through Hazelwood cooling pond. The floodplain was marshy at the time of survey, and exposures were limited due to long dense grass (Plate 20 and Plate 21).

- IA-3i was assessed as being of low Aboriginal archaeological sensitivity due to the nature of the floodplain landform.
- IA-3i was identified as having undergone a moderate level of ground disturbance through the impact of plantation practices including land clearance and tree harvesting. Cleared vehicle tracks were identified crossing the creek.
- IA-3i was assessed as being of low historical archaeological sensitivity based on the fact that no historical features, artefacts or recorded historical places have previously been identified within it.

No Aboriginal or historical cultural heritage was identified in IA-3i. IA-3i was rated as having a low Aboriginal and low historical archaeological potential.

Plate 20: IA-3i, view northwest across the Eel Hole Creek floodplain

Plate 21: IA-3i, view north across the Eel Hole Creek floodplain

6.2.1.4. IA-4 Terraces

IA-4 comprises six terraces overlooking floodplains and river/creek corridors. Many of these terraces are located with the dissected plains geomorphology subunit.

6.2.1.4.1. IA-4a Tarwin River East branch terrace

IA-4a is located 1 km southwest of Dumbalk, and approximately 700 m from the Tarwin River East Branch. IA-4a overlooks a tributary of the Tarwin River East Branch. Exposures were minimal during the survey due to the presence of short dense grasses.

- IA-4a was assessed as being of moderate Aboriginal archaeological sensitivity due to the nature of the terrace landform overlooking a floodplain and nearby waterway.
- IA-4a was identified as having undergone a low-moderate level of ground disturbance, which is limited to land clearance and stock trampling.
- IA-4a was assessed as being of low historical archaeological sensitivity based on the fact that no historical features, artefacts or recorded historical places have previously been identified within it.

No Aboriginal or historical cultural heritage was identified in IA-4a. IA-4a was rated as having a moderate-high Aboriginal archaeological potential and a low historical archaeological potential.

Plate 22: IA-4a, view east towards the Tarwin East Branch tributary

6.2.1.4.2. IA-4b Toomey Creek terraces

IA-4b is located north and south of Toomey Creek. The terraces were moderately inclined on the southern side of Toomey Creek, with a low terrace on the northern side (Plate 23). The GSV was generally low due to short dense grass, although exposures were noted within areas of heavy cattle grazing (Plate 24). Additional exposures were identified in some cleared vehicle tracks and along fencing.

- IA-4b was assessed as being of moderate Aboriginal archaeological sensitivity due to the nature of the terrace landform overlooking a floodplain and nearby waterway.
- IA-4b was identified as having undergone a low-moderate level of ground disturbance due heavy stock trampling and vehicle tracks.
- IA-4b was assessed as being of low historical archaeological sensitivity based on the fact that no historical features, artefacts or recorded historical places have previously been identified within it.

No Aboriginal or historical cultural heritage was identified in IA-4b. IA-4b was rated as having a moderate Aboriginal archaeological potential and a low historical archaeological potential.

Plate 23: IA-4b, view south across level Toomey Creek terrace toward moderately inclined terrace

Plate 24: IA-4b, example of exposure and soils

6.2.1.4.3. IA-4c Eel Hole Creek terraces

IA-4c includes terraces overlooking Eel Hole Creek situated between the floodplain (IA-3i) and a rise (IA-7a). Exposures were minimal during the survey due to the presence of thick and, at times, long grass (Plate 25). The area is currently actively used to graze stock, and numerous vehicle tracks cross the IA.

- IA-4c was assessed as being of moderate Aboriginal archaeological sensitivity due to the nature of the terrace landform overlooking a floodplain and nearby waterway.
- IA-4c was identified as having undergone a low-moderate level of ground disturbance due to heavy stock trampling and vehicle tracks.

- IA-4c was assessed as being of low historical archaeological sensitivity based on the fact that no historical features, artefacts or recorded historical places have previously been identified within it.

No Aboriginal or historical cultural heritage was identified in IA-4c. IA-4c was rated as having a moderate Aboriginal archaeological potential and a low historical archaeological potential.

Plate 25: IA-4c, view east across Eel Hole Creek terrace

6.2.1.4.4. IA-4d Morwell River terraces

IA-4d is located south of the Morwell River. At the time of survey, the majority of IA-4d had undergone low to moderate disturbance in the form of stock trampling and vehicle clearance. Notably, an area was cleared for vehicle access across the terrace leading towards the floodplain (IA-3e) (Plate 26).

- IA-4d was assessed as being of high Aboriginal archaeological sensitivity due to the nature of the terrace landform overlooking a floodplain and nearby waterway and including a level crest.
- IA-4d was identified as having undergone a low-moderate level of ground disturbance due to ongoing farming practices including land clearance and ploughing.
- IA-4d was assessed as being of low historical archaeological sensitivity based on the fact that no historical features, artefacts or recorded historical places have previously been identified within it.

No historical cultural heritage was identified in IA-4d. A total of 69 Aboriginal flaked stone artefacts were identified within IA-4d along a cleared vehicle track, and a single isolated artefact identified within a Wombat hole. These are described in Section 6.2.2.2.

IA-4d was rated as having a high Aboriginal archaeological potential and a low historical archaeological potential.

Plate 26: IA-4d, view west across the Morwell River terrace at the location of flaked stone artefacts identified on a vehicle track

6.2.1.4.5. IA-4e Little Morwell River terraces

IA-4e is located at Darlimurla and covers a terrace south of the Little Morwell River; the terrace to the north of the river was inaccessible at the time of the survey. GSV was poor due to dense short grass. Areas of exposures were sparse, but some were identified around tree roots and along fence lines (Plate 27 and Plate 28).

- IA-4e was assessed as being of moderate-high Aboriginal archaeological sensitivity due to the nature of the terrace landform overlooking a floodplain and nearby waterway.
- IA-4e was identified as having undergone a low-moderate level of ground disturbance due to ongoing farming practices including land clearance and ploughing.
- IA-4e was assessed as being of low historical archaeological sensitivity based on the fact that no historical features, artefacts or recorded historical places have previously been identified within it.

No Aboriginal or historical cultural heritage was identified in IA-4e. IA-4e was rated as having a moderate Aboriginal archaeological potential and a low historical archaeological potential.

Plate 27: IA-4e, view east across Little Morwell River terrace

Plate 28: IA-4e, view south across Little Morwell River terrace

6.2.1.4.6. IA-4f Berrys Creek terraces

IA-4f occurs either side of the Grand Ridge east of Mirboo North.

- IA-4f was assessed as being of moderate Aboriginal archaeological sensitivity due to the nature of the terrace landform overlooking a floodplain and nearby waterway. The terraces were small and flat (Plate 29) and moderately inclined toward a flat crest (Plate 30). The smaller terraces situated on lower slopes were of low to moderate archaeological sensitivity, while the more elevated terraces and subsequent terrace crest were of moderate archaeological sensitivity.
- IA-4f was assessed as having undergone a low level of ground disturbance (5) due cattle grazing.
- IA-4f was assessed as being of low historical archaeological sensitivity based on the fact that no historical features, artefacts or recorded historical places have previously been identified within it.

No Aboriginal or historical cultural heritage was identified in IA-4f. IA-4f was rated as having a moderate-high Aboriginal archaeological potential and a low historical archaeological potential.

Plate 29: IA-4f, view north across a lower Berrys Creek terrace

Plate 30: IA-4f, view south across the Berrys Creek terrace crest

6.2.1.5. IA-5 Plain

IA-5 is located near the township of Buffalo (adjacent to the Great Southern Rail Trail) and consists of a flat to very gently sloping plain inclining towards the north-northeast. The plain is slightly higher than that of the adjacent floodplain and is within an agricultural field used for cattle grazing.

- IA-5 was assessed as being of low to moderate archaeological sensitivity, which is slightly higher level of sensitivity than those landforms surrounding it due to it being slightly elevated above the adjacent floodplain (Plate 31).
- IA-5 was identified as having undergone a low-moderate level of ground disturbance (Plate 32) due to the impact of farming practices including land clearance and artificial drainage including the construction of a small dam.
- IA-5 was assessed as being of high historical archaeological sensitivity based on the identification of one historical archaeological site during the ground survey (Moores Road 1).

No Aboriginal cultural heritage was identified in IA-5. One historical archaeological site (Moores Road 1; see section 6.2.2.1 for further details) was identified within IA-5 on a plain landform adjacent to Buffalo Creek. IA-5 was rated as having a moderate Aboriginal archaeological potential, and a moderate to high historical archaeological potential due to the presence of at least one recorded historical cultural heritage place that may be associated with other unidentified archaeological features.

Plate 31: IA-4, view south across the plain landform

Plate 32: IA-5, exposed ground surfaces on the plain landform

6.2.1.6. IA-6 Low rolling hills

IA-6 is the product of stream incisions into Neogene sedimentary plains and is identified at two locations within the study area.

6.2.1.6.1. IA-6a Waratah North low rolling hills

IA-6a is located between Bald Hill Creek and the confluence of Fish Creek and Amber Creek (Plate 33 and Plate 34). GSV during the survey was poor due to dense short grass, except for some small exposures around drainage lines and gates. IA-6a is currently used for stock grazing.

- IA-6a was assessed as being of low to moderate archaeological sensitivity due to the nature of the rolling hills landform.
- IA-6a was identified as having undergone a low-moderate level of ground disturbance due to the impact of farming practices including land clearing and ploughing.
- IA-6a was assessed as being of low historical archaeological sensitivity based on the fact that no historical features, artefacts or recorded historical places have previously been identified within it.

No Aboriginal or historical cultural heritage was identified in IA-6a. IA-6a was rated as having a moderate Aboriginal archaeological potential and a low historical archaeological potential.

Plate 33: IA-6a, view south across Waratah North low rolling hills landform showing ploughed field with poor GSV

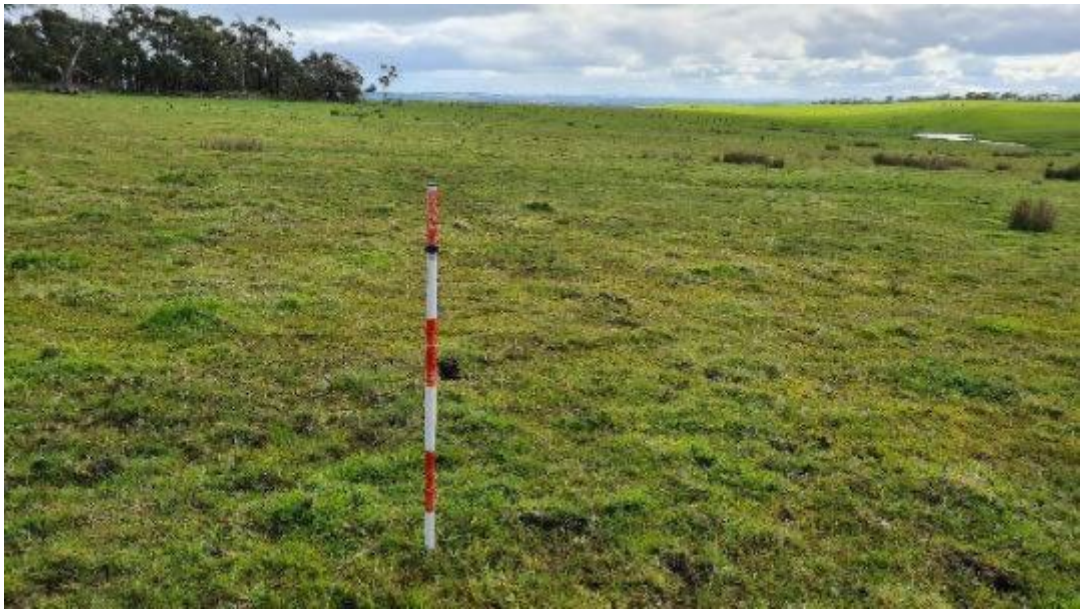

Plate 34: IA-6a, view northeast across Waratah North low rolling hills landform

6.2.1.6.2. IA-6b Mirboo North and Hazelwood low rolling hills

IA-6b is located between Mirboo North and Hazelwood and comprises two pine plantations (Driffield (Plate 35) and Hancock (Plate 36)). GSV during the survey was poor due to the presence of leaf litter, numerous pine plantations, and gravelled roads. The plantations are still in use.

- IA-6b was assessed as being of low-moderate archaeological sensitivity due to the nature of the rolling hills landform.
- IA-6b was assessed as having undergone a low-moderate level of ground disturbance due the impact of farming practices including land clearance and ploughing. The plantations are still actively in use, with felling of trees and planting of new timber continuously occurring. Additional disturbance has occurred with the removal of topsoils for access tracks, and the continued use of the tracks by heavy machinery. Whilst the use of the plantations will have greatly disturbed the topsoil, it is likely that the underlying soils remain intact.
- IA-6b was assessed as being of low historical archaeological sensitivity based on the fact that no historical features, artefacts or recorded historical places have previously been identified within it.

No Aboriginal or historical cultural heritage was identified in IA-6b. As a result, IA-6b was assessed as having a low to moderate Aboriginal archaeological potential and a low historical archaeological potential.

Plate 35: IA-6b, view north across the Driffield plantation

Plate 36: IA-6b, view west along gravelled roads and dense vegetation within the Hancock plantation

6.2.1.7. IA-7 Rounded hills and rises

IA 7 includes ridges and spurs separated by deeply dissected steep valleys. Fluctuations in sea levels and the associated uplift of the Strzelecki and Hoddle ranges has resulted in rapid erosional processes and landscape instability, which has resulted in a steep topography.

6.2.1.7.1. IA-7a Hazelwood rounded hills and rises

IA-7a encompasses two small rises near Hazelwood, both in associated with Eel Hole Creek (IA-4c). Both rises area located within large agricultural fields. GSV was poor at both locations during the ground survey due to short dense grass.

- IA-7a was assessed as being of moderate archaeological sensitivity due to it being a rise landform overlooking a nearby creek.
- IA-7a was identified as having undergone a low-moderate level of ground disturbance due to the impact of farming practices including land clearance, the excavation of a dam, ongoing ploughing and stock grazing.
- IA-7a was assessed as being of low historical archaeological sensitivity based on the fact that no historical features, artefacts or recorded historical places have previously been identified within it.

No Aboriginal or historical cultural heritage was identified in IA-7a. IA-7a was rated as having a moderate-high Aboriginal archaeological potential and a low historical archaeological potential.

Plate 37: IA-7a, view south across top of rise overlooking Eel Hole Creek

6.2.1.7.2. IA-7b Mardan Farm rise

IA-7b encompasses a steep rise located south of Toomey Creek. IA-7b has been largely cleared of vegetation and used for dairying. GSV was during the survey was rated as good where the ground had been cleared for vehicle tracks, where fencing had been constructed, and along terraced cattle tracks (Plate 38).

- IA-7b was assessed as being of moderate-high archaeological potential due to it being a rise overlooking terraces and a tributary of Toomey Creek (Plate 39).
- IA-7b was identified as having undergone a moderate level of ground disturbance due to the impact of farming practices including land clearance, the excavation of a small dam excavation, vehicle tracking and the construction of a residence. This disturbance was mostly constrained to the crest of the rise.
- IA-7b was assessed as being of low historical archaeological sensitivity based on the fact that no historical features, artefacts or recorded historical places have previously been identified within it.

No Aboriginal or historical cultural heritage was identified in IA-7b. IA-7b was rated as having a moderate Aboriginal archaeological potential and a low historical archaeological potential.

Plate 38: IA-7b, view east along a modified slope (terraced by cattle)

Plate 39: IA-7b, view south from the crest of the Mardan Farm rise landform within the Mardan Farm rise landform

6.2.1.7.3. IA-7c Smallmans Road rise4

IA-7c encompasses a small rise identified south of a tributary of Toomey Creek along Smallmans Road, Dumbalk (Plate 40). IA-7c includes abandoned housing (Plate 41) with overgrown weeds. Exposures during the ground survey were limited to areas underneath trees, near houses, and within cleared vehicle tracks.

- IA-7c was assessed as being of moderate archaeological sensitivity due to it being a rise landform overlooking Toomey Creek.

- IA-7c was identified as having undergone a moderate level of ground disturbance due to the impact of farming practices including land clearance, drainage, dam excavations and residential activities.
- IA-7c was assessed as being of low historical archaeological sensitivity based on the fact that no historical features, artefacts or recorded historical places have previously been identified within it.

No Aboriginal or historical cultural heritage was identified in IA-7c. IA-7c was rated as having a moderate Aboriginal archaeological potential and a low archaeological potential.

Plate 40: IA-7c, view northeast across the Smallmans Road rise towards the Toomey Creek tributary and floodplain

Plate 41: IA-7c, view south across the Smallmans Road rise showing abandoned structures

6.2.1.8. IA-8 Ridge

IA 8 comprises a single elongated northwest to southeast ridge (Plate 42). GSV was poor during the ground survey due to dense grasses (Plate 43), although good visibility was identified near fences and along vehicle tracks.

- IA-8 was assessed as being of moderate-high archaeological sensitivity due to the nature of the ridge crest landform.
- IA-8 was assessed as having undergone a low level of ground disturbance due to the impact of farming practices including land clearance and ploughing.
- IA-8 was assessed as being of low historical archaeological sensitivity based on the fact that no historical features, artefacts or recorded historical places have previously been identified within it.

No Aboriginal or historical cultural heritage was identified in IA-8. IA-8 was rated as having a high Aboriginal archaeological potential and a low archaeological potential.

Plate 42: IA-8, view east along the crest of the ridge landform

Plate 43: IA-8, low ground surface visibility within the ridge landform

6.2.2. Archaeological ground survey results

6.2.2.1. Historical archaeological cultural heritage

One historical archaeological site was identified during the archaeological ground survey, comprising a brick cistern located in IA-5 on a plain landform adjacent to Buffalo Creek (Plate 44 and Plate 45). A site card recommending listing of this place on the VHI has been drafted and will be submitted to HV.

Plate 44: Brick cistern identified on Moores Road, Buffalo, view north-east

Plate 45: Brick cistern identified on Moores Rd, Buffalo, view south-west

The cistern was identified in the centre of a paddock adjacent to Moores Road, Buffalo, near Buffalo Creek. An inspection of an undated 20th century historical plan (Figure 21) indicates that the property was owned by C.I. Moore in the 1900s. A Mr and Mrs C.I. Moore of Buffalo appears within the Gippsland Standard newspaper on Friday 13 August 1915 in an article recounting the recent marriage of their son,

Mr F.O. Moore to Miss Emmie Warren.[22] Three months later Mr C.I. Moore is noted in the Great Southern Star newspaper to have purchased 120 bullocks on Tuesday 23 November 1915, indicating that the property is likely to have been used to graze livestock.[23]

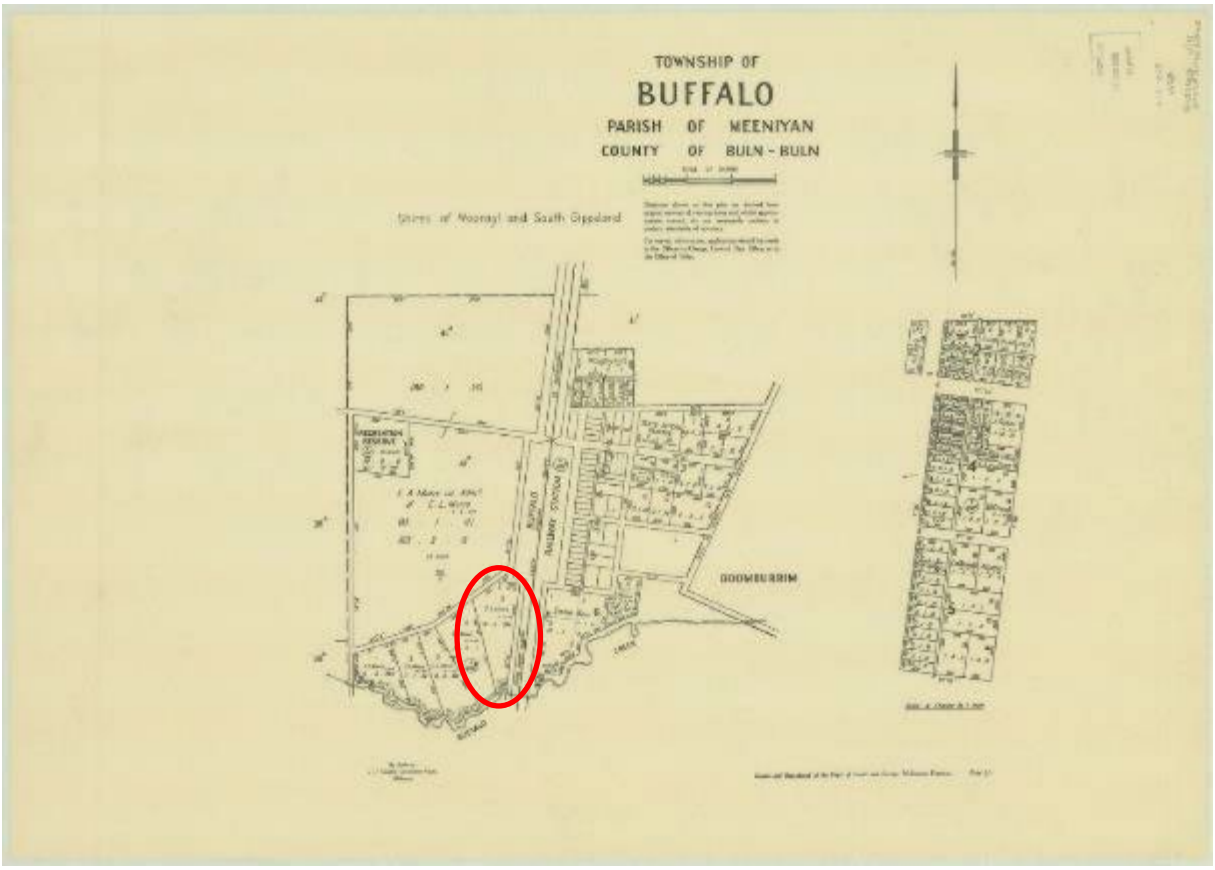

Figure 21: Map of Buffalo township likely to date to the early 1990s, The Moores Rd property is circled in red (source: State Library of Victoria https://viewer.slv.vic.gov.au/?entity=IE9594286)

Brick cisterns have been identified in the archaeological record in Australia as early as the 1870s, prior to the provision of town water (Casey and Lowe 2005: 10, 17). These cisterns were prevalent until the early 20th century when the need to store water was made obsolete by connections to town water supplies (Casey and Lowe 2005: 25).

The brick feature located on the Moores Road property is a water cistern. The above-ground portion of the cistern is dome-shaped with a circular opening at the top. The above-ground dome is covered with remnants of a concrete or plaster material that has eroded due to exposure. Sections of the cistern are damaged, displaying a partially hollow interior subsurface.

There is little historic aerial photograph imagery of the Moores Road property. A recent aerial photograph depicts the cistern as an isolated feature not associated with any other structures (Figure 22). The current landowner and a neighbour advised that a homestead was previously situated on the

[22] https://trove.nla.gov.au/newspaper/article/121032937?searchTerm=%22C%20I%20Moore%2C%20Buffalo%22

[23] https://trove.nla.gov.au/newspaper/article/89108996?searchTerm=%22C%20I%20Moore%2C%20Buffalo%22-

property constructed in association with the cistern, and that the house had been dismantled and relocated, possibly near Waratah Bay (Darryl Jones, Marinus Link land access agent, pers comm. 1 March 2023). Despite the relocation of the original residence, there is a possibility that additional features or structures may remain within the property that are commonly associated with a cistern (e.g., a cesspit).

Figure 22: Aerial photograph of the Moores Rd property, Buffalo, showing the location of the brick cistern (circled in red)

6.2.2.2. Aboriginal archaeological cultural heritage

Aboriginal cultural heritage in the form of flaked stone artefacts was found at two locations within IA-4d (Morwell River terrace) during the archaeological ground surveys conducted during February and March 2022 (Figure 23). Summary information on the Aboriginal cultural heritage places represented by these artefacts is presented in Table 22. The two places are currently identified as:

- MRT 1 (Morwell River Terrace 1): an artefact scatter comprising 69 surface artefacts manufactured using silcrete, quartz and including flakes, angular fragments and cores (Plate 46 and Plate 47).
- MRT 2 (Morwell River Terrace 2): a single quartz flake identified within an exposed wombat burrow.

Table 22: Archaeological ground survey results – Aboriginal cultural heritage

Field Code	Place Name	Place Type	IA	Description
MRT 1	Morwell River Terrace 1	Artefact Scatter	IA-4d	Located on a vehicle track traversing a terrace landform overlooking the Morwell River; 69 flaked stone artefacts manufactured using quartz (n=33 or 48%), silcrete (n=29 or 42%), and the reminder using quartzite, crystal quartz and rose quartz; artefact types include flakes (n=43 or 63%), angular fragments (n=23 or 33%) and cores (n=3 or 4%).
MRT 2	Morwell River Terrace 2	LDAD	IA-4d	Located within a wombat burrow on a terrace landform overlooking the Morwell River; a single quartz flake.

Plate 46: MRT 1, view west across artefact scatter on river terrace landform within IA-4d

Plate 47: Flaked stone artefact within MRT 1, IA-4d

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6.3. Subsurface Testing Program

The following section presents the results of an Aboriginal archaeological subsurface testing program completed within the study area between September 2022 and February 2023, following the methodologies outlined in Section 5.4.4. All test pit locations are mapped in Figure 101 to Figure 115 (Appendix D).

Note that IAs 1 (Waratah Bay beach) and 2 (Waratah Bay dunes) are not included in the subsurface testing program for the following reasons:

- IA-1 is an actively aggrading and eroding landform; a GPR survey of the IA did not identify any cultural deposits.
- IA-2 was identified in the desktop assessment as a highly sensitive landform with a possibility of containing Aboriginal Ancestral Remains; this landform will be underbored by the project and ground surfaces will not be impacted.

Furthermore, although permission to access some of the floodplain IAs within IA-3 has been obtained, at the time of access several were either flooded or inundated to the point where it was not possible to undertake a proper archaeological excavation.

In addition to the flaked stone artefacts identified in excavation pits during the subsurface testing program, an additional 39 artefacts were also identified in surface contexts at six locations, including 22 artefacts in the vicinity of MRT 1.

6.3.1. Investigation areas

The results of the subsurface testing program broken down by IA are presented in Table 23 and summarised below:

- 17 of 24 IAs (including subunits) were investigated during the subsurface testing program.
- All major landform types were sampled during the subsurface testing program (except for the beach and dune landforms at Waratah Bay).
- 194 excavations were completed during the subsurface testing program, including:
  - 143 STPs (see Figure 24 and Plate 48 for an example)
  - 16 1x1s (see Figure 25 and Plate 49 for an example)
  - 35 mechanical test pits (MTPs) (see Figure 26 and Plate 50 for an example)
- The pit type with highest percentage of artefact-bearing pits was the 1x1s (31%), followed by STPs (19%) and MTPs (17%). Overall, 20% of the excavations completed during the subsurface testing program were positive for the presence of Aboriginal cultural heritage, which occurs exclusively in the form of flaked stone artefacts.
- Generally, the percentage of artefact-bearing pits by IA tended to be higher in IAs with overall lower numbers of pits, and where 1x1s comprised a higher proportion by pit type.

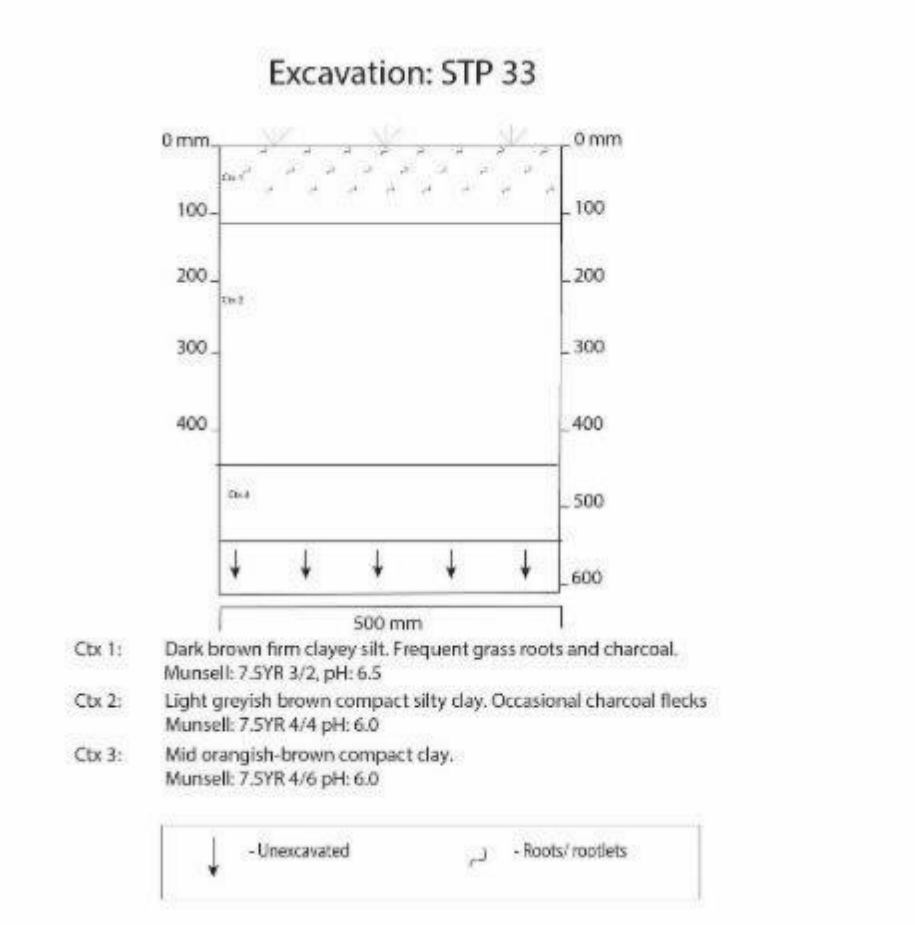

Figure 24: Example stratigraphic drawing of an STP excavated during the subsurface testing program (STP BH-C-033-A, northern elevation)

Plate 48: Example of an STP excavated during the subsurface testing program (STP BH-C-033-A, northern elevation)

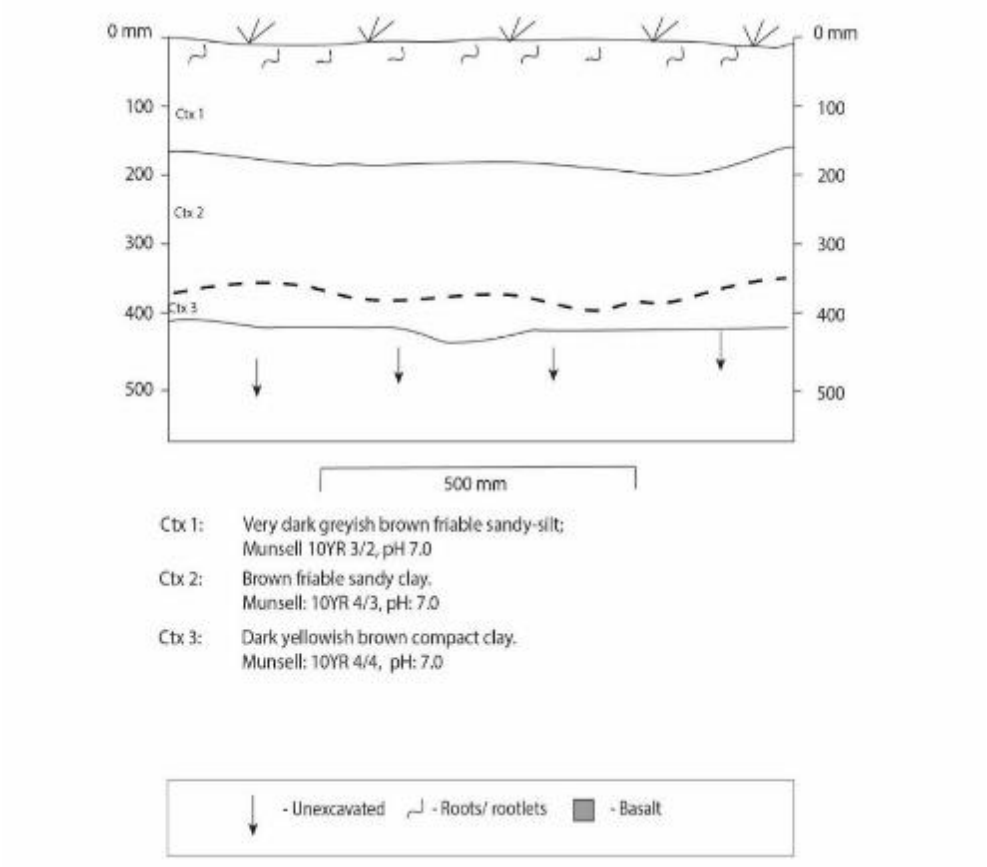

Figure 25: Example stratigraphic drawing of 1x1 m test pit excavated during the subsurface testing program (1x1A (IA-6b) north elevation)

Plate 49: Example of a 1x1 m test pit excavated during the subsurface testing program (1x1A (IA-6b) west elevation)

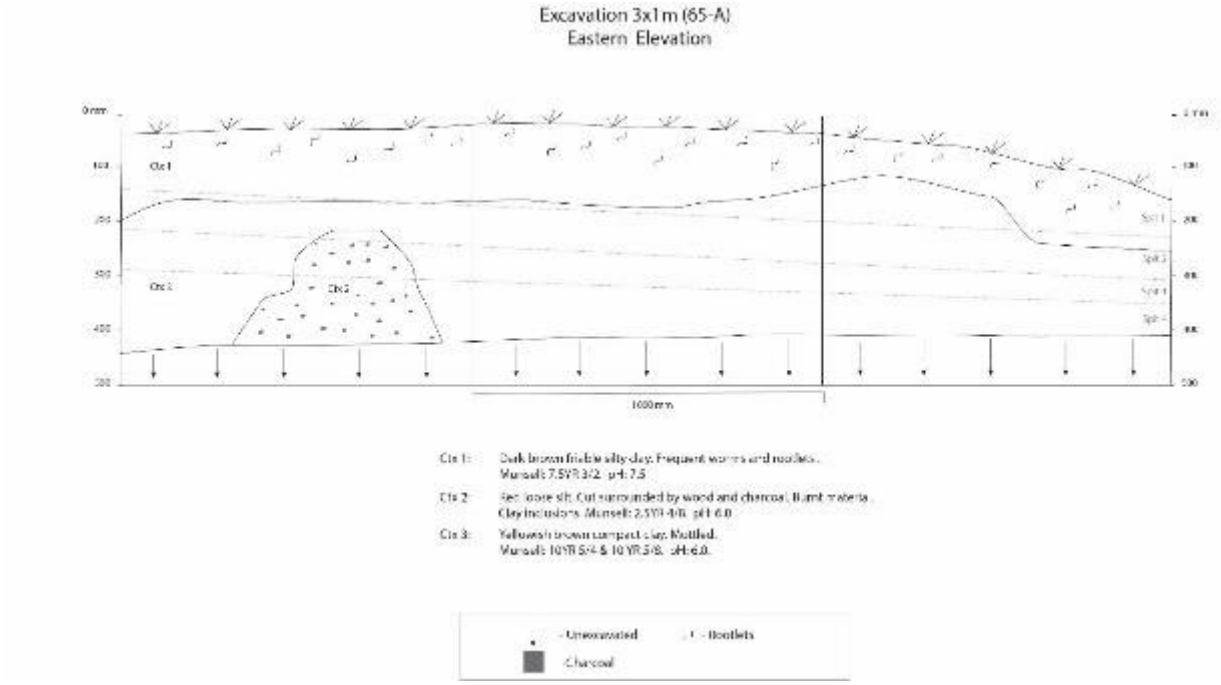

Figure 26: Example stratigraphic drawing of an MTP excavated during the subsurface testing program (MTP-C-065-A (IA-8), east elevation)

Plate 50: Example of an MTP excavated during the subsurface testing program (MTP-C-065-A (IA-8), south elevation)

Table 23: Subsurface testing program results by IA

Investigation Area No	0.5x0.5m STPs			1x1m Test Pits			3x1m Mechanical Test Pits			All Pits		
	Total Pits	Artefact Pits	Total Artefacts	Total Pits	Artefact Pits	Total Artefacts	Total Pits	Artefact Pits	Total Artefacts	Total Pits	Artefact Pits	Total Artefacts
3a	13	0 (0%)	0	2	1 (50%)	7	5	2 (40%)	3	20	3 (15%)	10
3b	5	0 (0%)	0	-	-	-	2	1 (50%)	10	7	1 (14%)	10
3c	-	-	-	1	0 (0%)	0	1	0 (0%)	0	2	0 (0%)	0
3d	4	1 (25%)	1	1	0 (0%)	0	3	0 (0%)	0	8	1 (12%)	1
3e	-	-		-	-	-	-	-	-	-	-	-
3f	-	-	-	-	-	-	-	-	-	-	-	-
3g	-	-	-	-	-	-	-	-	-	-	-	-
3h	-	-	-	-	-	-	-	-	-	-	-	-
3i	-	-	-	-	-	-	-	-	-	-	-	-
4a	9	2 (22%)	2	2	2 (100%)	6	2	1 (50%)	2	13	5 (38%)	10
4b	4	0 (0%)	0	2	0 (0%)	0	1	0 (0%)	0	7	0 (0%)	0
4c	6	6 (100%)	15	-	-	-	-	-	-	6	6 (100%)	15
4d	3	2 (67%)	14	1	1 (100%	112	-	-	-	4	3 (75%)	126
4e	1	0 (0%)	0	-	-	-	-	-	-	1	0 (0%)	0
4f	-	-	-	-	-	-	-	-	-	-	-	-
5	35	1 (3%)	4	2	0 (0%)	0	4	0 (0%)	0	41	1 (2%)	4
6a	17	0 (0%)	0	2	0 (0%)	0	4	0 (0%)	0	23	0 (0%)	0
6b	28	8 (29%)	63	1	1 (100%)	4	9	1 (11%)	1	38	10 (26%)	68
7a	6	6 (100%)	30	-	-	-	-	-	-	6	6 (100%)	30
7b	-	-	-	-	-	-	1	0 (0%)	0	1	0 (0%)	0
7c	5	0 (0%)	0	1	0 (0%)	0	1	0 (0%)	0	7	0 (0%)	0
8	3	0 (0%)	0	1	0 (0%)	0	2	1 (50%)	3	6	1 (17%)	3
Unassigned	4	1 (25%)	1	-	-	-	-	-	-	4	1 (25%)	1
Total	**143**	**27 (19%)**	**130**	**16**	**5 (31%)**	**129**	**35**	**6 (17%)**	**19**	**194**	**38 (20%)**	**278**

- 278 flaked stone artefacts were recovered during the subsurface testing program, including 130 artefacts from 143 STPs, 129 artefacts from 16 1x1s and 19 artefacts from 35 MTPs, indicating that 1x1ms test pits represent the best opportunity for identifying the presence of Aboriginal cultural heritage in any given landform (although it should be noted that 112 artefacts were recovered from a single 1x1 pit on the Morwell River terrace (IA-4d).
- The IAs with highest numbers of artefacts recovered during the subsurface testing program include IA-4d (Morwell River terrace landform, n=126), IA-6b (Mirboo North and Hazelwood low rolling hills, n=68) and IA-7a (Hazelwood rounded hills and rises, n=30), indicating that raised river terraces and low rise landforms in the north of the study area within the Latrobe Valley tend to be the most sensitive for the presence of Aboriginal cultural heritage in subsurface contexts.
- Five of 37 pits excavated on floodplain landforms (IAs 3a, 3b, 3c and 3d) contained a total of 21 artefacts (representing only 7.5% of the total number of artefacts recovered during the subsurface sting program), and one of 41 pits excavated on the plains landform (IA-5) contained four artefacts (1.4% of the total number of artefacts recovered during the subsurface sting program). These results indicate that generally, floodplain and plain landforms are not as sensitive for the presence of Aboriginal cultural heritage in subsurface contexts.

6.3.2. Digital predictive model rating areas

The results of the subsurface testing program broken down by digital predictive model rating area are presented in Table 24 and summarised below:

- The Highly Likely, Likely, Somewhat Likely and Somewhat Unlikely rating areas were investigated during the subsurface testing program.
- The percentage of artefact-bearing pits by rating area is generally consistent across the Highly Likely (30%), Likely (23%) and Somewhat Likely (23%) rating areas, which is surprising given an expectation that the percentages would steadily decrease from Highly Likely to Somewhat Likely. However, the percentage of artefact-bearing pits drops off to 8% in the Somewhat Unlikely rating area, which is to be expected. The unexpectedly low percentage for the Highly Likely rating area may be a product of:
    - The smaller number of pits excavated in this area (only 10 of 194 pits in total, or 5%), which reduces the comparative sample size and therefore may not properly reflect the actual percentage figure if the sample size were increased.
    - The fact that no 1x1 test pits were excavated in the Highly Likely rating area[24] – 1x1s were identified in the previous section as the pit type with the best opportunity for identifying the presence of Aboriginal cultural heritage in any given landform.

[24] All properties rated as Highly Likely and accessible during the period of the subsurface testing program reported here were situated within the boundary of CHMP 18201, which will be evaluated by GLaWAC. The excavation methodology preferred by GLaWAC includes an initial focus on the excavation of STPs to test broadly across landforms, and then later expanding one or more STPs into 1x1 m stratigraphic test pits during a subsequent fieldwork stage. This latter stage of the excavation program had not occurred at the time of writing.

Table 24: Subsurface testing program results by predictive model rating areas

Model Rating	0.5x0.5m STPs			1x1m Test Pits			3x1m Mechanical Test Pits			All Pits		
	Total Pits	Artefact Pits	Total Artefacts	Total Pits	Artefact Pits	Total Artefacts	Total Pits	Artefact Pits	Total Artefacts	Total Pits	Artefact Pits	Total Artefacts
Highly Likely	10	3 (30%)	10	-	-	-	-	-	-	10	3 (30%)	10
Likely	48	12 (25%)	79	5	1 (20%)	112	8	1 (12%)	3	61	14 (23%)	194
Somewhat Likely	56	12 (21%)	41	7	3 (43%)	12	11	2 (18%)	12	74	17 (23%)	65
Somewhat Unlikely	29	0 (0%)	0	4	1 (25%)	5	16	3 (19%)	4	49	4 (8%)	9
Highly Unlikely	-	-		-	-	-	-	-	-	-	-	-
Total	143	27 (19%)	130	16	5 (31%)	129	35	6 (17%)	19	194	38 (20%)	278

- The largest number of artefacts (n=194) was recovered from the Likely rating area, although it should be noted that 112 artefacts were recovered from a single 1x1 pit on the Morwell River terrace landform.

It is difficult to draw any conclusions from this assessment given the small sample size for the Highly Likely rating area, and the lack of differentiation between the Likely and Somewhat Likely rating areas based on the percentage of artefact-bearing pits vs a clear differentiation based on the absolute number of artefacts recovered.

6.3.3. Subsurface testing program results

A total of 16 1x1m test pits, 143 STPs and 35 mechanical test pits was excavated across the study area during the 2022-2023 subsurface testing program. Aboriginal cultural heritage in the form of 319 flaked stone artefacts was found at 15 locations.

Summary information on the Aboriginal cultural heritage places represented by these artefacts is presented in Table 25. Fifteen places are currently identified, which incorporate:

- 70 surface artefacts identified during the archaeological ground survey
- 39 surface artefacts identified during the subsurface testing program
- 278 subsurface artefacts excavated during the subsurface testing program.

Combing the outcomes of the archaeological ground survey with the subsurface testing program, 15 Aboriginal cultural heritage places including three artefact scatters and 12 LDADs have been identified on a range of elevated landforms associated with river and creek terraces near Eel Hole Creek, the Morwell River and Tarwin River East Branch; rounded hills and rises; and low rolling hills.

6.4. Cultural Values Assessments

The CVA program was not completed at the time of writing. Stages completed to date include:

- Stage A (Initial consultation) – meetings have been held with GLaWAC, BLCAC and BLSC and all three groups have confirmed their approach to the CVA program:
    - GLaWAC has opted for a simplified approach where project heritage advisors will meet with one GLaWAC representative during a single site inspection and will then draft a CVA report based on the outcomes of the inspection.
    - BLCAC has elected to prepare their own CVA, funded by the project.
    - BLSC has elected to work closely with project heritage advisors and support the project team to manage the CVA program and prepare a draft report for their consideration.
- Stage B (desktop documentation) – this stage has been completed for all three First Peoples groups and will be based on the information included in the baseline assessment presented in this technical study.

The project is also engaging directly with its First Peoples Advisory Group regarding the development of the CVA program, ensuring the program is not disconnected from the overall project and remains on the agenda for work to be completed by MLPL.

Table 25: Subsurface testing program – Aboriginal cultural heritage

Field Code	Place Name	Place Type	No. of Artefacts	IA	Description
ML-001	Eel Hole Creek LDAD-01	LDAD	15	IA-4c	Excavated on an elevated terrace landform adjacent to Eel Hole Creek; the place is wholly contained within a Likely digital predictive model rating area and includes 15 artefacts recovered from six STPs.
ML-002	Eel Hole Creek AS-01	Artefact Scatter	20	IA-7a	Excavated on a rounded hill and rise landform adjacent to Eel Hole Creek; the place is wholly contained within a Likely digital predictive model rating area and includes 20 artefacts recovered from a single STP.
ML-003	Eel Hole Creek LDAD-02	LDAD	10	IA-7a	Excavated on a rounded hill and rise landform adjacent to Eel Hole Creek; the place is wholly contained within a Somewhat Likely digital predictive model rating area and includes 10 artefacts recovered from five STPs.
ML-004	Eel Hole Creek LDAD-04	LDAD	11	IA-6b	Excavated on a low rolling hill landform adjacent to Eel Hole Creek; the place is wholly contained within a Somewhat Likely digital predictive model rating area and includes 11 artefacts recovered from three STPs.
ML-005 / MRT 2	Morwell River LDAD-01	LDAD	41	IA-4d and IA-5	Excavated on elevated terrace and plain landforms adjacent to the Morwell River; the place straddles Highly Likely, Likely and Somewhat Unlikely digital predictive model rating areas and includes 18 artefacts recovered from three STPs and 23 surface artefacts (41 in total).
ML-006 / MRT 1	Morwell River AS-01	Artefact Scatter	181	IA-4d	Excavated on an elevated terrace landform adjacent to the Morwell River; the place is wholly contained within a Likely digital predictive model rating area and includes 112 artefacts recovered from a single 1x1 test pit and 69 surface artefacts (181 in total).
ML-007	Morwell River AS-02	Artefact Scatter	16	IA-4d	Situated on an elevated terrace landform adjacent to the Morwell River; the place is wholly contained within a Likely digital predictive model rating area and includes 16 surface artefacts.
ML-008	Morwell River LDAD-02	LDAD	54	IA-6b	Excavated on a low rolling hill landform adjacent to the Morwell River; the place straddles Highly Likely, Likely, Somewhat Likely and Somewhat Unlikely digital predictive model rating areas and includes 53 artefacts recovered from six STPs and one MTP, and one surface artefact (54 in total).

Field Code	Place Name	Place Type	No. of Artefacts	IA	Description
ML-009	Darlimurla LDAD-01	LDAD	5	IA-6b	Excavated on a low rolling hill landform near Darlimurla; the place is wholly contained within a Somewhat Likely digital predictive model rating area and includes four artefacts recovered from one 1x1 test pit and one surface artefact (5 in total).
ML-010	Berrys Creek LDAD-01	LDAD	1	IA-4f	Situated near Berrys Creek; the place is wholly contained within a Highly Likely digital predictive model rating area and includes a single surface artefact.
ML-011	Kings Road LDAD-01	LDAD	1	IA-6b	Situated near Kings Road; the place is wholly contained within a Likely digital predictive model rating area and includes a single surface artefact.
ML-012	Toomey Creek LDAD-01	LDAD	1	IA-3d	Excavated on a floodplain landform adjacent to Toomey Creek; the place is wholly contained within a Somewhat Likely digital predictive model rating area and includes a single artefact recovered from a single STP.
ML-013	Tarwin River East Branch LDAD-01	LDAD	1	IA-8	Excavated on a ridge landform near the Tarwin River East Branch; the place is wholly contained within a Likely digital predictive model rating area and includes a single artefact recovered from a single MTP.
ML-014	Tarwin River East Branch LDAD-02	LDAD	20	IA-3a and IA-4a	Excavated on elevated terrace and floodplain landforms adjacent to the Tarwin River East Branch; the place straddles Somewhat Likely and Somewhat Unlikely digital predictive model rating areas and includes 20 artefacts recovered from three 1x1 test pits, two STPs and two MTPs.
ML-015	Buffalo LDAD-01	LDAD	10	IA-3b	Excavated on a floodplain landform adjacent Buffalo; the place is wholly contained within a Somewhat Likely digital predictive model rating area and includes 10 artefacts recovered from a single MTP.

6.5. Cultural Heritage Values in the Study Area

This section summarises the outcomes of the baseline assessment and identifies the cultural heritage values that will be the subject of the impact assessment. It also addresses potential limitations to the study initially outlined in Section 5.7.

6.5.1. Limitations to the characterisation of cultural heritage in the study area

The following limitations apply to the outcomes of the baseline assessment:

- The CVA program is ongoing and is not yet at a point where meaningful information regarding intangible cultural heritage values can be incorporated into the impact assessment. The impact assessment is therefore limited to an assessment of tangible cultural heritage values.
- Cultural heritage identified during the 2022 and 2023 (January to February) fieldwork program has not been fully validated with HV, FP-SR or the First Peoples groups. None of the cultural heritage places recorded during the fieldwork program have been registered on the VAHR or VHI. Registration is not yet possible as the nature, location and extent of each newly identified cultural heritage place has not yet been determined as required by the relevant regulations and/or guidelines. On this basis, the newly recorded cultural heritage values discussed in this report are of a preliminary nature only.
- The impact assessment presented in Section 7 is based on desktop assessment and fieldwork results available at the time the impact assessment was prepared, based on the project design provided at the time of assessment.
- Land access was not available to all properties within the study area (Figure 27 to Figure 30), including properties identified through preliminary assessments as requiring survey. This is due to either:
    - unfavourable weather conditions during the latter half of 2022 which resulted in ground surface inundation to such an extent that it prevented the appropriate archaeological survey of ground surfaces (not accessible) or subsurface testing program (unsafe working conditions and saturated soils that could not be sieved).
    - permission to access some properties not being granted by the landowner or land manager.

    The locations of the following previously registered Aboriginal cultural heritage places were not accessible during the ground survey:

    - VAHR 8120-0212 (Heywood 1 – artefact scatter)
    - VAHR 8120-0213 (Heywood 2 – artefact scatter)
    - VAHR 8120-0214 (Heywood 3 – artefact scatter)
    - VAHR 8121-0398-1 (Eel Hole Creek 3 – artefact scatter)
    - VAHR 8121-0399 (Eel Hole Creek 4 – artefact scatter/ochre quarry)

The lack of accessibility to some properties has meant that the goal of achieving 100% archaeological ground survey coverage across the easement could not be delivered. Despite this, the coverage achieved is considered adequate for the purposes of this technical study. An assessment of the impact of this lack of land accessibility on the outcomes of the historical and Aboriginal archaeological ground survey and the Aboriginal archaeological subsurface testing program is summarised in Table 26, which also assesses land accessibility in relation to the Aboriginal cultural heritage digital predictive model.

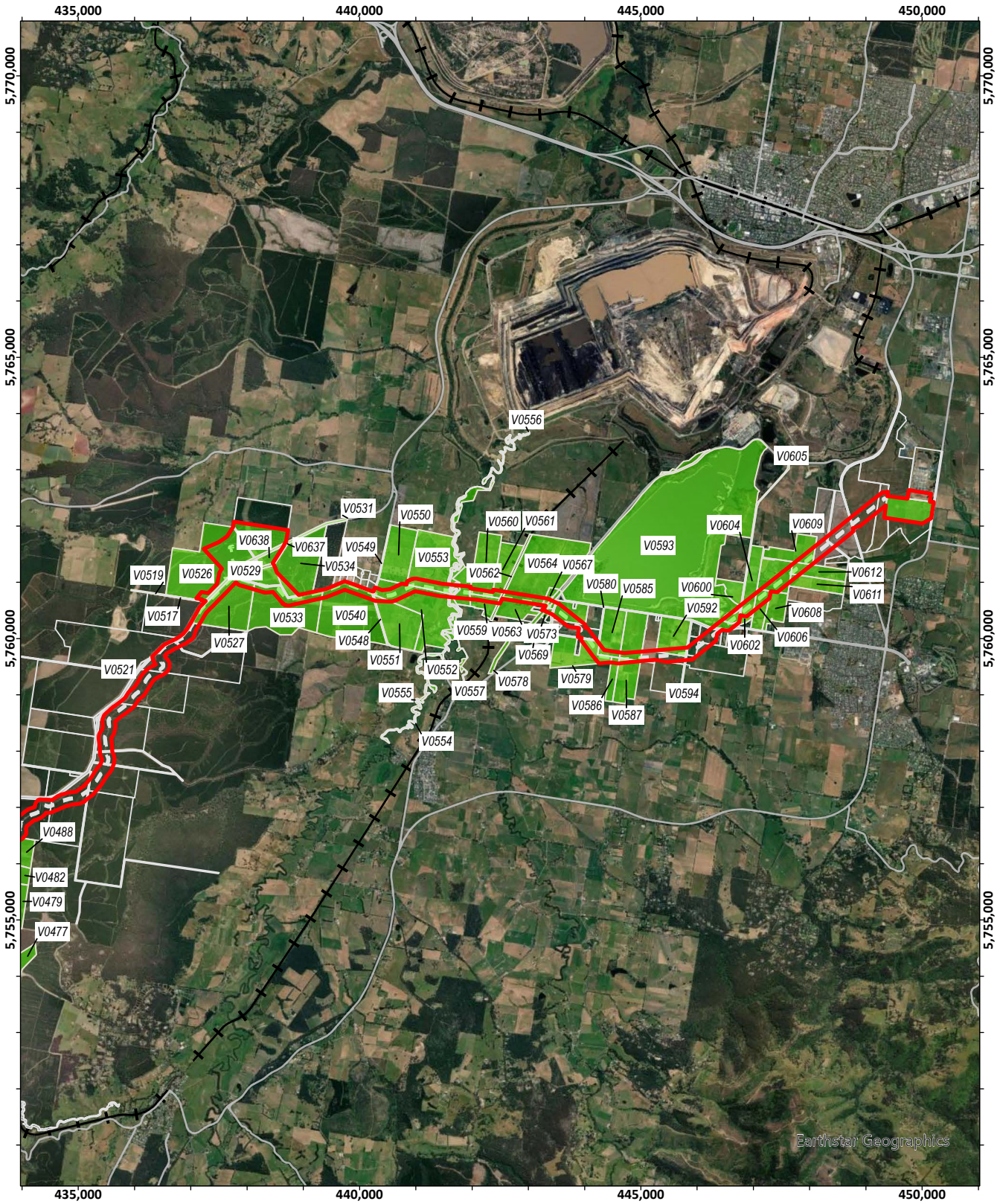

Figure 27: Land access across the study during the cultural heritage study (Map 1)

Legend
- Study area
- Accessed parcel
- Parcels
- Local roads
- Rail

N

Scale: 1:100,000

2 1 0 2 km

Coordinate System: GDA 1994 MGA Zone 55
Projection: Transverse Mercator
Datum: GDA 1994

Date: 6/07/2023 1:39 PM
Prepared by: LOUISA.PORTER

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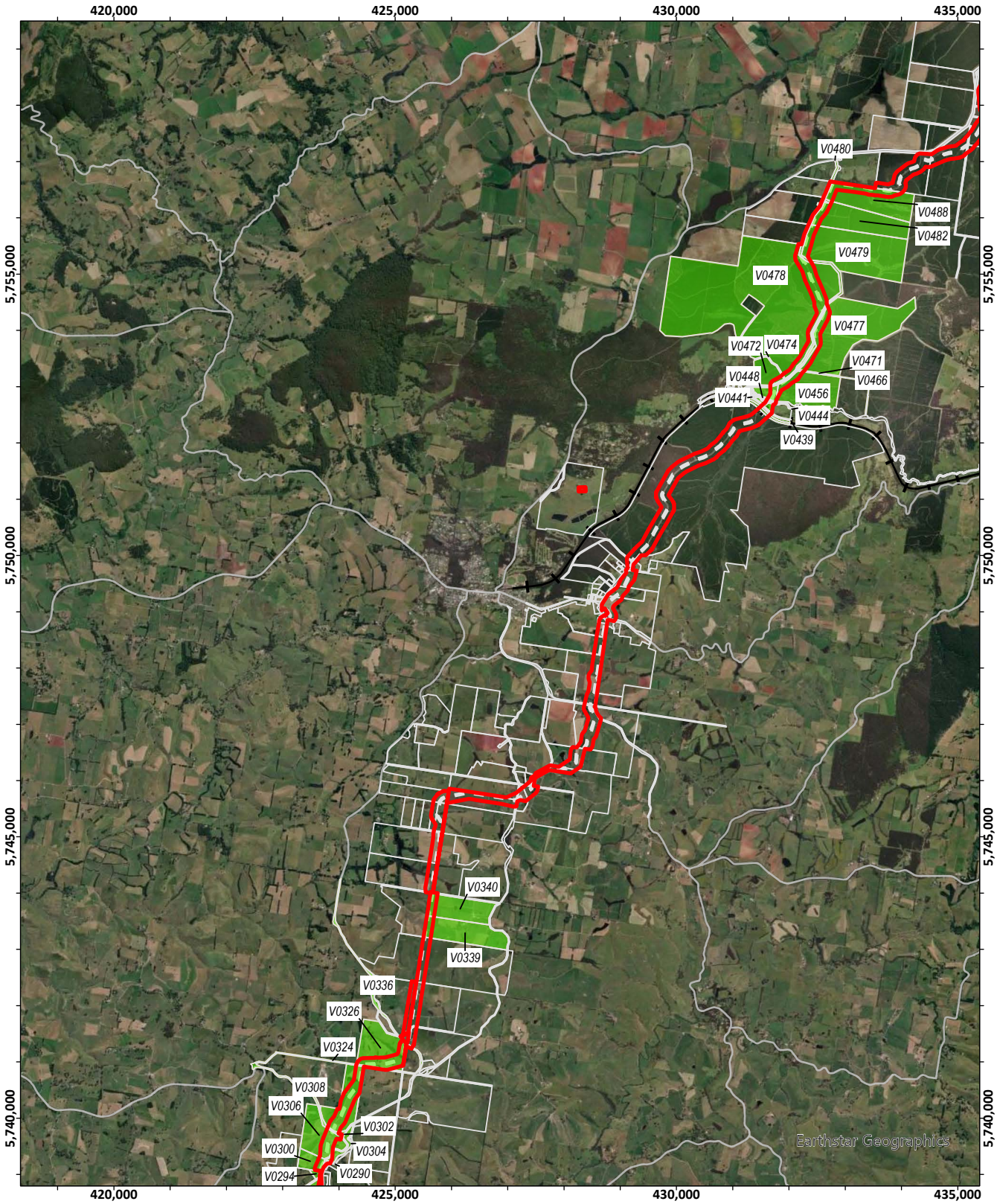

Figure 28: Land access across the study during the cultural heritage study (Map 2)

Legend
- Study area
- Accessed parcel
- Parcels
- Local roads
- Rail

N

Scale: 1:100,000

2 1 0 2 km

Coordinate System: GDA 1994 MGA Zone 55
Projection: Transverse Mercator
Datum: GDA 1994

Date: 6/07/2023 1:39 PM
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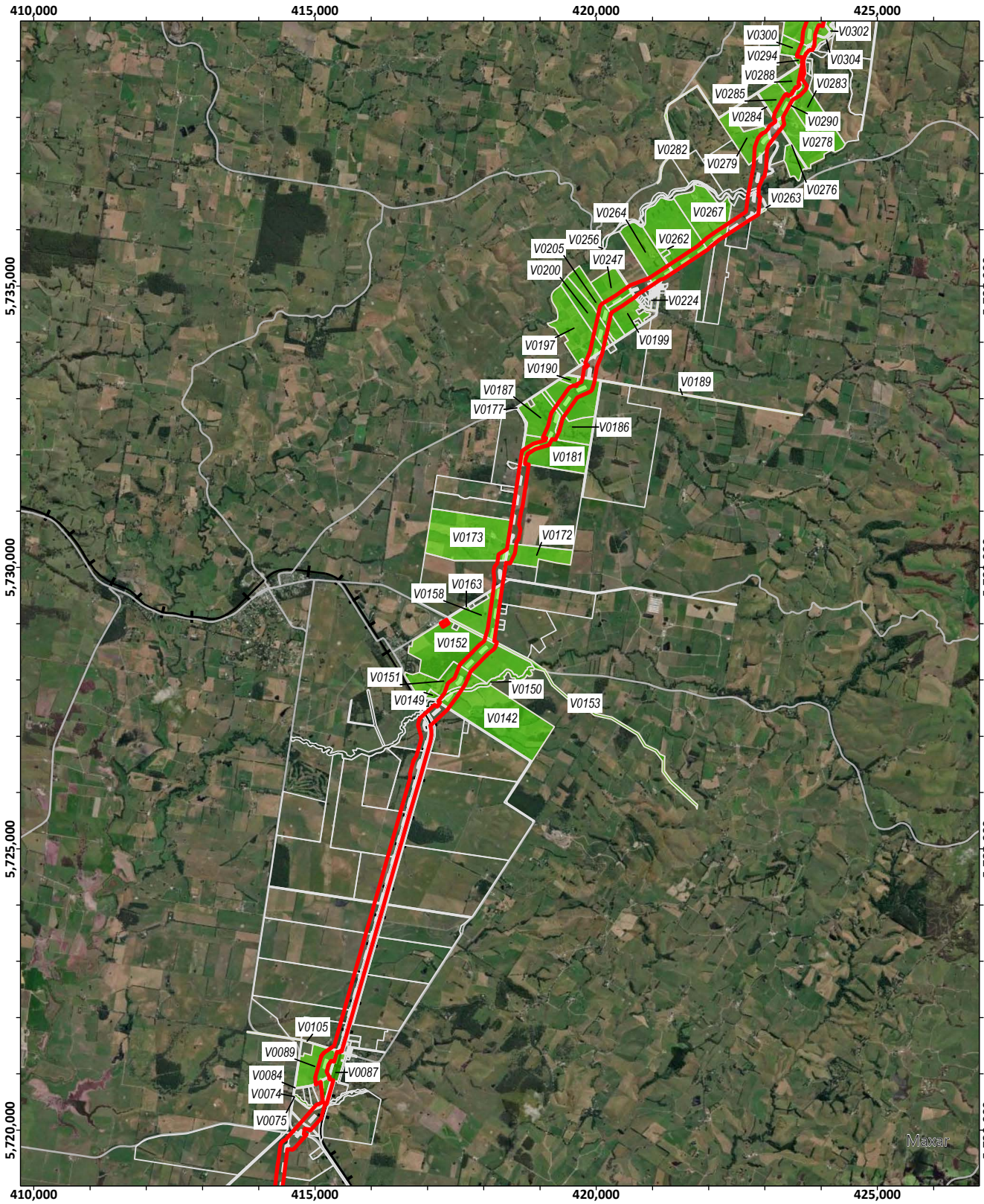

Figure 29: Land access across the study during the cultural heritage study (Map 3)

Legend
- Study area
- Accessed parcel
- Parcels
- Local roads
- Rail

N

Scale: 1:100,000

2 1 0 2 km

Coordinate System: GDA 1994 MGA Zone 55
Projection: Transverse Mercator
Datum: GDA 1994

Date: 6/07/2023 1:39 PM
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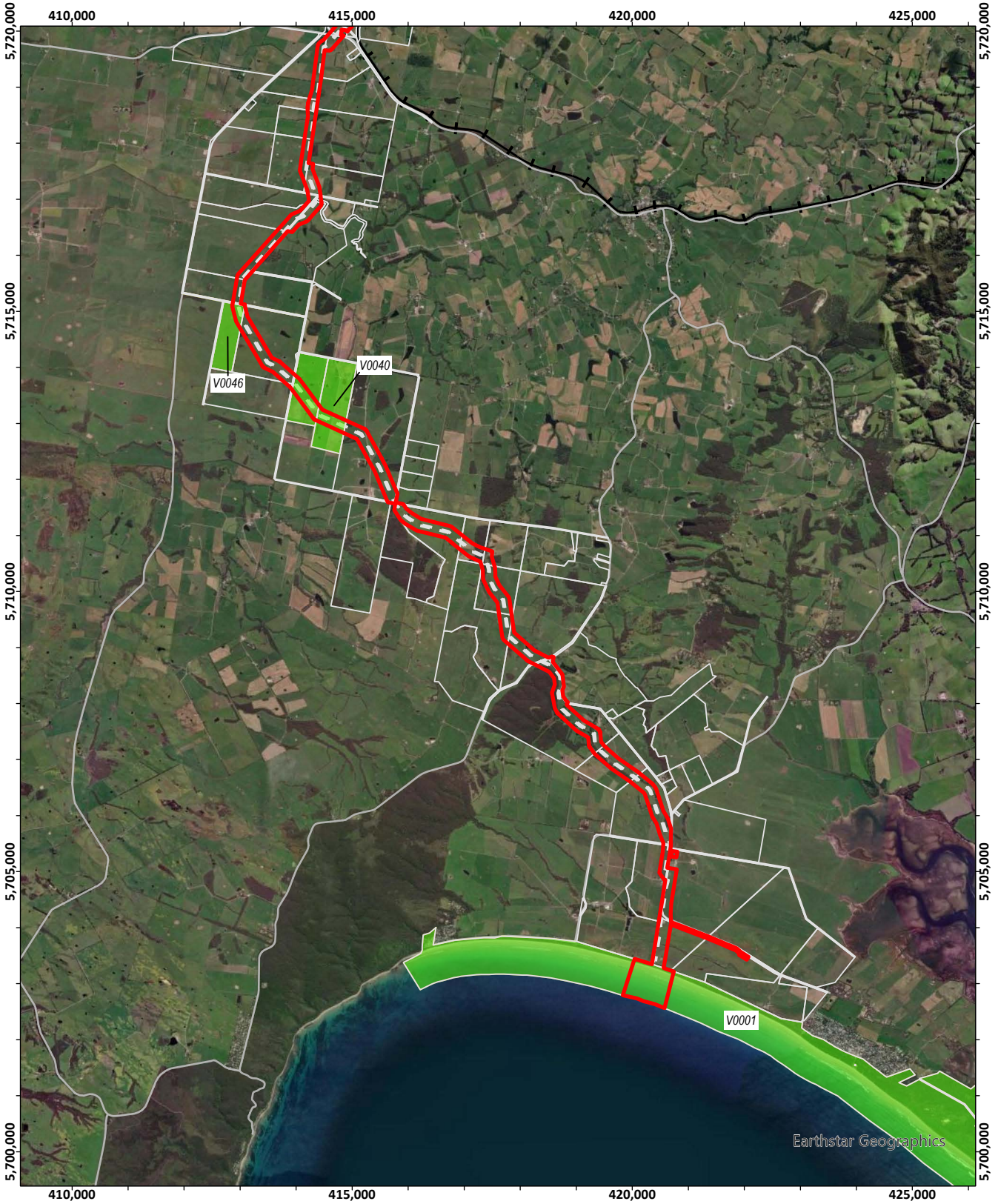

Figure 30: Land access across the study during the cultural heritage study (Map 4)

Legend
- Study area
- Accessed parcel
- Parcels
- Local roads
- Rail

N

Scale: 1:100,000

2 1 0 2 km

Coordinate System: GDA 1994 MGA Zone 55
Projection: Transverse Mercator
Datum: GDA 1994

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Table 26: Land accessibility by properties for archaeological ground survey and subsurface testing program in relation to predictive model likelihood ratings

Predictive Model Likelihood Rating	Ground Survey		Subsurface Testing	
	All Properties (n=311)	Access Permitted (n=215)	All Properties (n=311)	Access Permitted (n=197)
Highly Likely (n=52)	22 of 52 (42%)	22 of 30 (73%)	17 of 52 (33%)	17 of 30 (57%)
Likely (n=129)	85 of 129 (66%)	85 of 92 (92%)	37 of 129 (29%)	37 of 92 (40%)
Somewhat Likely (n=78)	48 of 78 (62%)	48 of 53 (91%	16 of 78 (24%)	16 of 53 (30%)
Somewhat Unlikely (n=52)	29 of 52 (56%)	29 of 35 (83%)	12 of 52 (23%)	12 of 35 (34%)
Totals	**184 of 311 (59%)**	**184 of 210 (88%)**	**82 of 311 (26%)**	**82 of 210 (39%)**

- Of the total of 311 properties intersecting the study area, permission to access 210 (67%) had been obtained at the time of writing.
- Of the total number of properties intersecting the study area (n=311), 184 (59%) have been surveyed and 82 (26%) were investigated during the subsurface testing program completed in 2022, and early 2023.
- The proportion of accessible properties investigated during the archaeological fieldwork program increases to 88% for surveyed properties and 39% for excavated properties.

Of the total of 181 properties intersecting the Highly Likely and Likely Aboriginal cultural heritage digital predictive model rating zones, archaeological ground surveys were completed in 107 properties (59%), and subsurface testing was undertaken in 54 properties (30%). On this basis, close to two-thirds of all properties intersecting the Highly Likely and Likely zones have been surveyed and close to one third have been subjected to at least some degree of subsurface testing.

An alternative way of assessing the impact of limited accessibility is to compare the area available for survey within each digital predictive model rating zone against the overall area covered by each zone. Of the total study area covered by the Highly Likely and Likely Aboriginal cultural heritage digital predictive model rating zones (511.8 ha), archaeological ground surveys were completed in properties which provided access to 237.8 ha (46%), which is slightly less than half.

Table 27: Land accessibility by area for archaeological ground survey in relation to predictive model likelihood ratings

Predictive Model Likelihood Rating	Total Area (ha)	Access Permitted		Ground Survey		
		Area	% Total Area	Access Permitted (ha)	% Total Area	% Access Permitted
Highly Likely	137.3ha	41.9ha	30.5%	39.5ha	29%	94%
Likely	374.5ha	204ha	54.5%	198.3ha	53%	97%
Somewhat Likely	566.5ha	266.2ha	47%	266.2ha	47%	92%
Somewhat Unlikely	756.4ha	296ha	39.1%	296ha	39%	98%
Highly Unlikely	17.9ha	2.7ha	15.1%	1.6ha	9%	59%
Totals	**1,852.6 ha**	**810.8**	**43.7%**	**801.6ha**	**43.3%**	**99%**

Based on the foregoing discussion, the results are deemed to represent an adequate degree of coverage for the purposes of the EIS/EES Aboriginal and historical cultural heritage technical study, sufficient to comment on the nature and significance of tangible historical and Aboriginal cultural heritage values that are likely to be present within the study area. Proxy information was not used to make inferences about the types of the Aboriginal cultural heritage that may be present in areas that were not accessible during the fieldwork program for the following reasons:

- Characterising the archaeological potential of properties that could not be accessed using proxy data based on those properties that could be accessed only serves to identify areas of additional potential archaeological sensitivity. The purpose of the impact assessment is to undertake assessments sufficient to characterise the heritage values that are known or likely to occur across the study area, and to develop management recommendations and contingencies that that will adequately avoid/manage/mitigate impacts to known heritage and manage unknown heritage if it is found during works. The assessments completed to date are sufficient to characterise the nature and significance of tangible historical and Aboriginal cultural heritage values that are likely to be present within the study area.
- The use of other types of proxy data such as the results of geotechnical investigations only permit the identification of soil profiles that may be comparable to those observed during the subsurface testing program. Landforms are not sensitive because they include a particular stratigraphic profile, rather, they are sensitive because they contain Aboriginal cultural heritage. The nature of the subsurface soil profile is not an independent determinant of whether Aboriginal cultural heritage is likely to be present; it is a byproduct of the geomorphic processes which result in the development of the landform.

6.5.2. Summary of identified cultural heritage values

Summary data on the range of tangible cultural heritage values identified in the study area to date and their locations in relation to the proposed project impact footprint are presented in Table 28. These cultural heritage values include:

- One newly recorded historical archaeological site.
- 13 previously registered Aboriginal cultural heritage places, including seven artefact scatters, five LDADs and one multicomponent artefact scatter/ochre quarry site.
- Fifteen newly recorded Aboriginal cultural heritage places, including three artefact scatters and 12 LDADs.

Of the 13 previously registered Aboriginal cultural heritage places, five (VAHR 8120-0212, 8120-0213, 8120-0214, 8121-0398-1 and 8121-0399) were not accessible during the archaeological ground survey. For the purposes of this study, the cultural heritage identified at these locations during the original field recording of these places is presumed to still be present and intact.

The remaining eight previously registered Aboriginal cultural heritage places (VAHR 8121-0052, 8121-0060, 8121-0061, 8121-0062-1, 8121-0063, 8121-0068, 8121-0069 and 8121-0354) were investigated during the 2022 archaeological fieldwork program. Aboriginal cultural heritage was not identified at any of these places during the survey, and on this basis, it is presumed that the originally identified cultural heritage is no longer present.

Table 28: Summary information on cultural heritage values intersecting the project study area

Value ID	Value Name	Value Type	Assessed during fieldwork program	Investigation Areas	Heritage present	Intersects impact footprint	<50m from impact footprint	>50m from impact footprint
Historical cultural heritage values								
MR 1	Moores Road 1	Brick cistern	✓	IA-5	✓	✕	✓	✕
Aboriginal cultural heritage values								
VAHR 8120-0212	Heywood 1	Artefact scatter	✕	Not accessible	Not assessed	✓	✕	✕
VAHR 8120-0213	Heywood 2	Artefact scatter	✕	Not accessible	Not assessed	✓	✕	✕
VAHR 8120-0214	Heywood 3	Artefact scatter	✕	Not accessible	Not assessed	✓	✕	✕
VAHR 8121-0052	SMITHS ROAD 1	Artefact scatter	✓	IA-6a	✕	✕	✓	✕
VAHR 8121-0060	Mountain Hut Road 1	Artefact scatter	✓	IA-6a	✕	✕	✓	✕
VAHR 8121-0061	Mountain Hut Road 2	Artefact scatter	✓	IA-6a	✕	✕	✕	✓
VAHR 8121-0062-1	Kings Road Extension 1	LDAD	✓	IA-6a	✕	✕	✓	✕
VAHR 8121-0063	Kings Road Track 1	LDAD	✓	IA-6a	✕	✓	✕	✕
VAHR 8121-0068	Kings Rd Extension 2	LDAD	✓	IA-6a	✕	✕	✓	✕
VAHR 8121-0069	Mountain Hut Rd 3	LDAD	✓	IA-6a	✕	✕	✕	✓
VAHR 8121-0354	Strzelecki Highway 1	LDAD	✓	IA-6a	✕	✓	✓	✕
VAHR 8121-0398-1	Eel Hole Creek 3	Artefact scatter	✕	IA-4c	Not assessed	✓	✕	✕
VAHR 8121-0399	Eel Hole Creek 4	Artefact scatter/Ochre quarry	✕	IA-4c	Not assessed	✓	✕	✕
ML-001	Eel Hole Creek LDAD-01	LDAD	✓	IA-4c	✓	✓	✕	✕
ML-002	Eel Hole Creek AS-01	Artefact Scatter	✓	IA-7a	✓	✓	✕	✕
ML-003	Eel Hole C reek LDAD-02	LDAD	✓	IA-7a	✓	✓	✕	✕
ML-004	Eel Hole Creek LDAD-04	LDAD	✓	IA-6b	✓	✓	✕	✕
ML-005 / MRT 2	Morwell River LDAD-01	LDAD	✓	IA-4d and IA-5	✓	✓	✕	✕
ML-006 / MRT 1	Morwell River AS-01	Artefact Scatter	✓	IA-4d	✓	✓	✕	✕
ML-007	Morwell River AS-02	Artefact Scatter	✓	IA-4d	✓	✓	✕	✕
ML-008	Morwell River LDAD-02	LDAD	✓	IA-6b	✓	✓	✕	✕
ML-009	Darlimurla LDAD-01	LDAD	✓	IA-6b	✓	✓	✕	✕
ML-010	Berrys Creek LDAD-01	LDAD	✓	IA-4f	✓	✓	✕	✕
ML-011	Kings Road LDAD-01	LDAD	✓	IA-6b	✓	✓	✕	✕
ML-012	Toomey Creek LDAD-01	LDAD	✓	IA-3d	✓	✓	✕	✕
ML-013	Tarwin River East Branch LDAD-01	LDAD	✓	IA-8	✓	✓	✕	✕
ML-014	Tarwin River East Branch LDAD-02	LDAD	✓	IA-3a and IA-4a	✓	✓	✕	✕
ML-015	Buffalo LDAD-01	LDAD	✓	IA-3b	✓	✓	✕	✕

The potential for 29 known tangible cultural heritage values to be impacted by the project is assessed in Section 7.

The beach dune landform (IA-2) at Waratah Bay was identified by First Peoples-State Relations and Traditional Owners during initial consultation as likely to be a culturally sensitive landform that may contain Ancestral Remains (see section 5.6 for further details). These views regarding IA-2 have been reiterated during subsequent consultation, and it is possible that IA-2 may be identified as an important Aboriginal cultural value once the CVA program has been completed.

6.5.3. Cultural value significance assessments

The significance of each of the 29 known tangible cultural heritage values to be included in the impact assessment was determined using the criteria and rating scales presented in Section 5.5.1. The overall significance rating determined for each cultural heritage value was derived as a cumulative score across four cultural heritage criteria (historical, scientific, social and spiritual). The assessment of each criterion for historical and Aboriginal cultural heritage places revisited or newly recorded during the 2022-2023 fieldwork program was based on the information collected during fieldwork, which in all cases included community interviews and/or direct field inspection. The assessment of each significance criterion for sites included on the VAHR prior to 2021 that could not be accessed during the 2022-2023 fieldwork program was based solely on the information presented in relevant site cards accessed via ACHRIS and/or reports referenced in Section 6.1.3.3, and assumed that cultural heritage recorded in those documents was still present.

Formal advice has not yet been obtained from the First Peoples groups consulted during the preparation of this report regarding the traditional significance of the Aboriginal cultural heritage values listed in Table 28. This information will be collected during the ongoing preparation of the CVAs referenced elsewhere in this report (still underway at the time of writing) and will be incorporated into cultural heritage significance assessments to be included in the two CHMPs currently being prepared for the project. In the absence of formal First Peoples advice, the significance assessment presented in Section 6.5.3 has adopted a view expressed by many First Peoples that all Aboriginal cultural heritage is highly significant, and for this reason the assessments determined for all Aboriginal cultural values against the social criterion were all rated as High (places or values which have a highly significant social connection for a cultural group at either the local and/or state and/or national level).

The 28 Aboriginal cultural heritage values included in the cultural heritage significance assessment are either archaeological artefact scatters or low-density artefact distributions. On this basis, all 28 values were uniformly rated as low against the historical criterion (places or values which are not associated with any known historical event, person or theme), and low against the spiritual criterion (places or values which do not appear to have any clear spiritual connection with a cultural group).

The only varying significance criterion for the 28 Aboriginal cultural heritage values is scientific significance, which is a function of content, condition and representativeness (Section 5.5.1). The rationale behind the assessment of each scientific sub-criterion against the 28 Aboriginal cultural heritage values included in the cultural heritage significance assessment is presented in Table 29.

The results of the cultural heritage values significance assessment are presented in Table 30.

Table 29: Aboriginal cultural heritage value scientific significance assessments

VAHR No. / Value ID	Content		Condition		Representativeness	
	Rating	Rationale	Rating	Rationale	Rating	Rationale
8120-0212	1	1x artefact	1	Surface context	1	Common occurrence
8120-0213	1	1x artefact	1	Surface context	1	Common occurrence
8120-0214	1	1x artefact	1	Surface context	1	Common occurrence
8121-0052	0	12x artefacts, all removed during original archaeological investigations. 0x artefacts observed during EES ground survey at this location	1	Surface (11x)/Subsurface (1x) contexts	2	Occasional occurrence
8121-0060	0	1x artefact recorded during original archaeological investigation. 0x artefacts observed during EES ground survey at this location	1	Surface context in road reserve	1	Common occurrence
8121-0061	0	1x artefact recorded during original archaeological investigation. 0x artefacts observed during EES ground survey at this location	1	Surface context in road cutting	1	Common occurrence
8121-0062-1	0	3x artefacts recorded during original archaeological investigation. 0x artefacts observed during EES ground survey at this location	1	Surface context in road reserve	1	Common occurrence
8121-0063	0	14x artefacts, mixed raw materials recorded during original archaeological investigation. 0x artefacts observed during EES ground survey at this location	1	Surface context in cut and graded road reserve, subsequent wind and water erosion	2	Occasional occurrence
8121-0068	0	8x artefacts, mixed raw materials, mixed artefact types recorded during original archaeological investigation. 0x artefacts observed during EES ground survey at this location	1	Surface context in road reserve	1	Common occurrence
8121-0069	0	4x artefacts, mixed raw materials, mixed artefact types recorded during original archaeological investigation. 0x artefacts observed during EES ground survey at this location	1	Surface context	1	Common occurrence
8121-0354	0	51x artefacts, mixed raw materials, mixed artefact types recorded during original archaeological investigation. 0x artefacts observed during EES ground survey at this location	1	Surface/Subsurface (shallow/disturbed) contexts	2	Occasional occurrence

VAHR No. / Value ID	Content		Condition		Representativeness	
	Rating	Rationale	Rating	Rationale	Rating	Rationale
8121-0398-1	2	101x artefacts, mixed raw materials, mixed artefact types	1	Surface context, deflation, sheet erosion and pondage wave wash	2	Occasional occurrence
8121-0399	2	60x artefacts, quarried ochre, mixed raw materials, mixed artefact types	1	Surface context, deflation, sheet erosion and pondage wave wash	2	Occasional occurrence
ML-001	1	15x artefacts	2	Subsurface context	2	Occasional occurrence
ML-002	1	20x artefacts	2	Subsurface context	2	Occasional occurrence
ML-003	1	10x artefacts	2	Subsurface context	1	Common occurrence
ML-004	1	11x artefacts	2	Subsurface context	1	Common occurrence
ML-005 / MRT 2	2	41x artefact, mixed raw materials, mixed artefact types	2	Surface/Subsurface contexts	2	Occasional occurrence
ML-006 / MRT 1	3	181x artefacts, mixed raw materials, mixed artefact types	2	Surface/Subsurface contexts	3	Rare occurrence
ML-007	1	16x artefacts	1	Surface context	2	Occasional occurrence
ML-008	2	54x artefacts, mixed raw materials, mixed artefact types	2	Surface/Subsurface contexts	2	Occasional occurrence
ML-009	1	5x artefacts	2	Surface/Subsurface contexts	1	Common occurrence
ML-010	1	1x artefact	1	Surface context	1	Common occurrence
ML-011	1	1x artefact	1	Surface context	1	Common occurrence
ML-012	1	1x artefact	2	Subsurface context	1	Common occurrence
ML-013	1	1x artefact	2	Subsurface context	1	Common occurrence
ML-014	1	20x artefacts, mixed raw materials, mixed artefact types	2	Subsurface context	2	Occasional occurrence
ML-015	1	10x artefacts	2	Subsurface context	1	Common occurrence

Table 30: Cultural heritage value significance assessments

Value ID	Value Name	Value Type	Significance Criteria								Rating
			Historical	Scientific					Social	Spiritual	
				Cont	Cond	Rep	Total	Score			
Historical cultural heritage values											
MR 1	Moores Road 1	Archaeological (brick cistern)	2	1	3	3	7	3	1	1	**7 (Moderate)**
Aboriginal cultural heritage values											
VAHR 8120-0212	Heywood 1	Archaeological (artefact scatter)	1	1	1	1	3	1	3	1	**6 (Low)**
VAHR 8120-0213	Heywood 2	Archaeological (artefact scatter)	1	1	1	1	3	1	3	1	**6 (Low)**
VAHR 8120-0214	Heywood 3	Archaeological (artefact scatter)	1	1	1	1	3	1	3	1	**6 (Low)**
VAHR 8121-0052	SMITHS ROAD 1	Archaeological (artefact scatter)	1	0	1	2	4	2	3	1	**6 (Low)**
VAHR 8121-0060	Mountain Hut Road 1	Archaeological (artefact scatter)	1	0	1	1	3	1	3	1	**5 (Low)**
VAHR 8121-0061	Mountain Hut Road 2	Archaeological (artefact scatter)	1	0	1	1	3	1	3	1	**5 (Low)**
VAHR 8121-0062-1	Kings Road Extension 1	Archaeological (LDAD)	1	0	1	1	3	1	3	1	**5 (Low)**
VAHR 8121-0063	Kings Road Track 1	Archaeological (LDAD)	1	0	1	2	4	2	3	1	**6 (Low)**
VAHR 8121-0068	Kings Rd Extension 2	Archaeological (LDAD)	1	0	1	1	3	1	3	1	**5 (Low)**
VAHR 8121-0069	Mountain Hut Rd 3	Archaeological (LDAD)	1	0	1	1	3	1	3	1	**5 (Low)**
VAHR 8121-0354	Strzelecki Highway 1	Archaeological (LDAD)	1	0	1	2	4	2	3	1	**6 (Low)**
VAHR 8121-0398-1	Eel Hole Creek 3	Archaeological (artefact scatter)	1	2	1	2	4	2	3	1	**7 (Moderate)**

Value ID	Value Name	Value Type	Significance Criteria								Rating
			Historical	Scientific					Social	Spiritual	
				Cont	Cond	Rep	Total	Score			
VAHR 8121-0399	Eel Hole Creek 4	Archaeological (artefact scatter/ochre quarry)	1	2	1	2	5	2	3	1	**7 (Moderate)**
ML-001	Eel Hole Creek LDAD-01	Archaeological (LDAD)	1	1	2	2	5	2	3	1	**7 (Moderate)**
ML-002	Eel Hole Creek AS-01	Archaeological (artefact scatter)	1	1	2	2	5	2	3	1	**7 (Moderate)**
ML-003	Eel Hole C reek LDAD-02	Archaeological (LDAD)	1	1	2	1	4	2	3	1	**7 (Moderate)**
ML-004	Eel Hole Creek LDAD-04	Archaeological (LDAD)	1	1	2	1	4	2	3	1	**7 (Moderate)**
ML-005 / MRT 2	Morwell River LDAD-01	Archaeological (LDAD)	1	2	2	2	6	2	3	1	**7 (Moderate)**
ML-006 / MRT 1	Morwell River AS-01	Archaeological (artefact scatter)	1	3	2	3	8	3	3	1	**8 (Moderate)**
ML-007	Morwell River AS-02	Archaeological (artefact scatter)	1	1	1	2	4	2	3	1	**7 (Moderate)**
ML-008	Morwell River LDAD-02	Archaeological (LDAD)	1	2	2	2	6	2	3	1	**7 (Moderate)**
ML-009	Darlimurla LDAD-01	Archaeological (LDAD)	1	1	2	1	4	2	3	1	**7 (Moderate)**

Value ID	Value Name	Value Type	Significance Criteria								Rating
			Historical	Scientific					Social	Spiritual	
				Cont	Cond	Rep	Total	Score			
ML-010	Berrys Creek LDAD-01	Archaeological (LDAD)	1	1	1	1	3	1	3	1	6 (Low)
ML-011	Kings Road LDAD-01	Archaeological (LDAD)	1	1	1	1	3	1	3	1	6 (Low)
ML-012	Toomey Creek LDAD-01	Archaeological (LDAD)	1	1	2	1	4	2	3	1	7 (Moderate)
ML-013	Tarwin River East Branch LDAD-01	Archaeological (LDAD)	1	1	2	1	4	2	3	1	7 (Moderate)
ML-014	Tarwin River East Branch LDAD-02	Archaeological (LDAD)	1	1	2	2	5	2	3	1	7 (Moderate)
ML-015	Buffalo LDAD-01	Archaeological (LDAD)	1	1	2	1	4	2	3	1	7 (Moderate)

7. Impact Assessment

Linear projects like Marinus Link have the potential to impact tangible and intangible cultural heritage values in a variety of ways:

- Direct disturbance of tangible cultural heritage places due to on-ground works including vegetation clearance, topsoil stripping, subsoil excavation and construction.
- Direct disturbance of tangible cultural heritage places due to the movement of project employees and contractors and their equipment (e.g., erosion, unauthorised removal of artefacts).
- Indirect physical impacts to cultural heritage places during construction and decommissioning through underground vibration impacts.
- Indirect impacts to historical cultural heritage places including built heritage, historic landscapes and conservation areas through aboveground impacts to their visual and/or landscape setting which diminish the cultural heritage significance of these values.
- Physical modifications to cultural landscapes that may result in damage to or destruction of tangible or intangible cultural values and their loss from living memory and, hence, from oral tradition.
- Disturbance to ecosystems through environmental impacts on landform and soils, water resources and hydrology, and biodiversity, which have the potential to affect the immediate utility and long-term viability of cultural heritage places and other tangible and/or intangible cultural heritage values that may be identified based on these extant systems (e.g., loss of access to certain flora or fauna that are critical to cultural practice).
- Restricted physical access of First Peoples and other communities to cultural heritage places due to project-related activities and operational requirements.

The impact assessment considered the baseline characterisation presented in Section 6 and the potential for project-related activities to directly impact known cultural heritage values within the study area defined in Section 5.2. The baseline assessment determined that these activities have the potential to impact one tangible historical cultural heritage value and 28 tangible Aboriginal cultural heritage values (Table 28), given that the archaeological sites either intersect the proposed project disturbance footprint or are located within 50 m of the proposed project disturbance footprint.

These direct impacts have the potential to affect cultural heritage values in the following ways:

- the loss of connection between people and their places of cultural value through the destruction or damage of a place or landscape
- the loss of information which could otherwise be gained by conducting research today
- the loss of the archaeological resource for future research using methods and addressing questions not available today; and
- the permanent loss of the physical record.

Although the focus of the impact assessments presented below will be on direct impacts to tangible historical and Aboriginal cultural heritage, indirect impacts to cultural heritage values may also occur, although these will be difficult to quantify in the case of unknown tangible or intangible cultural heritage

values. Indirect impacts are acknowledged and addressed under Residual Impacts in Sections 7.2, 7.3 and 7.4 and will be continually monitored and managed as an outcome of the Historical Heritage Management Plan (HHMP) proposed in Section 7.7, and ongoing discussions with FP-SR and the First Peoples groups during the preparation of CHMPs 18201 and 18244.

7.1. Assessment of Impact Significance

The significance of an impact on a cultural heritage value was determined according to the impact assessment matrix presented in Section 5.5.3, which assessed the:

- significance of an individual recorded cultural heritage value as a function of its historic, scientific, social and spiritual value
- magnitude of the impact of proposed project activities on the value, considering the severity, extent and duration of the impact.

The initial assessment of impact significance was based on a review of likely project-related impacts to cultural heritage values during the construction, operation and decommissioning of the project (Sections 4.2, 4.3 and 4.4 respectively). The specific activities that may result in impacts to cultural heritage values are assessed in detail in Sections 7.2 (construction), 7.3 (operation) and 7.4 (decommissioning).

7.2. Construction

7.2.1. Impact pathways

Project activities with a potential to impact on cultural heritage values during construction are listed in Table 31.

Table 31: Cultural heritage value impact pathways – Construction

Project Phase	Activity	Actions potentially impacting cultural heritage values
Construction	Shore crossing	• Excavation of HDD entry and exit pits
	Transition and Converter stations	• Vegetation removal • Ground surface levelling/benching • Hardstand/laydown preparation (soil stripping) • Foundation construction • Civil works/underground utility installations
	Land cables	• Vegetation removal • Topsoil stripping and stockpiling • Site establishment • Haul road construction • Cable trench excavation, duct installation, backfilling • Excavation of HDD entry and exit pits
	Access roads/tracks	• Vegetation removal • Topsoil stripping and stockpiling

Potential impacts to cultural heritage are associated with construction activities that will result in vegetation removal and disturbance of ground surfaces and/or subsurface deposits. This includes potential indirect impacts to subsurface archaeological structures including the Moores Road 1 brick cistern as a result of underground vibrations during construction.

The results of the unmanaged/unmitigated impact assessment on the 29 known cultural heritage values included in the construction impact assessment are presented in Table 33. Impact severity ratings ranged from medium to high and impact extent ratings ranged from low to medium depending on the location of the cultural heritage value in relation to the impact footprint. Impact duration ratings were uniformly assessed as being high (i.e., extending beyond the life of the project).

The overall significance of potential impacts to cultural heritage values was assessed as ranging from Low to High prior to management or mitigation.

Summary data on the distribution of construction impact significance ratings for known cultural heritage values broken down by value type is presented in Table 32. Twenty-nine cultural heritage values have the potential to be impacted by project-related activities during construction. Of these, prior to mitigation:

- 2 values (7%) are likely to experience a Low impact
- 11 values (38%) are likely to experience a Moderate impact
- 16 values (55%%) are likely to experience a High impact.

Table 32: Impact significance ratings by cultural heritage value type prior to management/mitigation – Construction

Impact Significance	Historical Site	Artefact Scatter	Artefact Scatter / Ochre Quarry	LDAD	Totals
Very Low	-	-	-	-	-
Low	-	1 (10%	-	1 (6%)	**2 (7%)**
Moderate	-	5 (50%)	-	6 (35%)	**11 (38%)**
High	1 (100%)	4 (40%)	1 (100%)	10 (59%)	**16 (55%)**
Major	-	-	-	-	-
Totals	**1 (100%)**	**10 (100%)**	**1 (100%)**	**17 (100%)**	**29 (100%)**

Potential measures to mitigate impacts to known and unknown cultural heritage values during the construction of the project are outlined in Table 34. The ability to avoid impacts to each known cultural heritage value was considered in light of the cultural heritage significance of the value and whether or not the value is situated within the project impact footprint. The impact assessment takes as its starting point an assumption that impacts to cultural heritage values located within the project impact footprint are unavoidable given the nature of the construction methodology.

Table 33: Impact assessment prior to management or mitigation (known cultural heritage values) – Construction

Value ID	Value Name	Value Type	Assessed during fieldwork program	Investigation Areas	Heritage present	Intersects impact footprint	<50m from impact footprint	>50m from impact footprint	Cultural Heritage Significance	Impact Severity	Impact Extent	Impact Duration	Impact Magnitude	Impact Significance
Historical cultural heritage values														
MR 1	Moores Road 1	Brick cistern	✓	IA-5	✓	✕	✓	✕	Moderate	Medium	Medium	High	Major	**High**
Aboriginal cultural heritage values														
VAHR 8120-0212	Heywood 1	Artefact scatter	✕	Not accessible	Not assessed	✓	✕	✕	Low	High	Medium	High	Major	**Moderate**
VAHR 8120-0213	Heywood 2	Artefact scatter	✕	Not accessible	Not assessed	✓	✕	✕	Low	High	Medium	High	Major	**Moderate**
VAHR 8120-0214	Heywood 3	Artefact scatter	✕	Not accessible	Not assessed	✓	✕	✕	Low	High	Medium	High	Major	**Moderate**
VAHR 8121-0052	SMITHS ROAD 1	Artefact scatter	✓	IA-6a	✕	✕	✓	✕	Low	Medium	Medium	High	Major	**Moderate**
VAHR 8121-0060	Mountain Hut Road 1	Artefact scatter	✓	IA-6a	✕	✕	✓	✕	Low	Medium	Medium	High	Major	**Moderate**
VAHR 8121-0061	Mountain Hut Road 2	Artefact scatter	✓	IA-6a	✕	✕	✕	✓	Low	Medium	Low	High	Moderate	**Low**
VAHR 8121-0062-1	Kings Road Extension 1	LDAD	✓	IA-6a	✕	✕	✓	✕	Low	Medium	Medium	High	Major	**Moderate**
VAHR 8121-0063	Kings Road Track 1	LDAD	✓	IA-6a	✕	✓	✕	✕	Low	High	Medium	High	Major	**Moderate**
VAHR 8121-0068	Kings Rd Extension 2	LDAD	✓	IA-6a	✕	✕	✓	✕	Low	Medium	Medium	High	Major	**Moderate**
VAHR 8121-0069	Mountain Hut Rd 3	LDAD	✓	IA-6a	✕	✕	✕	✓	Low	Medium	Low	High	Moderate	**Low**
VAHR 8121-0354	Strzelecki Highway 1	LDAD	✓	IA-6a	✕	✓	✓	✕	Low	High	Medium	High	Major	**Moderate**
VAHR 8121-0398	Eel Hole Creek 3	Artefact scatter	✕	IA-4c	Not assessed	✓	✕	✕	Moderate	High	Medium	High	Major	**High**
VAHR 8121-0399	Eel Hole Creek 4	Artefact scatter/Ochre quarry	✕	IA-4c	Not assessed	✓	✕	✕	Moderate	High	Medium	High	Major	**High**
ML-001	Eel Hole Creek LDAD-01	LDAD	✓	IA-4c	✓	✓	✕	✕	Moderate	High	Medium	High	Major	**High**
ML-002	Eel Hole Creek AS-01	Artefact Scatter	✓	IA-7a	✓	✓	✕	✕	Moderate	High	Medium	High	Major	**High**
ML-003	Eel Hole Creek LDAD-02	LDAD	✓	IA-7a	✓	✓	✕	✕	Moderate	High	Medium	High	Major	**High**
ML-004	Eel Hole Creek LDAD-04	LDAD	✓	IA-6b	✓	✓	✕	✕	Moderate	High	Medium	High	Major	**High**
ML-005 / MRT 2	Morwell River LDAD-01	LDAD	✓	IA-4d / IA-5	✓	✓	✕	✕	Moderate	High	Medium	High	Major	**High**
ML-006 / MRT 1	Morwell River AS-01	Artefact Scatter	✓	IA-4d	✓	✓	✕	✕	Moderate	High	Medium	High	Major	**High**
ML-007	Morwell River AS-02	Artefact Scatter	✓	IA-4d	✓	✓	✕	✕	Moderate	High	Medium	High	Major	**High**

Value ID	Value Name	Value Type	Assessed during fieldwork program	Investigation Areas	Heritage present	Intersects impact footprint	<50m from impact footprint	>50m from impact footprint	Cultural Heritage Significance	Impact Severity	Impact Extent	Impact Duration	Impact Magnitude	Impact Significance
ML-008	Morwell River LDAD-02	LDAD	✓	IA-6b	✓	✓	✕	✕	Moderate	High	Medium	High	Major	High
ML-009	Darlimurla LDAD-01	LDAD	✓	IA-6b	✓	✓	✕	✕	Moderate	High	Medium	High	Major	High
ML-010	Berrys Creek LDAD-01	LDAD	✓	IA-4f	✓	✓	✕	✕	Low	High	Medium	High	Major	Moderate
ML-011	Kings Road LDAD-01	LDAD	✓	IA-6b	✓	✓	✕	✕	Low	High	Medium	High	Major	Moderate
ML-012	Toomey Creek LDAD-01	LDAD	✓	IA-3d	✓	✓	✕	✕	Moderate	High	Medium	High	Major	High
ML-013	Tarwin River East Branch LDAD-01	LDAD	✓	IA-8	✓	✓	✕	✕	Moderate	High	Medium	High	Major	High
ML-014	Tarwin River East Branch LDAD-02	LDAD	✓	IA-3a / IA-4a	✓	✓	✕	✕	Moderate	High	Medium	High	Major	High
ML-015	Buffalo LDAD-01	LDAD	✓	IA-3b	✓	✓	✕	✕	Moderate	High	Medium	High	Major	High

Table 34: Potential impact management/mitigation measures – Construction

Value ID	Value Name	Value Type	Intersects impact footprint	<50m from impact footprint	>50m from impact footprint	Cultural Heritage Significance	Impact Significance	Potential Management/Mitigation Measures
Historical cultural heritage values								
MR 1	Moores Road 1	Brick cistern	✕	✓	✕	Moderate	Moderate	Prior to construction commencing at this location: • Confirmation of the site's boundary by an archaeologist, including the underground portion of the cistern. • Erection of a suitable barrier • The requirement for appropriate contractor induction to communicate the protections, requirements and the Unexpected Finds Protocol prior to commencing works. During construction at this location: • Reference to this site protection strategy in daily toolbox meetings when working in the vicinity of the site. • Monitor underground vibrations at the location of the site and ensure they are within acceptable levels that will not adversely impact the fabric or integrity of the cistern. • Comply with site-specific management requirements specified in a HHMP to be developed for the project (see EPR CH01).
Aboriginal cultural heritage values								
VAHR 8120-0212	Heywood 1	Artefact scatter	✓	✕	✕	Low	Moderate	Prior to construction commencing at this location: • Inspection of the location of VAHR 8120-0212 by a qualified archaeologist and collection of all visible surface artefacts within the place extent, consistent with the methods prescribed under relevant CHMP management conditions. During construction, operation and decommissioning at this location: • Comply with relevant CHMP contingencies.
VAHR 8120-0213	Heywood 2	Artefact scatter	✓	✕	✕	Low	Moderate	Prior to construction commencing at this location: • Inspection of the location of VAHR 8120-0213 by a qualified archaeologist and collection of all visible surface artefacts within the place extent, consistent with the methods prescribed under relevant CHMP management conditions. During construction, operation and decommissioning at this location: • Comply with relevant CHMP contingencies.

Value ID	Value Name	Value Type	Intersects impact footprint	<50m from impact footprint	>50m from impact footprint	Cultural Heritage Significance	Impact Significance	Potential Management/Mitigation Measures
VAHR 8120-0214	Heywood 3	Artefact scatter	✓	✕	✕	Low	Moderate	Prior to construction commencing at this location: • Inspection of the location of VAHR 8120-0214 by a qualified archaeologist and collection of all visible surface artefacts within the place extent, consistent with the methods prescribed under relevant CHMP management conditions. During construction, operation and decommissioning at this location: • Comply with relevant CHMP contingencies.
VAHR 8121-0052	SMITHS ROAD 1	Artefact scatter	✕	✓	✕	Low	Moderate	Prior to construction commencing, and during construction, operation, and decommissioning: • Comply with relevant CHMP site-specific management conditions. • Comply with relevant CHMP contingencies.
VAHR 8121-0060	Mountain Hut Road 1	Artefact scatter	✕	✓	✕	Low	Moderate	Prior to construction commencing, and during construction, operation, and decommissioning: • Comply with relevant CHMP site-specific management conditions. • Comply with relevant CHMP contingencies.
VAHR 8121-0061	Mountain Hut Road 2	Artefact scatter	✕	✕	✓	Low	Moderate	Prior to construction commencing, and during construction, operation, and decommissioning: • Comply with relevant CHMP site-specific management conditions. • Comply with relevant CHMP contingencies.
VAHR 8121-0062-1	Kings Road Extension 1	LDAD	✕	✓	✕	Low	Moderate	Prior to construction commencing, and during construction, operation, and decommissioning: • Comply with relevant CHMP site-specific management conditions. • Comply with relevant CHMP contingencies.
VAHR 8121-0063	Kings Road Track 1	LDAD	✓	✕	✕	Low	Moderate	Prior to construction commencing, and during construction, operation, and decommissioning: • Comply with relevant CHMP site-specific management conditions. • Comply with relevant CHMP contingencies.
VAHR 8121-0068	Kings Rd Extension 2	LDAD	✕	✓	✕	Low	Moderate	Prior to construction commencing, and during construction, operation, and decommissioning: • Comply with relevant CHMP site-specific management conditions. • Comply with relevant CHMP contingencies.
VAHR 8121-0069	Mountain Hut Rd 3	LDAD	✕	✕	✓	Low	Moderate	Prior to construction commencing, and during construction, operation, and decommissioning: • Comply with relevant CHMP site-specific management conditions. • Comply with relevant CHMP contingencies.
VAHR 8121-0354	Strzelecki Highway 1	LDAD	✓	✓	✕	Low	Moderate	Prior to construction commencing, and during construction, operation, and decommissioning: • Comply with relevant CHMP site-specific management conditions. • Comply with relevant CHMP contingencies.
VAHR 8121-0398-1	Eel Hole Creek 3	Artefact scatter	✓	✕	✕	Moderate	High	Prior to construction commencing at this location: • Inspection of the location of VAHR 8121-0398-1 by a qualified archaeologist and collection of all visible surface artefacts within the place extent, consistent with the methods prescribed under relevant CHMP management conditions. • Salvage excavation consistent with the methods prescribed under relevant CHMP management conditions. During construction, operation and decommissioning: • Comply with relevant CHMP contingencies.
VAHR 8121-0399	Eel Hole Creek 4	Artefact scatter/Ochre quarry	✓	✕	✕	Moderate	High	Prior to construction commencing at this location: • Inspection of the location of VAHR 8121-0399 by a qualified archaeologist and collection of all visible surface artefacts within the place extent, consistent with the methods prescribed under relevant CHMP management conditions. • Salvage excavation consistent with the methods prescribed under relevant CHMP management conditions. During construction, operation and decommissioning at this location:

Value ID	Value Name	Value Type	Intersects impact footprint	<50m from impact footprint	>50m from impact footprint	Cultural Heritage Significance	Impact Significance	Potential Management/Mitigation Measures
								• Comply with relevant CHMP contingencies.
ML-001	Eel Hole Creek LDAD-01	LDAD	✓	✕	✕	Moderate	High	Excavated as a subsurface LDAD during CHMP fieldwork: • Comply with relevant CHMP site-specific management conditions. • Comply with relevant CHMP contingencies.
ML-002	Eel Hole Creek AS-01	Artefact Scatter	✓	✕	✕	Moderate	High	Prior to construction commencing at this location: • Inspection of the location of ML-002 by a qualified archaeologist and collection of all visible surface artefacts within the place extent, consistent with the methods prescribed under relevant CHMP management conditions. • Salvage excavation consistent with the methods prescribed under relevant CHMP management conditions. During construction, operation and decommissioning at this location: • Comply with relevant CHMP contingencies.
ML-003	Eel Hole C reek LDAD-02	LDAD	✓	✕	✕	Moderate	High	Excavated as a subsurface LDAD during CHMP fieldwork: • Comply with relevant CHMP site-specific management conditions. • Comply with relevant CHMP contingencies.
ML-004	Eel Hole Creek LDAD-04	LDAD	✓	✕	✕	Moderate	High	Excavated as a subsurface LDAD during CHMP fieldwork: • Comply with relevant CHMP site-specific management conditions. • Comply with relevant CHMP contingencies.
ML-005 / MRT 2	Morwell River LDAD-01	LDAD	✓	✕	✕	Moderate	High	Excavated as a subsurface LDAD during CHMP fieldwork: • Comply with relevant CHMP site-specific management conditions. • Comply with relevant CHMP contingencies.
ML-006 / MRT 1	Morwell River AS-01	Artefact Scatter	✓	✕	✕	Moderate	High	Prior to construction commencing at this location: • Inspection of the location of ML-006/MRT 1 by a qualified archaeologist and collection of all visible surface artefacts within the place extent, consistent with the methods prescribed under relevant CHMP management conditions. • Salvage excavation consistent with the methods prescribed under relevant CHMP management conditions. During construction, operation and decommissioning at this location: • Comply with relevant CHMP contingencies.
ML-007	Morwell River AS-02	Artefact Scatter	✓	✕	✕	Moderate	High	Prior to construction commencing at this location: • Inspection of the location ML-007 by a qualified archaeologist and collection of all visible surface artefacts within the place extent, consistent with the methods prescribed under relevant CHMP management conditions. • Salvage excavation consistent with the methods prescribed under relevant CHMP management conditions. During construction, operation and decommissioning at this location: • Comply with relevant CHMP contingencies.
ML-008	Morwell River LDAD-02	LDAD	✓	✕	✕	Moderate	High	Prior to construction commencing at this location: • Inspection of the location of ML-008 by a qualified archaeologist and collection of all visible surface artefacts within the place extent, consistent with the methods prescribed under relevant CHMP management conditions. • Salvage excavation consistent with the methods prescribed under relevant CHMP management conditions. During construction, operation and decommissioning at this location: • Comply with relevant CHMP contingencies.
ML-009	Darlimurla LDAD-01	LDAD	✓	✕	✕	Moderate	High	Prior to construction commencing at this location:

Value ID	Value Name	Value Type	Intersects impact footprint	<50m from impact footprint	>50m from impact footprint	Cultural Heritage Significance	Impact Significance	Potential Management/Mitigation Measures
								• Inspection of the location of ML-009 by a qualified archaeologist and collection of all visible surface artefacts within the place extent, consistent with the methods prescribed under relevant CHMP management conditions. During construction, operation and decommissioning at this location: • Comply with relevant CHMP contingencies.
ML-010	Berrys Creek LDAD-01	LDAD	✓	✕	✕	Low	Moderate	Prior to construction commencing at this location: • Inspection of the location of ML-010 by a qualified archaeologist and collection of all visible surface artefacts within the place extent, consistent with the methods prescribed under relevant CHMP management conditions. During construction, operation and decommissioning at this location: • Comply with relevant CHMP contingencies.
ML-011	Kings Road LDAD-01	LDAD	✓	✕	✕	Low	Moderate	Prior to construction commencing at this location: • Inspection of the location of ML-011 by a qualified archaeologist and collection of all visible surface artefacts within the place extent, consistent with the methods prescribed under relevant CHMP management conditions. During construction, operation and decommissioning at this location: • Comply with relevant CHMP contingencies.
ML-012	Toomey Creek LDAD-01	LDAD	✓	✕	✕	Moderate	High	Excavated as a subsurface LDAD during CHMP fieldwork: • Comply with relevant CHMP site-specific management conditions. • Comply with relevant CHMP contingencies.
ML-013	Tarwin River East Branch LDAD-01	LDAD	✓	✕	✕	Moderate	High	Excavated as a subsurface LDAD during CHMP fieldwork: • Comply with relevant CHMP site-specific management conditions. • Comply with relevant CHMP contingencies.
ML-014	Tarwin River East Branch LDAD-02	LDAD	✓	✕	✕	Moderate	High	Excavated as a subsurface LDAD during CHMP fieldwork: • Comply with relevant CHMP site-specific management conditions. • Comply with relevant CHMP contingencies.
ML-015	Buffalo LDAD-01	LDAD	✓	✕	✕	Moderate	High	Excavated as a subsurface LDAD during CHMP fieldwork: • Comply with relevant CHMP site-specific management conditions. • Comply with relevant CHMP contingencies.

7.2.2. Environment Performance Requirements

Compliance with EPRs that will reduce the significance of impacts to historical and Aboriginal cultural heritage values during construction of the project are listed in Table 35.

Table 35: Cultural heritage EPRs – Construction

EPR ID	Environmental Performance Requirement
CH01	Develop and implement a historical heritage management plan to avoid and minimise impacts to historical cultural heritage values
CH02	Comply with the Cultural Heritage Management Plans (CHMPs) 18201 and 18244
CH03	Develop a cultural values assessment for land and sea Country with First Peoples
EM08	Develop and implement a strategy for ongoing engagement with First Peoples
NV02	Develop and implement a construction noise and vibration management plan

7.2.3. Residual impacts

Residual impacts are those potential impacts that remain after the implementation of the recommended management measures described above. The results of a residual impact assessment on each of the 29 known cultural heritage values identified as likely to be impacted by the project during construction are presented in Table 36.

Residual impact severity ratings were reduced to either low or nil, residual impact extent ratings were reduced to either medium or nil and residual duration ratings were reduced to nil or remained at high depending on the location of the cultural heritage value in relation to the impact footprint. The residual impact assessment assumed that cultural heritage values not intersecting the impact footprint will not be impacted during construction.

In every instance where a known cultural heritage value will be impacted by the project during construction, the application of the recommended management and mitigation measures should reduce the significance of the impact by at least one rating level. The net result is that:

- 15 known cultural heritage values (52%) will experience an impact rated as Moderate
- seven known cultural heritage values (24%) will experience impacts rated as Low
- seven known cultural heritage value (24%) will not experience any impacts at all.

Summary information on the impact ratings for known cultural heritage values before and after the application of the potential management and mitigation measures during project construction is presented in Table 37.

Table 36: Residual impact assessment – Construction

Value ID	Value Name	Value Type	Intersects impact footprint	<50m from impact footprint	>50m from impact footprint	Cultural Heritage Significance	Impact Magnitude	Impact Significance	Residual Impact Severity	Residual Impact Extent	Residual Impact Duration	Residual Impact Magnitude	Residual Impact Significance
Historical cultural heritage values													
MR 1	Moores Road 1	Brick cistern	✕	✓	✕	Moderate	Major	High	Nil	Nil	Nil	Nil	Nil
Aboriginal cultural heritage values													
VAHR 8120-0212	Heywood 1	Artefact scatter	✓	✕	✕	Low	Major	Moderate	Low	Medium	High	Moderate	Low
VAHR 8120-0213	Heywood 2	Artefact scatter	✓	✕	✕	Low	Major	Moderate	Low	Medium	High	Moderate	Low
VAHR 8120-0214	Heywood 3	Artefact scatter	✓	✕	✕	Low	Major	Moderate	Low	Medium	High	Moderate	Low
VAHR 8121-0052	SMITHS ROAD 1	Artefact scatter	✕	✓	✕	Low	Major	Moderate	Nil	Nil	Nil	Nil	Nil
VAHR 8121-0060	Mountain Hut Road 1	Artefact scatter	✕	✓	✕	Low	Major	Moderate	Nil	Nil	Nil	Nil	Nil
VAHR 8121-0061	Mountain Hut Road 2	Artefact scatter	✕	✕	✓	Low	Moderate	Low	Nil	Nil	Nil	Nil	Nil
VAHR 8121-0062-1	Kings Road Extension 1	LDAD	✕	✓	✕	Low	Major	Moderate	Nil	Nil	Nil	Nil	Nil
VAHR 8121-0063	Kings Road Track 1	LDAD	✓	✕	✕	Low	Major	Moderate	Low	Medium	High	Moderate	Low
VAHR 8121-0068	Kings Rd Extension 2	LDAD	✕	✓	✕	Low	Major	Moderate	Nil	Nil	Nil	Nil	Nil
VAHR 8121-0069	Mountain Hut Rd 3	LDAD	✕	✕	✓	Low	Moderate	Low	Nil	Nil	Nil	Nil	Nil
VAHR 8121-0354	Strzelecki Highway 1	LDAD	✓	✓	✕	Low	Major	Moderate	Low	Medium	High	Moderate	Low
VAHR 8121-0398	Eel Hole Creek 3	Artefact scatter	✓	✕	✕	Moderate	Major	High	Low	Medium	High	Moderate	Moderate
VAHR 8121-0399	Eel Hole Creek 4	Artefact scatter/Ochre quarry	✓	✕	✕	Moderate	Major	High	Low	Medium	High	Moderate	Moderate
ML-001	Eel Hole Creek LDAD-01	LDAD	✓	✕	✕	Moderate	Major	High	Low	Low	High	Moderate	Moderate
ML-002	Eel Hole Creek AS-01	Artefact Scatter	✓	✕	✕	Moderate	Major	High	Low	Medium	High	Moderate	Moderate
ML-003	Eel Hole C reek LDAD-02	LDAD	✓	✕	✕	Moderate	Major	High	Low	Low	High	Moderate	Moderate
ML-004	Eel Hole Creek LDAD-04	LDAD	✓	✕	✕	Moderate	Major	High	Low	Low	High	Moderate	Moderate
ML-005 / MRT 2	Morwell River LDAD-01	LDAD	✓	✕	✕	Moderate	Major	High	Low	Low	High	Moderate	Moderate
ML-006 / MRT 1	Morwell River AS-01	Artefact Scatter	✓	✕	✕	Moderate	Major	High	Low	Medium	High	Moderate	Moderate
ML-007	Morwell River AS-02	Artefact Scatter	✓	✕	✕	Moderate	Major	High	Low	Medium	High	Moderate	Moderate

Value ID	Value Name	Value Type	Intersects impact footprint	<50m from impact footprint	>50m from impact footprint	Cultural Heritage Significance	Impact Magnitude	Impact Significance	Residual Impact Severity	Residual Impact Extent	Residual Impact Duration	Residual Impact Magnitude	Residual Impact Significance
ML-008	Morwell River LDAD-02	LDAD	✓	✕	✕	Moderate	Major	High	Low	Medium	High	Moderate	Moderate
ML-009	Darlimurla LDAD-01	LDAD	✓	✕	✕	Moderate	Major	High	Low	Medium	High	Moderate	Moderate
ML-010	Berrys Creek LDAD-01	LDAD	✓	✕	✕	Low	Major	Moderate	Low	Medium	High	Moderate	Low
ML-011	Kings Road LDAD-01	LDAD	✓	✕	✕	Low	Major	Moderate	Low	Medium	High	Moderate	Low
ML-012	Toomey Creek LDAD-01	LDAD	✓	✕	✕	Moderate	Major	High	Low	Low	High	Moderate	Moderate
ML-013	Tarwin River East Branch LDAD-01	LDAD	✓	✕	✕	Moderate	Major	High	Low	Low	High	Moderate	Moderate
ML-014	Tarwin River East Branch LDAD-02	LDAD	✓	✕	✕	Moderate	Major	High	Low	Low	High	Moderate	Moderate
ML-015	Buffalo LDAD-01	LDAD	✓	✕	✕	Moderate	Major	High	Low	Low	High	Moderate	Moderate

Table 37: Residual impact assessment summary – Construction

Impact Significance	No. of values before implementation of potential management measures	No. of values after implementation of potential management measures
Nil	-	7 (24%)
Very Low	-	
Low	2 (7%)	7 (24%)
Moderate	11 (38%)	15 (52%)
High	16 (55%)	-
Major	-	-

There remains a potential for residual impacts to unknown Aboriginal cultural heritage values, including intangible cultural values. Residual impacts to high significance cultural values, such as Aboriginal Ancestral Remains, are unlikely as these have not been identified within the study area to date, and landforms with a higher sensitivity for the presence of Aboriginal Ancestral Remains such as beach dunes and river terraces are rarely intersected by the project and in most instances will be underbored using horizontal directional drilling.

The preparation of CHMPs that will be approved by GLaWAC and FP-SR (EPR CH02), along with the implementation of appropriate management conditions and contingency responses to the discovery of new tangible or intangible Aboriginal cultural heritage values during the construction of the project will manage these risks and ensure that if impacts do occur, they will be minimised.

Although only a single historical site (Moores Road 1, comprising a brick cistern) was identified within the study area, there is a possibility of additional unidentified archaeological features associated with the cistern being present in the vicinity of the site. Furthermore, the archaeological ground survey undertaken during the preparation of the baseline assessment was able to access only 43.7% of the total study area (Table 27), and on this basis there is a potential for impacts to unknown historical cultural heritage values. However, these impacts will mostly be restricted to subsurface archaeological deposits given that the majority of the unsurveyed portion of the study area intersects open farmland or forest plantation that is unlikely to contain aboveground built heritage. The preparation of a HHMP in consultation with HV (EPR CH01), along with the implementation of appropriate contingency responses to the discovery of new historical cultural heritage during the construction of the project, will manage these risks and ensure that if impacts do occur, they will be minimised.

7.3. Operation

7.3.1. Impact pathways

Project activities with a potential to impact on cultural heritage values during operation are listed in Table 38. Potential impacts to cultural heritage values are associated with weed control and vehicle track maintenance, although these should be negligible if the works are confined to the construction impact footprint.

Table 38: Cultural heritage value impact pathways – Operation

Project Phase	Activity	Actions potentially impacting cultural heritage values
Operation	Transition/converter stations	• Access road maintenance
	Land cable easement	• Weed control

It is important to note that:

- surface salvage collections and/or subsurface salvage excavations are not intended to recover 100% of the Aboriginal cultural heritage material that is present within a known Aboriginal cultural heritage place; some of the cultural heritage may still be present.
- Even if 100% salvage does occur, an Aboriginal cultural heritage place is still protected under the *Aboriginal Heritage Act 2006* (Vic) and remains on the VAHR if it has been registered.

The implications of this are that even though the construction-phase management and mitigation measures listed in Table 34 are fully implemented, there still remains a potential for the operation of the project to impact on Aboriginal cultural values.

The results of the unmanaged/unmitigated impact assessment on the 29 known cultural heritage values included in the operation impact assessment are presented in Table 39. Impact severity and extent were both rated as low and impact duration was rated as high for all cultural heritage values intersecting the project impact footprint, based on the assumption that the contents and extents of these places will have been previously impacted during construction. Impact severity, extent and duration ratings for all cultural heritage values not intersecting the project footprint assumed that impacts to these places were largely avoided during construction, and so were kept the same as the ratings applied in the pre-management/mitigation construction impact assessment.

The overall significance of potential impacts to cultural heritage values was assessed as ranging from Low to High prior to management or mitigation. Summary data on the distribution of operational impact significance ratings for known cultural heritage values broken down by value type is presented in Table 40. Twenty-nine cultural heritage values have the potential to be impacted by project-related activities during operation. Of these, prior to mitigation:

- nine values (31%) are likely to experience a Low impact
- 19 values (65%) are likely to experience a Moderate impact
- one value (4%) are likely to experience a High impact.

Table 39: Impact assessment prior to management or mitigation (known cultural heritage values) – Operation

Value ID	Value Name	Value Type	Assessed during fieldwork program	IA	Heritage present	Intersects impact footprint	<50m from impact footprint	>50m from impact footprint	Cultural Heritage Significance	Impact Severity	Impact Extent	Impact Duration	Impact Magnitude	Impact Significance
Historical cultural heritage values														
MR 1	Moores Road 1	Brick cistern	✓	IA-5	✓	✕	✓	✕	Moderate	Medium	Medium	High	Major	**High**
Aboriginal cultural heritage values														
VAHR 8120-0212	Heywood 1	Artefact scatter	✕	Not accessible	Not assessed	✓	✕	✕	Low	Low	Low	High	Moderate	**Low**
VAHR 8120-0213	Heywood 2	Artefact scatter	✕	Not accessible	Not assessed	✓	✕	✕	Low	Low	Low	High	Moderate	**Low**
VAHR 8120-0214	Heywood 3	Artefact scatter	✕	Not accessible	Not assessed	✓	✕	✕	Low	Low	Low	High	Moderate	**Low**
VAHR 8121-0052	SMITHS ROAD 1	Artefact scatter	✓	IA-6a	✕	✕	✓	✕	Low	Medium	Medium	High	Major	**Moderate**
VAHR 8121-0060	Mountain Hut Road 1	Artefact scatter	✓	IA-6a	✕	✕	✓	✕	Low	Medium	Medium	High	Major	**Moderate**
VAHR 8121-0061	Mountain Hut Road 2	Artefact scatter	✓	IA-6a	✕	✕	✕	✓	Low	Medium	Low	High	Moderate	**Low**
VAHR 8121-0062-1	Kings Road Extension 1	LDAD	✓	IA-6a	✕	✕	✓	✕	Low	Medium	Medium	High	Major	**Moderate**
VAHR 8121-0063	Kings Road Track 1	LDAD	✓	IA-6a	✕	✓	✕	✕	Low	Low	Low	High	Moderate	**Low**
VAHR 8121-0068	Kings Rd Extension 2	LDAD	✓	IA-6a	✕	✕	✓	✕	Low	Medium	Medium	High	Major	**Moderate**
VAHR 8121-0069	Mountain Hut Rd 3	LDAD	✓	IA-6a	✕	✕	✕	✓	Low	Medium	Low	High	Moderate	**Low**
VAHR 8121-0354	Strzelecki Highway 1	LDAD	✓	IA-6a	✕	✓	✓	✕	Low	Low	Low	High	Moderate	**Low**
VAHR 8121-0398	Eel Hole Creek 3	Artefact scatter	✕	IA-4c	Not assessed	✓	✕	✕	Moderate	Low	Low	High	Moderate	**Moderate**
VAHR 8121-0399	Eel Hole Creek 4	Artefact scatter/Ochre quarry	✕	IA-4c	Not assessed	✓	✕	✕	Moderate	Low	Low	High	Moderate	**Moderate**
ML-001	Eel Hole Creek LDAD-01	LDAD	✓	IA-4c	✓	✓	✕	✕	Moderate	Low	Low	High	Moderate	**Moderate**
ML-002	Eel Hole Creek AS-01	Artefact Scatter	✓	IA-7a	✓	✓	✕	✕	Moderate	Low	Low	High	Moderate	**Moderate**
ML-003	Eel Hole C reek LDAD-02	LDAD	✓	IA-7a	✓	✓	✕	✕	Moderate	Low	Low	High	Moderate	**Moderate**
ML-004	Eel Hole Creek LDAD-04	LDAD	✓	IA-6b	✓	✓	✕	✕	Moderate	Low	Low	High	Moderate	**Moderate**
ML-005 / MRT 2	Morwell River LDAD-01	LDAD	✓	IA-4d / IA-5	✓	✓	✕	✕	Moderate	Low	Low	High	Moderate	**Moderate**
ML-006 / MRT 1	Morwell River AS-01	Artefact Scatter	✓	IA-4d	✓	✓	✕	✕	Moderate	Low	Low	High	Moderate	**Moderate**
ML-007	Morwell River AS-02	Artefact Scatter	✓	IA-4d	✓	✓	✕	✕	Moderate	Low	Low	High	Moderate	**Moderate**
ML-008	Morwell River LDAD-02	LDAD	✓	IA-6b	✓	✓	✕	✕	Moderate	Low	Low	High	Moderate	**Moderate**
ML-009	Darlimurla LDAD-01	LDAD	✓	IA-6b	✓	✓	✕	✕	Moderate	Low	Low	High	Moderate	**Moderate**
ML-010	Berrys Creek LDAD-01	LDAD	✓	IA-4f	✓	✓	✕	✕	Low	Low	Low	High	Moderate	**Low**
ML-011	Kings Road LDAD-01	LDAD	✓	IA-6b	✓	✓	✕	✕	Low	Low	Low	High	Moderate	**Low**

Value ID	Value Name	Value Type	Assessed during fieldwork program	IA	Heritage present	Intersects impact footprint	<50m from impact footprint	>50m from impact footprint	Cultural Heritage Significance	Impact Severity	Impact Extent	Impact Duration	Impact Magnitude	Impact Significance
ML-012	Toomey Creek LDAD-01	LDAD	✓	IA-3d	✓	✓	✕	✕	Moderate	Low	Low	High	Moderate	**Moderate**
ML-013	Tarwin River East Branch LDAD-01	LDAD	✓	IA-8	✓	✓	✕	✕	Moderate	Low	Low	High	Moderate	**Moderate**
ML-014	Tarwin River East Branch LDAD-02	LDAD	✓	IA-3a / IA-4a	✓	✓	✕	✕	Moderate	Low	Low	High	Moderate	**Moderate**
ML-015	Buffalo LDAD-01	LDAD	✓	IA-3b	✓	✓	✕	✕	Moderate	Low	Low	High	Moderate	**Moderate**

Table 40: Impact significance ratings by cultural heritage value type prior to management/mitigation – Operation

Impact Significance	Historical Site	Artefact Scatter	Artefact Scatter / Ochre Quarry	LDAD	Totals
Nil	-	-	-	-	-
Very Low	-	-	-	-	-
Low	-	4 (40%)		5 (29%)	9 (31%)
Moderate	-	6 (60%)	1 (100%)	12 (71%)	19 (65%)
High	1 (100%)	-	-	-	1 (4%)
Major	-	-	-	-	-
Totals	**1 (100%)**	**10 (100%)**	**1 (100%)**	**17 (100%)**	**29 (100%**

Potential measures to either manage or mitigate impacts to known and unknown cultural heritage values during the operation of the project are outlined in Table 42.

7.3.2. Environment Performance Requirements

EPRs that will reduce the significance of impacts to historical and Aboriginal cultural heritage values during the operation of the project are listed in Table 41.

Table 41: Cultural heritage EPRs – Operation

EPR ID	Environmental Performance Requirement
EM08	Develop and implement a strategy for ongoing engagement with First Peoples
CH01	Develop and implement a historical heritage management plan to avoid and minimise impacts to historical cultural heritage values.
CH02	Comply with the Cultural Heritage Management Plans (CHMPs) 18201 and 18244.
CH03	Develop a cultural values assessment for land and sea country with First Peoples.

7.3.3. Residual impacts

The results of a residual impact assessment on each of the 29 known cultural heritage values with a potential to be impacted during the operation of the project are presented in Table 43. Residual impact severity ratings were reduced to either low or nil and residual impact extent and duration ratings were reduced to either medium or nil depending on the location of the cultural heritage value in relation to the impact footprint. The residual impact assessment assumed that cultural heritage values not intersecting the impact footprint will not be impacted during operation.

The residual impact assessment identified nine instances where the residual impact rating is reduced by at least one rating level after the application of the recommended operation management and mitigation measures. The net result is that:

- 15 known cultural heritage values (52%) will experience an impact rated as Moderate
- seven known cultural heritage values (24%) will experience impacts rated as Low
- seven known cultural heritage value (24%) will not experience any impacts at all.

Table 42: Potential impact management/mitigation measures – Operation

Value ID	Value Name	Value Type	Intersects impact footprint	<50m from impact footprint	>50m from impact footprint	Cultural Heritage Significance	Impact Significance	Potential Management/Mitigation Measures
Historical cultural heritage values								
MR 1	Moores Road 1	Brick cistern	✗	✓	✗	Moderate	Low	During operations at this location: • Confirmation of the site's boundary by an archaeologist. • Erection of a suitable barrier. • Cultural awareness training to prevent access by project employees and contractors. • Comply with the requirements specified in the HHMP.
Aboriginal cultural heritage values								
VAHR 8120-0212	Heywood 1	Artefact scatter	✓	✗	✗	Low	Very Low	During operations at this location: • Comply with the management conditions and contingencies included in the relevant approved CHMP.
VAHR 8120-0213	Heywood 2	Artefact scatter	✓	✗	✗	Low	Very Low	During operations at this location: • Comply with the management conditions and contingencies included in the relevant approved CHMP.
VAHR 8120-0214	Heywood 3	Artefact scatter	✓	✗	✗	Low	Very Low	During operations at this location: • Comply with the management conditions and contingencies included in the relevant approved CHMP.
VAHR 8121-0052	SMITHS ROAD 1	Artefact scatter	✗	✓	✗	Low	Very Low	During operations at this location: • Comply with the management conditions and contingencies included in the relevant approved CHMP.
VAHR 8121-0060	Mountain Hut Road 1	Artefact scatter	✗	✓	✗	Low	Very Low	During operations at this location: • Comply with the management conditions and contingencies included in the relevant approved CHMP.
VAHR 8121-0061	Mountain Hut Road 2	Artefact scatter	✗	✗	✓	Low	Very Low	During operations at this location: • Comply with the management conditions and contingencies included in the relevant approved CHMP.
VAHR 8121-0062-1	Kings Road Extension 1	LDAD	✗	✓	✗	Low	Very Low	During operations at this location: • Comply with the management conditions and contingencies included in the relevant approved CHMP.
VAHR 8121-0063	Kings Road Track 1	LDAD	✓	✗	✗	Low	Very Low	During operations at this location: • Comply with the management conditions and contingencies included in the relevant approved CHMP.
VAHR 8121-0068	Kings Rd Extension 2	LDAD	✗	✓	✗	Low	Very Low	During operations at this location: • Comply with the management conditions and contingencies included in the relevant approved CHMP.
VAHR 8121-0069	Mountain Hut Rd 3	LDAD	✗	✗	✓	Low	Very Low	During operations at this location: • Comply with the management conditions and contingencies included in the relevant approved CHMP.
VAHR 8121-0354	Strzelecki Highway 1	LDAD	✓	✓	✗	Low	Very Low	During operations at this location: • Comply with the management conditions and contingencies included in the relevant approved CHMP.
VAHR 8121-0398-1	Eel Hole Creek 3	Artefact scatter	✓	✗	✗	Moderate	Low	During operations at this location: • Comply with the management conditions and contingencies included in the relevant approved CHMP.
VAHR 8121-0399	Eel Hole Creek 4	Artefact scatter/Ochre quarry	✓	✗	✗	Moderate	Low	During operations at this location: • Comply with the management conditions and contingencies included in the relevant approved CHMP.
ML-001	Eel Hole Creek LDAD-01	LDAD	✓	✗	✗	Moderate	Low	During operations at this location:

Value ID	Value Name	Value Type	Intersects impact footprint	<50m from impact footprint	>50m from impact footprint	Cultural Heritage Significance	Impact Significance	Potential Management/Mitigation Measures
								• Comply with the management conditions and contingencies included in the relevant approved CHMP.
ML-002	Eel Hole Creek AS-01	Artefact Scatter	✓	✕	✕	Moderate	Low	During operations at this location: • Comply with the management conditions and contingencies included in the relevant approved CHMP.
ML-003	Eel Hole C reek LDAD-02	LDAD	✓	✕	✕	Moderate	Low	During operations at this location: • Comply with the management conditions and contingencies included in the relevant approved CHMP.
ML-004	Eel Hole Creek LDAD-04	LDAD	✓	✕	✕	Moderate	Low	During operations at this location: • Comply with the management conditions and contingencies included in the relevant approved CHMP.
ML-005 / MRT 2	Morwell River LDAD-01	LDAD	✓	✕	✕	Moderate	Low	During operations at this location: • Comply with the management conditions and contingencies included in the relevant approved CHMP.
ML-006 / MRT 1	Morwell River AS-01	Artefact Scatter	✓	✕	✕	Moderate	Low	During operations at this location: • Comply with the management conditions and contingencies included in the relevant approved CHMP.
ML-007	Morwell River AS-02	Artefact Scatter	✓	✕	✕	Moderate	Low	During operations at this location: • Comply with the management conditions and contingencies included in the relevant approved CHMP.
ML-008	Morwell River LDAD-02	LDAD	✓	✕	✕	Moderate	Low	During operations at this location: • Comply with the management conditions and contingencies included in the relevant approved CHMP.
ML-009	Darlimurla LDAD-01	LDAD	✓	✕	✕	Moderate	Low	During operations at this location: • Comply with the management conditions and contingencies included in the relevant approved CHMP.
ML-010	Berrys Creek LDAD-01	LDAD	✓	✕	✕	Low	Very Low	During operations at this location: • Comply with the management conditions and contingencies included in the relevant approved CHMP.
ML-011	Kings Road LDAD-01	LDAD	✓	✕	✕	Low	Very Low	During operations at this location: • Comply with the management conditions and contingencies included in the relevant approved CHMP.
ML-012	Toomey Creek LDAD-01	LDAD	✓	✕	✕	Moderate	Low	During operations at this location: • Comply with the management conditions and contingencies included in the relevant approved CHMP.
ML-013	Tarwin River East Branch LDAD-01	LDAD	✓	✕	✕	Moderate	Low	During operations at this location: • Comply with the management conditions and contingencies included in the relevant approved CHMP.
ML-014	Tarwin River East Branch LDAD-02	LDAD	✓	✕	✕	Moderate	Low	During operations at this location: • Comply with the management conditions and contingencies included in the relevant approved CHMP.
ML-015	Buffalo LDAD-01	LDAD	✓	✕	✕	Moderate	Low	During operations at this location: • Comply with the management conditions and contingencies included in the relevant approved CHMP.

Table 43: Residual impact assessment – Operation

Value ID	Value Name	Value Type	Intersects impact footprint	<50m from impact footprint	>50m from impact footprint	Cultural Heritage Significance	Impact Magnitude	Impact Significance	Residual Impact Severity	Residual Impact Extent	Residual Impact Duration	Residual Impact Magnitude	Residual Impact Significance
Historical cultural heritage values													
MR 1	Moores Road 1	Brick cistern	✕	✓	✕	Moderate	Major	**High**	Nil	Nil	Nil	Nil	**Nil**
Aboriginal cultural heritage values													
VAHR 8120-0212	Heywood 1	Artefact scatter	✓	✕	✕	Low	Moderate	**Low**	Low	Low	High	Moderate	**Low**
VAHR 8120-0213	Heywood 2	Artefact scatter	✓	✕	✕	Low	Moderate	**Low**	Low	Low	High	Moderate	**Low**
VAHR 8120-0214	Heywood 3	Artefact scatter	✓	✕	✕	Low	Moderate	**Low**	Low	Low	High	Moderate	**Low**
VAHR 8121-0052	SMITHS ROAD 1	Artefact scatter	✕	✓	✕	Low	Major	**Moderate**	Nil	Nil	Nil	Nil	**Nil**
VAHR 8121-0060	Mountain Hut Road 1	Artefact scatter	✕	✓	✕	Low	Major	**Moderate**	Nil	Nil	Nil	Nil	**Nil**
VAHR 8121-0061	Mountain Hut Road 2	Artefact scatter	✕	✕	✓	Low	Moderate	**Low**	Nil	Nil	Nil	Nil	**Nil**
VAHR 8121-0062-1	Kings Road Extension 1	LDAD	✕	✓	✕	Low	Major	**Moderate**	Nil	Nil	Nil	Nil	**Nil**
VAHR 8121-0063	Kings Road Track 1	LDAD	✓	✕	✕	Low	Moderate	**Low**	Low	Low	High	Moderate	**Low**
VAHR 8121-0068	Kings Rd Extension 2	LDAD	✕	✓	✕	Low	Major	**Moderate**	Nil	Nil	Nil	Nil	**Nil**
VAHR 8121-0069	Mountain Hut Rd 3	LDAD	✕	✕	✓	Low	Moderate	**Low**	Nil	Nil	Nil	Nil	**Nil**
VAHR 8121-0354	Strzelecki Highway 1	LDAD	✓	✓	✕	Low	Moderate	**Low**	Low	Low	High	Moderate	**Low**
VAHR 8121-0398	Eel Hole Creek 3	Artefact scatter	✓	✕	✕	Moderate	Moderate	**Moderate**	Low	Low	High	Moderate	**Moderate**
VAHR 8121-0399	Eel Hole Creek 4	Artefact scatter/Ochre quarry	✓	✕	✕	Moderate	Moderate	**Moderate**	Low	Low	High	Moderate	**Moderate**
ML-001	Eel Hole Creek LDAD-01	LDAD	✓	✕	✕	Moderate	Moderate	**Moderate**	Low	Low	High	Moderate	**Moderate**
ML-002	Eel Hole Creek AS-01	Artefact Scatter	✓	✕	✕	Moderate	Moderate	**Moderate**	Low	Low	High	Moderate	**Moderate**
ML-003	Eel Hole C reek LDAD-02	LDAD	✓	✕	✕	Moderate	Moderate	**Moderate**	Low	Low	High	Moderate	**Moderate**
ML-004	Eel Hole Creek LDAD-04	LDAD	✓	✕	✕	Moderate	Moderate	**Moderate**	Low	Low	High	Moderate	**Moderate**
ML-005 / MRT 2	Morwell River LDAD-01	LDAD	✓	✕	✕	Moderate	Moderate	**Moderate**	Low	Low	High	Moderate	**Moderate**
ML-006 / MRT 1	Morwell River AS-01	Artefact Scatter	✓	✕	✕	Moderate	Moderate	**Moderate**	Low	Low	High	Moderate	**Moderate**
ML-007	Morwell River AS-02	Artefact Scatter	✓	✕	✕	Moderate	Moderate	**Moderate**	Low	Low	High	Moderate	**Moderate**
ML-008	Morwell River LDAD-02	LDAD	✓	✕	✕	Moderate	Moderate	**Moderate**	Low	Low	High	Moderate	**Moderate**

Value ID	Value Name	Value Type	Intersects impact footprint	<50m from impact footprint	>50m from impact footprint	Cultural Heritage Significance	Impact Magnitude	Impact Significance	Residual Impact Severity	Residual Impact Extent	Residual Impact Duration	Residual Impact Magnitude	Residual Impact Significance
ML-009	Darlimurla LDAD-01	LDAD	✓	✕	✕	Moderate	Moderate	**Moderate**	Low	Low	High	Moderate	**Moderate**
ML-010	Berrys Creek LDAD-01	LDAD	✓	✕	✕	Low	Moderate	**Moderate**	Low	Low	High	Moderate	**Low**
ML-011	Kings Road LDAD-01	LDAD	✓	✕	✕	Low	Moderate	**Moderate**	Low	Low	High	Moderate	**Low**
ML-012	Toomey Creek LDAD-01	LDAD	✓	✕	✕	Moderate	Moderate	**Moderate**	Low	Low	High	Moderate	**Moderate**
ML-013	Tarwin River East Branch LDAD-01	LDAD	✓	✕	✕	Moderate	Moderate	**Moderate**	Low	Low	High	Moderate	**Moderate**
ML-014	Tarwin River East Branch LDAD-02	LDAD	✓	✕	✕	Moderate	Moderate	**Moderate**	Low	Low	High	Moderate	**Moderate**
ML-015	Buffalo LDAD-01	LDAD	✓	✕	✕	Moderate	Moderate	**Moderate**	Low	Low	High	Moderate	**Moderate**

Summary information on the impact ratings for known cultural heritage values before and after the application of the potential management and mitigation measures during the operation of the project is presented in Table 44. The residual impact significance ratings for each cultural heritage value during operation are the same as those assessed for each value during construction.

Table 44: Residual impact assessment summary – Operation

Impact Significance	No. of values before implementation of potential management measures	No. of values after implementation of potential management measures
Nil	-	7 (24%)
Very Low	-	
Low	9 (31%)	7 (24%)
Moderate	19 (65%)	15 (52%)
High	1 (4%)	-
Major	-	-

There remains a potential for residual impacts to unknown Aboriginal and historical cultural heritage values, including intangible cultural values (see Section 7.2.3). However, the potential for these to occur should be minimal if impacts arising during the operation of the project are confined to the construction impact footprint. The preparation of a HHMP in consultation with HV (EPR CH01), and CHMPs that will be approved by GLaWAC and FP-SR (EPR CH02), along with the implementation of appropriate management conditions and contingency responses to the discovery of new tangible or intangible Aboriginal or historical cultural heritage during the operation of the project will manage these risks and ensure that if impacts do occur, they will be minimised.

7.4. Decommissioning

7.4.1. Impact pathways

Project activities with a potential to impact on cultural heritage values during decommissioning are listed in Table 45. Potential impacts to cultural heritage values are all associated with decommissioning activities that will result in disturbance of ground surfaces and/or subsurface deposits, although these should be negligible if the works are confined to the construction impact footprint.

Table 45: Cultural heritage value impact pathways – Decommissioning

Project Phase	Activity	Actions potentially impacting cultural heritage values
Decommissioning	Removal of aboveground and underground infrastructure	• Excavation on or within previously impacted ground surfaces
	Access roads/tracks	• Excavation on or within previously impacted ground surfaces
	Land restoration	• Topsoil stripping of areas not previous impacted during construction or operation

Again, it is important to note that:

- surface salvage collections and/or subsurface salvage excavations are not intended to recover 100% of the Aboriginal cultural heritage material that is present within a known Aboriginal cultural heritage place; some of the cultural heritage may still be present.
- Even if 100% salvage does occur, an Aboriginal cultural heritage place is still protected under the *Aboriginal Heritage Act 2006* (Vic) and remains on the VAHR if it has been registered.

The implications of this are that even though the construction and operation-phase potential management and mitigation measures listed in Table 34 and Table 42 are fully implemented, there still remains a potential for decommissioning of the project to impact on Aboriginal cultural values.

The results of the unmanaged/unmitigated impact assessment on the 29 known cultural heritage values included in the decommissioning impact assessment are presented in Table 47. The approach adopted weas identical to that followed in the operations impact assessment:

- impact severity and extent were both rated as low and impact duration was rated as high for all cultural heritage values intersecting the project impact footprint.
- impact severity, extent and duration ratings for all cultural heritage values not intersecting the project footprint assumed that impacts to these places were largely avoided during construction and operation, and so were kept the same as the ratings applied in the pre-management and mitigation construction and operation impact assessments.

The overall significance of potential impacts to cultural heritage values was assessed as ranging from Low to High prior to management or mitigation. Summary data on the distribution of operational impact significance ratings for known cultural heritage values broken down by value type is presented Table 46. Twenty-nine cultural heritage values have the potential to be impacted by project-related activities during operation. Of these, prior to mitigation:

- nine values (31%) are likely to experience a Low impact
- 19 values (65%) are likely to experience a Moderate impact
- one value (4%) are likely to experience a High impact.

Table 46: Impact significance ratings by cultural heritage value type prior to management/mitigation – Decommissioning

Impact Significance	Historical Site	Artefact Scatter	Artefact Scatter / Ochre Quarry	LDAD	Totals
Nil	-	-	-	-	-
Very Low	-		-		
Low	-	4 (40%)		5 (29%)	9 (31%)
Moderate	-	6 (60%)	1 (100%)	12 (71%)	19 (65%)
High	1 (100%)	-	-	-	1 (4%)
Major	-	-	-	-	-
Totals	**1 (100%)**	**10 (100%)**	**1 (100%)**	**17 (100%)**	**29 (100%**

Potential measures to either manage or mitigate impacts to known and unknown cultural heritage values during decommissioning of the project are outlined in Table 48.

Table 47: Impact assessment prior to management or mitigation (known cultural heritage values) – Decommissioning

Value ID	Value Name	Value Type	Assessed during fieldwork program	IA	Heritage present	Intersects impact footprint	<50m from impact footprint	>50m from impact footprint	Cultural Heritage Significance	Impact Severity	Imapct Extent	Impact Duration	Impact Magnitude	Impact Significance
Historical cultural heritage values														
MR 1	Moores Road 1	Brick cistern	✓	IA-5	✓	✕	✓	✕	Moderate	Medium	Medium	High	Major	High
Aboriginal cultural heritage values														
VAHR 8120-0212	Heywood 1	Artefact scatter	✕	Not accessible	Not assessed	✓	✕	✕	Low	Low	Low	High	Moderate	**Low**
VAHR 8120-0213	Heywood 2	Artefact scatter	✕	Not accessible	Not assessed	✓	✕	✕	Low	Low	Low	High	Moderate	**Low**
VAHR 8120-0214	Heywood 3	Artefact scatter	✕	Not accessible	Not assessed	✓	✕	✕	Low	Low	Low	High	Moderate	**Low**
VAHR 8121-0052	SMITHS ROAD 1	Artefact scatter	✓	IA-6a	✕	✕	✓	✕	Low	Medium	Medium	High	Major	**Moderate**
VAHR 8121-0060	Mountain Hut Road 1	Artefact scatter	✓	IA-6a	✕	✕	✓	✕	Low	Medium	Medium	High	Major	**Moderate**
VAHR 8121-0061	Mountain Hut Road 2	Artefact scatter	✓	IA-6a	✕	✕	✕	✓	Low	Medium	Low	High	Moderate	**Low**
VAHR 8121-0062-1	Kings Road Extension 1	LDAD	✓	IA-6a	✕	✕	✓	✕	Low	Medium	Medium	High	Major	**Moderate**
VAHR 8121-0063	Kings Road Track 1	LDAD	✓	IA-6a	✕	✓	✕	✕	Low	Low	Low	High	Moderate	**Low**
VAHR 8121-0068	Kings Rd Extension 2	LDAD	✓	IA-6a	✕	✕	✓	✕	Low	Medium	Medium	High	Major	**Moderate**
VAHR 8121-0069	Mountain Hut Rd 3	LDAD	✓	IA-6a	✕	✕	✕	✓	Low	Medium	Low	High	Moderate	**Low**
VAHR 8121-0354	Strzelecki Highway 1	LDAD	✓	IA-6a	✕	✓	✓	✕	Low	Low	Low	High	Moderate	**Low**
VAHR 8121-0398	Eel Hole Creek 3	Artefact scatter	✕	IA-4c	Not assessed	✓	✕	✕	Moderate	Low	Low	High	Moderate	**Moderate**
VAHR 8121-0399	Eel Hole Creek 4	Artefact scatter/Ochre quarry	✕	IA-4c	Not assessed	✓	✕	✕	Moderate	Low	Low	High	Moderate	**Moderate**
ML-001	Eel Hole Creek LDAD-01	LDAD	✓	IA-4c	✓	✓	✕	✕	Moderate	Low	Low	High	Moderate	**Moderate**
ML-002	Eel Hole Creek AS-01	Artefact Scatter	✓	IA-7a	✓	✓	✕	✕	Moderate	Low	Low	High	Moderate	**Moderate**
ML-003	Eel Hole Creek LDAD-02	LDAD	✓	IA-7a	✓	✓	✕	✕	Moderate	Low	Low	High	Moderate	**Moderate**
ML-004	Eel Hole Creek LDAD-04	LDAD	✓	IA-6b	✓	✓	✕	✕	Moderate	Low	Low	High	Moderate	**Moderate**

Value ID	Value Name	Value Type	Assessed during fieldwork program	IA	Heritage present	Intersects impact footprint	<50m from impact footprint	>50m from impact footprint	Cultural Heritage Significance	Impact Severity	Imapct Extent	Impact Duration	Impact Magnitude	Impact Significance
ML-005 / MRT 2	Morwell River LDAD-01	LDAD	✓	IA-4d / IA-5	✓	✓	✕	✕	Moderate	Low	Low	High	Moderate	**Moderate**
ML-006 / MRT 1	Morwell River AS-01	Artefact Scatter	✓	IA-4d	✓	✓	✕	✕	Moderate	Low	Low	High	Moderate	**Moderate**
ML-007	Morwell River AS-02	Artefact Scatter	✓	IA-4d	✓	✓	✕	✕	Moderate	Low	Low	High	Moderate	**Moderate**
ML-008	Morwell River LDAD-02	LDAD	✓	IA-6b	✓	✓	✕	✕	Moderate	Low	Low	High	Moderate	**Moderate**
ML-009	Darlimurla LDAD-01	LDAD	✓	IA-6b	✓	✓	✕	✕	Moderate	Low	Low	High	Moderate	**Moderate**
ML-010	Berrys Creek LDAD-01	LDAD	✓	IA-4f	✓	✓	✕	✕	Low	Low	Low	High	Moderate	**Low**
ML-011	Kings Road LDAD-01	LDAD	✓	IA-6b	✓	✓	✕	✕	Low	Low	Low	High	Moderate	**Low**
ML-012	Toomey Creek LDAD-01	LDAD	✓	IA-3d	✓	✓	✕	✕	Moderate	Low	Low	High	Moderate	**Moderate**
ML-013	Tarwin River East Branch LDAD-01	LDAD	✓	IA-8	✓	✓	✕	✕	Moderate	Low	Low	High	Moderate	**Moderate**
ML-014	Tarwin River East Branch LDAD-02	LDAD	✓	IA-3a / IA-4a	✓	✓	✕	✕	Moderate	Low	Low	High	Moderate	**Moderate**
ML-015	Buffalo LDAD-01	LDAD	✓	IA-3b	✓	✓	✕	✕	Moderate	Low	Low	High	Moderate	**Moderate**

Table 48: Potential impact management/mitigation measures – Decommissioning

Value ID	Value Name	Value Type	Intersects impact footprint	<50m from impact footprint	>50m from impact footprint	Cultural Heritage Significance	Impact Significance	Potential Management/Mitigation Measures
Historical cultural heritage values								
MR 1	Moores Road 1	Brick cistern	✕	✓	✕	Moderate	Moderate	During decommissioning at this location: • Confirmation of the site's boundary by an archaeologist. • Erection of a suitable barrier • Cultural awareness training to prevent access by project employees and contractors. • Comply with the requirements specified in the HHMP (see EPR CH01).
Aboriginal cultural heritage values								
VAHR 8120-0212	Heywood 1	Artefact scatter	✓	✕	✕	Low	Moderate	During decommissioning at this location: • Comply with the management conditions and contingencies included in the relevant approved CHMP.
VAHR 8120-0213	Heywood 2	Artefact scatter	✓	✕	✕	Low	Moderate	During decommissioning at this location: • Comply with the management conditions and contingencies included in the relevant approved CHMP.
VAHR 8120-0214	Heywood 3	Artefact scatter	✓	✕	✕	Low	Moderate	During decommissioning at this location: • Comply with the management conditions and contingencies included in the relevant approved CHMP.
VAHR 8121-0052	SMITHS ROAD 1	Artefact scatter	✕	✓	✕	Low	Very Low	During decommissioning at this location: • Comply with the management conditions and contingencies included in the relevant approved CHMP.
VAHR 8121-0060	Mountain Hut Road 1	Artefact scatter	✕	✓	✕	Low	Very Low	During decommissioning at this location: • Comply with the management conditions and contingencies included in the relevant approved CHMP.

Value ID	Value Name	Value Type	Intersects impact footprint	<50m from impact footprint	>50m from impact footprint	Cultural Heritage Significance	Impact Significance	Potential Management/Mitigation Measures
VAHR 8121-0061	Mountain Hut Road 2	Artefact scatter	✕	✕	✓	Low	Very Low	During decommissioning at this location: • Comply with the management conditions and contingencies included in the relevant approved CHMP.
VAHR 8121-0062-1	Kings Road Extension 1	LDAD	✕	✓	✕	Low	Very Low	During decommissioning at this location: • Comply with the management conditions and contingencies included in the relevant approved CHMP.
VAHR 8121-0063	Kings Road Track 1	LDAD	✓	✕	✕	Low	Very Low	During decommissioning at this location: • Comply with the management conditions and contingencies included in the relevant approved CHMP.
VAHR 8121-0068	Kings Rd Extension 2	LDAD	✕	✓	✕	Low	Very Low	During decommissioning at this location: • Comply with the management conditions and contingencies included in the relevant approved CHMP.
VAHR 8121-0069	Mountain Hut Rd 3	LDAD	✕	✕	✓	Low	Very Low	During decommissioning at this location: • Comply with the management conditions and contingencies included in the relevant approved CHMP.
VAHR 8121-0354	Strzelecki Highway 1	LDAD	✓	✓	✕	Low	Very Low	During decommissioning at this location: • Comply with the management conditions and contingencies included in the relevant approved CHMP.
VAHR 8121-0398-1	Eel Hole Creek 3	Artefact scatter	✓	✕	✕	Moderate	High	During decommissioning at this location: • Comply with the management conditions and contingencies included in the relevant approved CHMP.
VAHR 8121-0399	Eel Hole Creek 4	Artefact scatter/Ochre quarry	✓	✕	✕	Moderate	High	During decommissioning at this location: • Comply with the management conditions and contingencies included in the relevant approved CHMP.
ML-001	Eel Hole Creek LDAD-01	LDAD	✓	✕	✕	Moderate	High	During decommissioning at this location: • Comply with the management conditions and contingencies included in the relevant approved CHMP.
ML-002	Eel Hole Creek AS-01	Artefact Scatter	✓	✕	✕	Moderate	High	During decommissioning at this location: • Comply with the management conditions and contingencies included in the relevant approved CHMP.
ML-003	Eel Hole C reek LDAD-02	LDAD	✓	✕	✕	Moderate	High	During decommissioning at this location: • Comply with the management conditions and contingencies included in the relevant approved CHMP.
ML-004	Eel Hole Creek LDAD-04	LDAD	✓	✕	✕	Moderate	High	During decommissioning at this location: • Comply with the management conditions and contingencies included in the relevant approved CHMP.
ML-005 / MRT 2	Morwell River LDAD-01	LDAD	✓	✕	✕	Moderate	High	During decommissioning at this location: • Comply with the management conditions and contingencies included in the relevant approved CHMP.
ML-006 / MRT 1	Morwell River AS-01	Artefact Scatter	✓	✕	✕	Moderate	High	During decommissioning at this location: • Comply with the management conditions and contingencies included in the relevant approved CHMP.
ML-007	Morwell River AS-02	Artefact Scatter	✓	✕	✕	Moderate	High	During decommissioning at this location: • Comply with the management conditions and contingencies included in the relevant approved CHMP.
ML-008	Morwell River LDAD-02	LDAD	✓	✕	✕	Moderate	High	During decommissioning at this location:

Value ID	Value Name	Value Type	Intersects impact footprint	<50m from impact footprint	>50m from impact footprint	Cultural Heritage Significance	Impact Significance	Potential Management/Mitigation Measures
								• Comply with the management conditions and contingencies included in the relevant approved CHMP.
ML-009	Darlimurla LDAD-01	LDAD	✓	✕	✕	Moderate	High	During decommissioning at this location: • Comply with the management conditions and contingencies included in the relevant approved CHMP.
ML-010	Berrys Creek LDAD-01	LDAD	✓	✕	✕	Low	Moderate	During decommissioning at this location: • Comply with the management conditions and contingencies included in the relevant approved CHMP.
ML-011	Kings Road LDAD-01	LDAD	✓	✕	✕	Low	Moderate	During decommissioning at this location: • Comply with the management conditions and contingencies included in the relevant approved CHMP.
ML-012	Toomey Creek LDAD-01	LDAD	✓	✕	✕	Moderate	High	During decommissioning at this location: • Comply with the management conditions and contingencies included in the relevant approved CHMP.
ML-013	Tarwin River East Branch LDAD-01	LDAD	✓	✕	✕	Moderate	High	During decommissioning at this location: • Comply with the management conditions and contingencies included in the relevant approved CHMP.
ML-014	Tarwin River East Branch LDAD-02	LDAD	✓	✕	✕	Moderate	High	During decommissioning at this location: • Comply with the management conditions and contingencies included in the relevant approved CHMP.
ML-015	Buffalo LDAD-01	LDAD	✓	✕	✕	Moderate	High	During decommissioning at this location: • Comply with the management conditions and contingencies included in the relevant approved CHMP.

7.4.2. Environment Performance Requirements

Compliance with EPRs that will reduce the significance of impacts to historical and Aboriginal cultural heritage values during decommissioning of the project are listed in Table 49.

Table 49: Cultural heritage EPRs – Decommissioning

EPR ID	Environmental Performance Requirement
EM05	Develop and implement a land decommissioning management plan

EPR EM05 will be implemented under the project's Environmental Management Framework, and will include a requirement to consider management measures adopted in construction that should also be applied during decommissioning where similar impacts could occur; these will include specific requirements related to Aboriginal and historic cultural heritage under EPRs CH01, CH02 and CH03.

7.4.3. Residual impacts

The results of a residual impact assessment on each of the 29 known cultural heritage values with a potential to be impacted during decommissioning of the project are presented in Table 51. Residual impact severity ratings were reduced to either low or nil and residual impact extent and duration ratings were reduced to either medium or nil depending on the location of the cultural heritage value in relation to the impact footprint. The residual impact assessment assumed that cultural heritage values not intersecting the impact footprint will not be impacted during decommissioning.

The residual impact assessment identified nine instances where the residual impact rating is reduced by at least one rating level after the application of the recommended decommissioning management and mitigation measures. The net result is that:

- 15 known cultural heritage values (52%) will experience an impact rated as Moderate
- seven known cultural heritage values (24%) will experience impacts rated as Low
- seven known cultural heritage value (24%) will not experience any impacts at all.

Summary information on the impact ratings for known cultural heritage values before and after the application of the proposed management and mitigation measures during the decommissioning of the project is presented in Table 50. The residual impact significance ratings for each cultural heritage value during decommissioning are the same as those assessed for each value during construction and operation.

Table 50: Residual impact assessment summary – Decommissioning

Impact Significance	No. of values before implementation of potential management measures	No. of values after implementation of potential management measures
Nil	-	7 (24%)
Very Low	-	
Low	9 (31%)	7 (24%)
Moderate	19 (65%)	15 (52%)
High	1 (4%)	-
Major	-	-

Table 51: Residual impact assessment – Decommissioning

Value ID	Value Name	Value Type	Intersects impact footprint	<50m from impact footprint	>50m from impact footprint	Cultural Heritage Significance	Impact Magnitude	Impact Significance	Residual Impact Severity	Residual Impact Extent	Residual Impact Duration	Residual Impact Magnitude	Residual Impact Significance
Historical cultural heritage values													
MR 1	Moores Road 1	Brick cistern	✗	✓	✗	Moderate	Major	**High**	Nil	Nil	Nil	Nil	**Nil**
Aboriginal cultural heritage values													
VAHR 8120-0212	Heywood 1	Artefact scatter	✓	✗	✗	Low	Moderate	**Low**	Low	Low	High	Moderate	**Low**
VAHR 8120-0213	Heywood 2	Artefact scatter	✓	✗	✗	Low	Moderate	**Low**	Low	Low	High	Moderate	**Low**
VAHR 8120-0214	Heywood 3	Artefact scatter	✓	✗	✗	Low	Moderate	**Low**	Low	Low	High	Moderate	**Low**
VAHR 8121-0052	SMITHS ROAD 1	Artefact scatter	✗	✓	✗	Low	Major	**Moderate**	Nil	Nil	Nil	Nil	**Nil**
VAHR 8121-0060	Mountain Hut Road 1	Artefact scatter	✗	✓	✗	Low	Major	**Moderate**	Nil	Nil	Nil	Nil	**Nil**
VAHR 8121-0061	Mountain Hut Road 2	Artefact scatter	✗	✗	✓	Low	Moderate	**Low**	Nil	Nil	Nil	Nil	**Nil**
VAHR 8121-0062-1	Kings Road Extension 1	LDAD	✗	✓	✗	Low	Major	**Moderate**	Nil	Nil	Nil	Nil	**Nil**
VAHR 8121-0063	Kings Road Track 1	LDAD	✓	✗	✗	Low	Moderate	**Low**	Low	Low	High	Moderate	**Low**
VAHR 8121-0068	Kings Rd Extension 2	LDAD	✗	✓	✗	Low	Major	**Moderate**	Nil	Nil	Nil	Nil	**Nil**
VAHR 8121-0069	Mountain Hut Rd 3	LDAD	✗	✗	✓	Low	Moderate	**Low**	Nil	Nil	Nil	Nil	**Nil**
VAHR 8121-0354	Strzelecki Highway 1	LDAD	✓	✓	✗	Low	Moderate	**Low**	Low	Low	High	Moderate	**Low**
VAHR 8121-0398	Eel Hole Creek 3	Artefact scatter	✓	✗	✗	Moderate	Moderate	**Moderate**	Low	Low	High	Moderate	**Moderate**
VAHR 8121-0399	Eel Hole Creek 4	Artefact scatter/Ochre quarry	✓	✗	✗	Moderate	Moderate	**Moderate**	Low	Low	High	Moderate	**Moderate**
ML-001	Eel Hole Creek LDAD-01	LDAD	✓	✗	✗	Moderate	Moderate	**Moderate**	Low	Low	High	Moderate	**Moderate**
ML-002	Eel Hole Creek AS-01	Artefact Scatter	✓	✗	✗	Moderate	Moderate	**Moderate**	Low	Low	High	Moderate	**Moderate**
ML-003	Eel Hole C reek LDAD-02	LDAD	✓	✗	✗	Moderate	Moderate	**Moderate**	Low	Low	High	Moderate	**Moderate**
ML-004	Eel Hole Creek LDAD-04	LDAD	✓	✗	✗	Moderate	Moderate	**Moderate**	Low	Low	High	Moderate	**Moderate**
ML-005 / MRT 2	Morwell River LDAD-01	LDAD	✓	✗	✗	Moderate	Moderate	**Moderate**	Low	Low	High	Moderate	**Moderate**
ML-006 / MRT 1	Morwell River AS-01	Artefact Scatter	✓	✗	✗	Moderate	Moderate	**Moderate**	Low	Low	High	Moderate	**Moderate**
ML-007	Morwell River AS-02	Artefact Scatter	✓	✗	✗	Moderate	Moderate	**Moderate**	Low	Low	High	Moderate	**Moderate**

Value ID	Value Name	Value Type	Intersects impact footprint	<50m from impact footprint	>50m from impact footprint	Cultural Heritage Significance	Impact Magnitude	Impact Significance	Residual Impact Severity	Residual Impact Extent	Residual Impact Duration	Residual Impact Magnitude	Residual Impact Significance
ML-008	Morwell River LDAD-02	LDAD	✓	✕	✕	Moderate	Moderate	**Moderate**	Low	Low	High	Moderate	**Moderate**
ML-009	Darlimurla LDAD-01	LDAD	✓	✕	✕	Moderate	Moderate	**Moderate**	Low	Low	High	Moderate	**Moderate**
ML-010	Berrys Creek LDAD-01	LDAD	✓	✕	✕	Low	Moderate	**Moderate**	Low	Low	High	Moderate	**Low**
ML-011	Kings Road LDAD-01	LDAD	✓	✕	✕	Low	Moderate	**Moderate**	Low	Low	High	Moderate	**Low**
ML-012	Toomey Creek LDAD-01	LDAD	✓	✕	✕	Moderate	Moderate	**Moderate**	Low	Low	High	Moderate	**Moderate**
ML-013	Tarwin River East Branch LDAD-01	LDAD	✓	✕	✕	Moderate	Moderate	**Moderate**	Low	Low	High	Moderate	**Moderate**
ML-014	Tarwin River East Branch LDAD-02	LDAD	✓	✕	✕	Moderate	Moderate	**Moderate**	Low	Low	High	Moderate	**Moderate**
ML-015	Buffalo LDAD-01	LDAD	✓	✕	✕	Moderate	Moderate	**Moderate**	Low	Low	High	Moderate	**Moderate**

There remains a potential for residual impacts to unknown Aboriginal and historical cultural heritage values, including intangible cultural values (see Section 7.2.3). However, the potential for these to occur should be minimal if impacts arising during decommissioning are confined to the construction impact footprint. The preparation of a HHMP in consultation with HV (EPR CH01), and CHMPs that will be approved by GLaWAC and FP-SR (EPR CH02), along with the implementation of appropriate management conditions and contingency responses to the discovery of new tangible or intangible Aboriginal or historical cultural heritage during decommissioning will manage these risks and ensure that if impacts do occur, they will be minimised.

7.5. Cumulative Impacts

7.5.1. Impact assessment of relevant projects

The EIS guidelines and EES scoping requirements both include requirements for the assessment of cumulative impacts. Cumulative impacts result from incremental impacts caused by multiple projects occurring at similar times and within proximity to each other.

To identify possible projects that could result in cumulative impacts, the International Finance Corporation (IFC) guidelines on cumulative impacts have been adopted. The IFC guidelines (IFC 2013) define cumulative impacts as those that 'result from the successive, incremental, and/or combined effects of an action, project, or activity when added to other existing, planned, and/or reasonably anticipated future ones.'

The approach for identifying projects for assessment of cumulative impacts considers:

- Temporal boundary: the timing of the relative construction, operation and decommissioning of other existing developments and/or approved developments that coincides (partially or entirely) with Marinus Link.
- Spatial boundary: the location, scale and nature of the other approved or committed projects expected to occur in the same area of influence as Marinus Link. The area of influence is defined at the spatial extent of the impacts a project is expected to have.

Proposed and reasonably foreseeable projects were identified based on their potential to credibly contribute to cumulative impacts due to their temporal and spatial boundaries. Projects were identified based on publicly available information at the time of assessment. The projects considered for cumulative impact assessment in Victoria are:

- Delburn Wind farm
- Star of the South Offshore Wind farm
- Offshore wind development zone in Gippsland including Greater Gippsland Offshore Wind Project (BlueFloat Energy), Seadragon Project (Floatation Energy), Greater Eastern Offshore Wind (Corio Generation).
- Hazelwood Rehabilitation Project
- Wooreen Energy Storage System.

The projects relevant to this assessment have been determined based on the potential for cumulative impacts to Aboriginal and historical cultural heritage values and taking into account whether they:

- Aboriginal and historical are under construction
- have received approvals but the project has not yet commenced construction
- are in the process of developing CHMPs and have lodged their activity areas; or
- have submitted approval application(s) that are not yet determined.

On this basis, four projects have been identified for inclusion in the cultural heritage cumulative impact assessment:

- Delburn Wind Farm
- Star of the South Offshore Wind Farm (SOTS)
- Hazelwood Rehabilitation Project
- Wooreen Energy Storage System (WESS)

These projects are described in Table 52, which includes an assessment of the potential for each project to impact on historical and/or Aboriginal cultural heritage values; these can be summarised as follows:

- Delburn Wind Farm
    - Historical cultural heritage value impacts: Very Low
    - Aboriginal cultural heritage value Impacts: Low to Moderate
- Star of the South Offshore Wind Farm (SOTS)
    - Historical cultural heritage value impacts: Low
    - Aboriginal cultural heritage value impacts: Low to Moderate
- Hazelwood Rehabilitation Project
    - Historical cultural heritage value impacts: Low to Moderate
    - Aboriginal cultural heritage value impacts: Very Low
- Wooreen Energy Storage System (WESS)
    - Historical cultural heritage value impacts: Very Low
    - Aboriginal cultural heritage value impacts: Very Low

7.5.2. Cumulative impact assessment

The purpose of the cumulative impact assessment is to assess the overall level of impact to historical and Aboriginal cultural heritage values resulting from proposed Marinus Link project activities in light of impacts to these same values arising from other relevant projects, i.e., will the construction, operation and decommissioning of the Marinus Link project result in an overall increase or decrease in impacts to these values, or will it result in no overall change to the level of impact.

The overall impact of the Marinus Link project can be calculated using a weighted statistical median of the potential impacts to all known historical and Aboriginal cultural heritage values, using the residual impact significance ratings for each cultural value identified during the construction phase (Table 36). Weighting accounts for the fact that a single low impact will not have the same overall effect on the cultural heritage values as will a single major impact. The median was chosen as the most appropriate statistic as it represents the central tendency of a dataset and reduces the influence of outliers.

Table 52: Impact assessment of credible projects included in the cumulative impact assessment

Project	Project Description, Location, Status and Timing	Impact Summary	Potential Impact on Cultural Heritage Values
Delburn Wind Farm[25]	**Description:** • Wind farm with up to 200-turbines; generation of up to 2,200 MW. **Location:** • Located in the Strzelecki Ranges, south of the Latrobe Valley. • The routes for the two projects run in close alignment through the Hancock Victorian Plantations P/L (HVP) pine timber plantation at Delburn. • The Marinus Link land project alignment intersects the Delburn Wind Farm project area at Pleasant Valley Road in the south and has an interface of approximately 12 km to Driffield, where one of the proposed converter station sites is located for the Marinus Link project. • It is not expected that the operation of both projects will interact given Marinus Link is primarily underground. • The alignment of Marinus Link cables has sought to avoid cables from Delburn Wind farm and to provide appropriate separation where cables are in the same location. **Status:** • Approved[26] in March 2022. **Timing:** • Construction to commence: 2022 – 2023 (18-24 months construction); the planning scheme amendment is currently being challenged in the court so this timing may be delayed. • Operation to commence: 2025. • Design life: 25-30 years.	Onshore wind farms tend to have a small ground surface impact footprint that is limited to access tracks and turbine locations. These impacts can be minimised through judicious use of non-invasive construction methods and/or by positioning of turbines in locations that are less sensitive to historical and Aboriginal cultural heritage. An approved CHMP (16429) has been prepared for this project (Rymer 2021), which will limit its impact on Aboriginal cultural heritage. It is unlikely that significant impacts to historical cultural heritage values will occur given the location of the project within HVP's Thorpdale Tree Farm. Due to the visual impact and physical presence that the wind farms will have on the broader landscape, it is possible that intangible cultural heritage values will be impacted by the project as the wind farm affects landscapes and sightlines.	• Historical cultural heritage: Very Low • Aboriginal cultural heritage: Low to Moderate
Star of the South Offshore Wind Farm (SOTS)[27]	**Description:** • Offshore wind farm with up to 33-turbines; project site covers a total area of 4,778 hectares. **Location:** • 7-25 km off the south coast of Gippsland near towns such as Port Albert, McLoughlins Beach and Woodside Beach • Located approximately 70km from the Marinus Link shore crossing. • The proposed transmission line to connect the SOTS project largely follows the Bass Link project alignment and connects at Hazelwood in the Latrobe Valley. • The projects may have an interface at Hazelwood at the existing Hazelwood terminal station. • For the SOTS, the project will connect to the grid at the existing Loy Yang Power Station switchyard, and the proponent is also considering a back-up option to connect at Hazelwood terminal station. **Status:** • Detailed planning/environmental approval phase underway. **Timing:** • Construction to commence: Around 2025. • Operation to commence: 2030 onwards.	Impacts to cultural heritage arising from the construction of offshore wind farms require consideration of both maritime and terrestrial environments. It is likely that impacts arising from works for the onshore terrestrial component will include: • HDD entry and exit pits at the coastal crossing and below sensitive environmental receptors including waterways and culturally sensitive landforms. • Construction of underground or combined underground/overhead transmission powerlines that will largely follow the existing Bass Link easement. • Construction of transfer and converter stations. • Construction of access roads/tracks and laydown areas. As a result, there is a potential for impacts to historical Aboriginal cultural heritage values to occur given the location of the project in Gippsland and its construction method (underground cables). However, the number of instances where impacts will occur should be reduced by the fact the project intends to follow the existing Bass Link project alignment, which was intensively investigated for potential impacts to cultural heritage values during the preparation of technical studies supporting the Bass Link EIS.	• Historical cultural heritage: Low • Aboriginal cultural heritage: Low to Moderate

[25] Planning | OSMI Australia | Delburn Wind Farm, Victoria

[26] The planning permit is currently being considered in the Supreme Court

[27] Planning — Star of the South

Project	Project Description, Location, Status and Timing	Impact Summary	Potential Impact on Cultural Heritage Values
Hazelwood Rehabilitation Project[28]	Description: • Rehabilitation of former Hazelwood Mine and Power Station, involving decommissioning of remaining buildings, roads and infrastructure, earthworks to reprofile steep slopes, reinstating some water courses to a more natural alignment, and the proposed creation of a mine lake. Location: • Latrobe Valley in Victoria, near the town of Morwell. • The projects will have an interface at Hazelwood. • Marinus Link project will connect to the electricity grid via one of two converter stations at either Driffield, constructed adjacent to the existing 500 kV transmission lines or at Hazelwood, adjacent to the existing terminal station. Status: • Detailed planning/environmental approval phase underway. Approval expected in 2024. Timing: • Construction to commence: expected to be in 2025. • Operation to commence: expected to be end of 2026.	Although impacts to ground surfaces and subsurface deposits during works for the project have the potential to be extensive, given the nature of the project it is likely most of these works will be confined to areas of prior disturbance within the existing project impact footprint. An exception would be restoration of the natural alignment of Eel Hole Creek. Noting that the Morwell Power Station and Briquette Factories are listed on the Victorian Heritage Register (H2377), the heritage significance (if any) of buildings and other aboveground structures located within the Hazelwood Rehabilitation Project area will need to be assessed prior to works commencing.	• Historical cultural heritage: Low to Moderate • Aboriginal cultural heritage: Very Low
Wooreen Energy Storage System (WESS)[29]	**Description:** • Four-hour utility scale battery; storage capacity of up to 350 MW. **Location:** • Collocated at Jeeralang gas-fired power station in Victoria's Latrobe Valley. • The Marinus Link and WESS projects will not be directly connected, however will be located in close proximity. **Status:** • Detailed planning/environmental approval phase underway. **Timing:** • Planning application was made to the Department of Transport and Planning in 2022 • Planning permit was received in February 2023. • Operation to commence: end of 2026.	Impacts to historical and Aboriginal cultural heritage values are expected to be very low given that WESS will be constructed within the existing Jeeralang plant, thereby confining project impacts to previously disturbed ground surfaces and subsurface deposits.	• Historical cultural heritage: Very Low • Aboriginal cultural heritage: Very Low

[28] About the Project - Hazelwood Rehabilitation Program

[29] Wooreen Energy Storage System | EnergyAustralia

The overall Marinus Link project impact assessment rating is presented in Table 53. The rating is derived from the progressive weighted totals, where the median rating value sits at 11 which equates to an overall impact significance rating of low.

Table 53: Overall impact assessment on known cultural heritage values – Marinus Link project

	Impact Significance Rating					
Values	**Nil**	**Very Low**	**Low**	**Moderate**	**High**	**Major**
Total	7	0	7	15	0	0
Weighted ranking	1	2	3	4	5	6
Weighted total	1	0	21	60	0	0
Progressive weighted totals	1	--	22	82	--	--
Ranking scores	0-1	--	2-22	23-82	--	--
Median	**11**					
Overall impact	**Low**					

The same approach can be applied to the other projects included in the cumulative impact assessment, where each project is treated as a single rated impact and the range of impacts is then assessed using the progressive weighted median approach outlined above.

The highest potential impact rating across both historical and Aboriginal cultural heritage values for each project presented in Table 54 has been used to derive a single impact significance rating for that project. Using Delburn Wind Farm as an example, the impact to historical cultural heritage was rated as likely to be very low, while impacts to Aboriginal cultural heritage were rated as potentially low to moderate. In this instance the highest level of potential impact has been used to characterise the overall potential impact, effectively adopting a worst-case scenario.

On this basis, the overall impact significance rating for each of the four projects included in the cumulative impact assessment is as follows:

- Delburn Wind Farm: Moderate
- Star of the South Offshore Wind Farm: Moderate
- Hazelwood Rehabilitation Project: Moderate
- Wooreen Energy Storage System: Very Low

An assessment of the overall impact on cultural heritage values in the Gippsland region arising from the four comparable projects included in the cumulative impact assessment is presented in Table 54, which indicates a moderate level of impact to cultural heritage values.

Table 54: Cumulative impact assessment on known cultural heritage values – comparable Gippsland projects

	Impact Significance Rating					
Values	**Nil**	**Very Low**	**Low**	**Moderate**	**High**	**Major**
Total	0	1	0	3	0	0
Weighted ranking	1	2	3	4	5	6
Weighted total	--	2	--	12	--	--
Progressive weighted totals	--	2	--	14	--	--
Ranking scores	--	0-2	--	3-14	--	--
Median	**7**					
Overall impact	**Moderate**					

If the Marinus Link project is included in the overall cumulative impact assessment (Table 55), the cumulative impact rating is reduced from moderate to low.

Table 55: Cumulative impact assessment on known cultural heritage values – all projects

	Impact Significance Rating					
Values	**Nil**	**Very Low**	**Low**	**Moderate**	**High**	**Major**
Total	0	1	1	3	0	0
Weighted ranking	1	2	3	4	5	6
Weighted total	--	2	3	12	--	--
Progressive weighted totals	--	2	5	17	--	--
Ranking scores	--	0-2	3-5	6-17	--	--
Median	**5**					
Overall impact	**Low**					

While it is tempting to interpret this result as a positive or beneficial outcome (i.e., the Marinus Link project will have a positive impact on cultural heritage values in the Gippsland region), it is important to remember that this is in terms of the cumulative impact only – the construction, operation and decommissioning impact assessments presented in Sections 7.2, 7.3 and 7.4 indicate the project will have very low to moderate negative residual impacts on at least some cultural heritage values within the study area.

7.6. Summary of Impacts

Potential impacts to known historical and Aboriginal tangible cultural heritage values that may occur throughout the life of the project from design to decommissioning are summarised in Table 56. Noting that residual impacts may vary for some tangible cultural heritage values depending on the project stage, the residual impact significance ratings presented in Table 56 are derived from the construction phase, during which the most extensive/intensive impacts are expected to occur.

Table 56: Impact assessment summary – known cultural heritage values

		Impact Assessment					Residual Impact		
Affected value	Project phase	Cultural Heritage Sensitivity	Impact Magnitude	Impact Significance	EPRs	Specific management/mitigation measures	Cultural Heritage Sensitivity	Impact Magnitude	Impact Significance
Historical cultural heritage values									
MR 1	Life of project	Moderate	Major	**High**	CH1	• Confirmation of the site's boundary by an archaeologist, including the underground portion of the cistern. • Erection of a suitable barrier. • Cultural awareness training to prevent access by project employees and contractors prior to commencing. • Reference to this site protection strategy in daily toolbox meetings. • Monitor underground vibrations at the location of the site and ensure they are within acceptable levels that will not adversely impact the fabric or integrity of the cistern. • Comply with relevant HHMP site-specific management conditions.	Moderate	Nil	**Nil**
Aboriginal cultural heritage values									
VAHR 8120-0212	Life of project	Low	Major	**Moderate**	CH2	• Inspection of the location of VAHR 8120-0212 by a qualified archaeologist. • Collection of all visible surface artefacts within the place extent. • Comply with relevant CHMP site-specific management conditions and contingencies.	Low	Moderate	**Low**
VAHR 8120-0213	Life of project	Low	Major	**Moderate**	CH2	• Inspection of the location of VAHR 8120-0212 by a qualified archaeologist. • Collection of all visible surface artefacts within the place extent. • Comply with relevant CHMP site-specific management conditions and contingencies.	Low	Moderate	**Low**
VAHR 8120-0214	Life of project	Low	Major	**Moderate**	CH2	• Inspection of the location of VAHR 8120-0212 by a qualified archaeologist. • Collection of all visible surface artefacts within the place extent. • Comply with relevant CHMP site-specific management conditions and contingencies.	Low	Moderate	**Low**
VAHR 8121-0052	Life of project	Low	Major	**Moderate**		• Comply with relevant CHMP site-specific management conditions and contingencies.	Low	Nil	**Nil**
VAHR 8121-0060	Life of project	Low	Major	**Moderate**		• Comply with relevant CHMP site-specific management conditions and contingencies.	Low	Nil	**Nil**
VAHR 8121-0061	Life of project	Low	Moderate	**Low**		• Comply with relevant CHMP site-specific management conditions and contingencies.	Low	Nil	**Nil**
VAHR 8121-0062-1	Life of project	Low	Major	**Moderate**		• Comply with relevant CHMP site-specific management conditions and contingencies.	Low	Nil	**Nil**
VAHR 8121-0063	Life of project	Low	Major	**Moderate**		• Comply with relevant CHMP site-specific management conditions and contingencies.	Low	Moderate	**Low**
VAHR 8121-0068	Life of project	Low	Major	**Moderate**		• Comply with relevant CHMP site-specific management conditions and contingencies.	Low	Nil	**Nil**
VAHR 8121-0069	Life of project	Low	Moderate	**Low**		• Comply with relevant CHMP site-specific management conditions and contingencies.	Low	Nil	**Nil**
VAHR 8121-0354	Life of project	Low	Major	**Moderate**		• Comply with relevant CHMP site-specific management conditions and contingencies.	Low	Moderate	**Low**
VAHR 8121-0398-1	Life of project	Moderate	Major	**High**	CH2	• Inspection of the location of VAHR 8121-0398-1 by a qualified archaeologist. • Collection of all surface artefacts visible within the place extent consistent with the methods prescribed under relevant CHMP management conditions. • Salvage excavation consistent with the methods prescribed under relevant CHMP management conditions. • Comply with relevant CHMP contingencies.	Moderate	Moderate	**Moderate**
VAHR 8121-0399	Life of project	Moderate	Major	**High**	CH2	• Inspection of the location of VAHR 8121-0398-1 by a qualified archaeologist. • Collection of all surface artefacts visible within the place extent consistent with the methods prescribed under relevant CHMP management conditions. • Salvage excavation consistent with the methods prescribed under relevant CHMP management conditions. • Comply with relevant CHMP contingencies.	Moderate	Moderate	**Moderate**
ML-001	Life of project	Moderate	Major	**High**	CH2	• Comply with relevant CHMP site-specific management conditions and contingencies.	Moderate	Moderate	**Moderate**

		Impact Assessment					Residual Impact		
Affected value	Project phase	Cultural Heritage Sensitivity	Impact Magnitude	Impact Significance	EPRs	Specific management/mitigation measures	Cultural Heritage Sensitivity	Impact Magnitude	Impact Significance
ML-002	Life of project	Moderate	Major	High	CH2	• Inspection of the location of ML-002 by a qualified archaeologist. • Collection of all surface artefacts visible within the place extent consistent with the methods prescribed under relevant CHMP management conditions. • Salvage excavation consistent with the methods prescribed under relevant CHMP management conditions. • Comply with relevant CHMP contingencies.	Moderate	Moderate	Moderate
ML-003	Life of project	Moderate	Major	High	CH2	• Comply with relevant CHMP site-specific management conditions and contingencies.	Moderate	Moderate	Moderate
ML-004	Life of project	Moderate	Major	High	CH2	• Comply with relevant CHMP site-specific management conditions and contingencies.	Moderate	Moderate	Moderate
ML-005 / MRT 2	Life of project	Moderate	Major	High	CH2	• Comply with relevant CHMP site-specific management conditions and contingencies.	Moderate	Moderate	Moderate
ML-006 / MRT 1	Life of project	Moderate	Major	High	CH2	• Inspection of the location of ML-006/MRT 1 by a qualified archaeologist. • Collection of all surface artefacts visible within the place extent consistent with the methods prescribed under relevant CHMP management conditions. • Salvage excavation consistent with the methods prescribed under relevant CHMP management conditions. • Comply with relevant CHMP contingencies.	Moderate	Moderate	Moderate
ML-007	Life of project	Moderate	Major	High	CH2	• Inspection of the location of ML-007 by a qualified archaeologist. • Collection of all surface artefacts visible within the place extent consistent with the methods prescribed under relevant CHMP management conditions. • Salvage excavation consistent with the methods prescribed under relevant CHMP management conditions. • Comply with relevant CHMP contingencies.	Moderate	Moderate	Moderate
ML-008	Life of project	Moderate	Major	High	CH2	• Inspection of the location of ML-008 by a qualified archaeologist. • Collection of all surface artefacts visible within the place extent. • Salvage excavation consistent with the methods prescribed under relevant CHMP management conditions. • Comply with relevant CHMP contingencies.	Moderate	Moderate	Moderate
ML-009	Life of project	Moderate	Major	High	CH2	• Inspection of the location of ML-009 by a qualified archaeologist. • Collection of all surface artefacts visible within the place extent consistent with the methods prescribed under relevant CHMP management conditions. • Comply with relevant CHMP contingencies.	Moderate	Moderate	Moderate
ML-010	Life of project	Low	Major	Moderate	CH2	• Inspection of the location of ML-010 by a qualified archaeologist. • Collection of all surface artefacts visible within the place extent consistent with the methods prescribed under relevant CHMP management conditions. • Comply with relevant CHMP contingencies.	Low	Moderate	Low
ML-011	Life of project	Low	Major	Moderate	CH2	• Inspection of the location of ML-011 by a qualified archaeologist. • Collection of all surface artefacts visible within the place extent. • Comply with relevant CHMP contingencies.	Low	Moderate	Low
ML-012	Life of project	Moderate	Major	High	CH2	• Comply with relevant CHMP site-specific management conditions and contingencies.	Moderate	Moderate	Moderate
ML-013	Life of project	Moderate	Major	High	CH2	• Comply with relevant CHMP site-specific management conditions and contingencies.	Moderate	Moderate	Moderate
ML-014	Life of project	Moderate	Major	High	CH2	• Comply with relevant CHMP site-specific management conditions and contingencies.	Moderate	Moderate	Moderate
ML-015	Life of project	Moderate	Major	High	CH2	• Comply with relevant CHMP site-specific management conditions and contingencies.	Moderate	Moderate	Moderate

7.7. Environmental Performance Requirements

The following terrestrial cultural heritage EPRs (Table 57) have been developed for the project based on the outcomes of the impact assessment. They have been informed by the potential mitigation measures discussed in the impact assessment and developed with consideration of industry standards and relevant legislation, guidelines, and policies.

Table 57: Cultural heritage Environmental Performance Requirements

EPR ID	Environmental Performance Requirement	Project Stage
CH01	**Develop and implement a historical heritage management plan to avoid and minimise impacts to historical cultural heritage values** Prior to commencement of project works prepare a historic heritage management plan. The plan must be prepared by a suitably qualified archaeologist in consultation with Heritage Victoria. The plan must include: • An unexpected finds protocol • Artefact and site recognition guide • Artefact and site recording standards • Artefact management and retention protocol • Measures to avoid impacts to the brick cistern located at Moores Rd, Buffalo, including: o Confirmation of the cistern site's boundary by a suitably qualified archaeologist. o Installation of a barrier around the site when construction activities are in proximity to the site. o Training to prevent access to the site by project employees and contractors. o Reference to the site and protection measures in daily toolbox meetings when construction activities are in proximity to the site. o Periodic inspections to confirm the barrier around the site remains in place. o Monitoring during construction for vibration related impacts if required under the noise and vibration construction management plan prepared under EPR NV02. • Cultural awareness training • Procedure for historical cultural heritage inductions to be delivered to all project staff and contractors managing or directly undertaking ground disturbing activities. The plan must be implemented during construction. As part of the OEMP, include measures to ensure protection of the brick cistern during operation.	**Construction and Operation**
CH02	**Comply with the Cultural Heritage Management Plans (CHMPs) 18201 and 18244** Implement and comply with CHMPs 18201 and 18244, prepared by qualified Heritage Advisors recognised under s 189 of the *Aboriginal Heritage Act 2006* (Vic), and approved in accordance with Division 5 (ss. 61-66A) of the *Aboriginal Heritage Act 2006* (Vic). The CHMPs must be implemented and complied with during construction and operation.	**Construction and Operation**

EPR ID	Environmental Performance Requirement	Project Stage
CH03	**Develop a cultural values assessment for land and sea country with First Peoples** As part of the strategy developed for EPR EM08, continue working with First Peoples in Victoria and Tasmania about intangible heritage values and develop an understanding of terrestrial and submerged intangible values. Work with First Peoples to prepare cultural values assessments for each group, and incorporate the results relevant to the Victoria jurisdiction into the two CHMPs referenced in EPR CH02.	**Construction and Operation**

The HHMP developed for the project (EPR CH01) should be based on Heritage Victoria's *Guidelines for Investigation Historical Archaeological Artefacts and Sites*[30],and include consideration of the following:

- Whether a Permit is required to authorise works on a place listed on the Victorian Heritage Register.
- Whether a Consent is required to authorise works on a place listed on the Victorian Heritage Inventory.
- If either a Permit or Consent is required, the following must be included as part of the Permit or Consent application: statement of significance; research design; excavation methodology; artefact management proposal; artefact retention/discard policy; artefact conservation proposal (if artefacts requiring treatment are recovered); and a report summarising the works and results.

CHMPs 18201 and 18244 (EPR CH02) must be prepared in accordance with relevant provisions of the *Aboriginal Heritage Act 2006* (Vic) and the *Aboriginal Heritage Regulations 2018* (Vic) and First Peoples-State Relations *Guide to Preparing a Cultural Heritage Management Plan.*[31]

EPR CH03 will be developed in partnership with the three First Peoples groups consulted during the preparation of this report, and will consider the aspirations and objectives of each group regarding the protection and management of cultural heritage values that may be outlined in relevant Country plans (e.g., the Gunaikurnai Whole-of-Country Plan (GLaWAC 2015)).

In addition to the Aboriginal and historical cultural heritage EPRs above, other EPRs that will reduce potential impacts to cultural heritage resulting from the project include:

- Terrestrial ecology EPRs (EIS/EES Technical appendix V)
- Underwater cultural heritage and archaeology EPRs (EIS/EES Technical appendix I)
- Noice and vibration EPRs (EIS/EES Technical appendix T)

EPRs EM05 and EM08 are relevant and have been developed for implementation under the project's Environmental Management Framework (Table 58).

[30] www.heritage.vic.gov.au/__data/assets/word_doc/0026/506672/Guidelines-for-investigating-historical-archaeological-artefacts-and-sites.doc

[31] Guide-to-preparing-a-Cultural-Heritage-Management-Plan-2.docx (live.com)

Table 58: Environmental Management Framework EPRs relevant to cultural heritage

EPR ID	Environmental Performance Requirement	Project Stage
EM05	**Develop and implement a land decommissioning management plan** Prior to the commencement of decommissioning, prepare a land decommissioning management plan with the objective of leaving a safe, stable and non-polluting environment, and minimising impacts during the removal of infrastructure. The land decommissioning management plan must: • Identify above-ground and below-ground infrastructure proposed to be removed or left in situ. • Assess potential impacts of decommissioning activities for the removal or retention of infrastructure • Describe measures to be implemented to avoid or reduce impacts from the removal or retention of infrastructure. • Include a rehabilitation and monitoring program to return the land surface to a condition consistent with pre-construction conditions or a condition consistent with the proposed land use. • Consider management measures adopted in construction and apply these where similar impacts could occur. • Comply with the requirements of relevant legislation and guidelines at the time of decommissioning. • Apply the waste management hierarchy for removed materials. • Be consistent with the Marinus Link Sustainability Framework. The land decommissioning management plan is to be developed in consultation with landholders, relevant stakeholders and regulator/s. The plan must meet the relevant requirements of legislation and guidelines at the time of decommissioning and be approved by the Minister for Planning. The plan will be prepared and approved 6 months prior to decommissioning or at a time as agreed with the relevant authority. The land decommissioning management plan must be implemented during decommissioning.	**Decommissioning**
EM08	**Develop and implement a strategy for ongoing engagement with First Peoples** MLPL will develop and implement a strategy for ongoing engagement with First Peoples in Victoria and Tasmania during construction and operation of the project	**Construction and Operation**

EMP EM05 includes a requirement to consider management measures adopted in construction that should also be applied during decommissioning where similar impacts could occur; these will include specific requirements related to Aboriginal and historic cultural heritage under EPRs CH01, CH02 and CH03.

EPR NV02 is also relevant to the management/mitigation of vibration-related impacts to cultural heritage[32]:

[32] Table 59 extracts components of EPR NV02 that area immediately relevant to cultural heritage. For the full content of EPR NV-2, please refer to Volume 5, Chapter 2 – Environmental Management Framework in the EIS/EES.

Table 59: Nosie and Vibration Management Plan EPRs relevant to cultural heritage

EPR ID	Environmental Performance Requirement	Project Stage
NV02	**Develop and implement a construction noise and vibration management plan** Prior to commencement of project works, develop a construction noise and vibration management plan in consultation with EPA Victoria for onshore construction including the shore crossing. The construction noise and vibration management plan must describe the measures to be implemented during construction onshore in Victoria to minimise the risk of harm from construction noise and vibration, so far as reasonably practicable, in accordance with the General Environmental Duty under the *Environmental Protection Act 2017* (Vic). The plan must document (among other things): • The locations of the most sensitive working areas along the project alignment, including the extent of areas around unavoidable works and vibration sensitive areas (receivers) need to be identified where risk controls for noise and vibration are most important, based on the predicted noise and vibration emissions from construction. • Requirements for monitoring noise and vibration of construction works, including unavoidable works. • Vibration controls and monitoring requirements, including details of the locations and circumstances in which vibration monitoring would be conducted, for heritage structures including the cistern structure identified in Moores Road, Buffalo.	**Construction**

8. Conclusion

This report is an Aboriginal and historical cultural heritage technical study for the project comprising a baseline assessment and an impact assessment. The assessments were conducted across a single study area based on the EIS/EES project description at the time of writing and is focused on the proposed impact footprint that will be associated with the construction, operation and decommissioning of the project.

The baseline assessment includes a description of the environment across the study area and known historical and Aboriginal cultural heritage values identified within it. The impact assessment has been based upon a review and in-depth study of applicable legislation, policy, and guidelines, and the results of ongoing archaeological assessments, geological and geomorphological information, environmental context, ethnographic records of Aboriginal settlement, historical records relating to European settlement and land use, and records of registered and known historical and Aboriginal cultural heritage places.

The desktop assessment conducted for the project has been supplemented by:

- An archaeological fieldwork program conducted throughout 2022 and early 2023, which included ground surveys and a subsurface testing program.
- Three CVA programs commenced in partnership with each of the three First Peoples groups consulted during the preparation of the technical study, the purpose of which is to identify intangible cultural values that are recognised by the First Peoples as being associated with the study area. The CVA program is ongoing and has not yet reached a point where it is able to meaningfully contribute to the impact assessment included in this technical study. However, once finalised, the outcomes of the CVA program will be incorporated into in the two CHMPs currently being prepared for the project, including:
    - tangible and intangible cultural heritage significance assessments
    - consideration of potential impacts to tangible and intangible Aboriginal cultural heritage by project-related activities
    - the development of general and value-specific management conditions and contingencies designed to avoid, manage or mitigate these impacts.

The cultural heritage technical study has also been supported through the operation of the project's First Peoples Advisory Group. The First Peoples Advisory Group was formed in early 2023 and the *First Peoples Engagement Plan* formalised in late 2023, to facilitate ongoing conversations between First Peoples and MLPL. The First Peoples Advisory Group contains representatives from the three First Peoples groups in the Gippsland area, including:

- Gunaikurnai Land and Waters Aboriginal Corporation
- Bunurong Land Council Aboriginal Corporation
- The Boonwurrung Land and Sea Council

The Advisory Group meets regularly with MLPL to discuss project impacts, challenges and opportunities, generally and specific to cultural heritage. These meetings provide valuable opportunities for cultural exchange, understanding and capacity-building.

The key tangible cultural heritage values identified within the study area include:

- One newly recorded historical archaeological site.
- 13 previously registered Aboriginal cultural heritage places, including seven artefact scatters, five LDADs and one multicomponent artefact scatter/ochre quarry site.[33]
- 15 newly recorded Aboriginal cultural heritage places, including three artefact scatters and 12 low-density artefact distributions.

The project has the potential to directly or indirectly impact these tangible cultural heritage values, whose cultural heritage significance varies from low to moderate. In some instances, avoiding direct impacts to these cultural heritage values would require the project to be realigned. Taking into account the nature and scale of the project and the archaeological nature of these cultural heritage values, this assessment recommends the project be realigned to avoid direct impacts by the project to values identified and assessed as having a high cultural heritage significance.

Impacts arising from the construction, operation and decommissioning of the project will be managed and/or mitigated through the implementation of three recommended EPRs. These include:

- EPR CH01: Develop and implement a historical heritage management plan to avoid and minimise impacts to historical cultural heritage values.
- EPR CH02: Comply with the Cultural Heritage Management Plans (CHMPs) 18201 and 18244.
- EPF CH03: Develop a cultural values assessment for land and sea country with First Peoples.

The significance of residual impacts to historical and Aboriginal cultural heritage values after the implementation of these EPRs and other potential site-specific management and/or mitigation measures during the construction (Table 34), operation (Table 42) and decommissioning (Table 48) of the project is summarised in Table 60.

Table 60: Summary of project-related residual impacts during construction, operation and decommissioning

	Residual Impact Significance (29 Cultural Heritage Values)					
Project Phase	**Nil**	**Very Low**	**Low**	**Moderate**	**High**	**Major**
Construction	7 (24%)		7 (24%)	15 (52%)		
Operation	7 (24%)		7 (24%)	15 (52%)		
Decommissioning	7 (24%)		7 (24%)	15 (52%)		

The overall impact of the project on cultural heritage values in the project impact footprint is considered to be low. The cumulative impact of the project is also considered to be low (see Section 7.5.2).

[33] Eight of these previously registered places were investigated during the archaeological fieldwork program and found to no longer contain Aboriginal cultural heritage, and on this basis were excluded from the impact assessment.

Although the impact assessment presented in this report focused on the potential for the project to negatively impact on historical and Aboriginal cultural heritage values, it is also important to acknowledge several positive outcomes:

- The archaeological investigations and CVA program undertaken in support of the project have contributed additional data on the Aboriginal and subsequent historical occupation of the study area.
- The investigation results will enable future protection of cultural heritage places, contribute to the archaeological knowledge base of south-west Gippsland and enable future planning to prevent harm to historical and Aboriginal cultural heritage places.
- Close engagement with the First Peoples groups will also improve knowledge sharing and build relationships for future work and the protection of cultural heritage values.

This assessment has found that the project will meet the evaluation objective specified in Section 4.3 of the EES scoping requirements (see Section 2.2.1 above):

> *Protect, avoid and, where avoidance is not possible, minimise adverse effects on historical heritage values, and tangible and intangible Aboriginal cultural heritage values, in partnership with Traditional Owners*

In order to meet the evaluation objective, this report has characterised the known tangible historical and Aboriginal cultural heritage values in the study area and identified potential impacts to these values that could result from project-related activities. Potential measures to avoid, minimise, or otherwise mitigate these potential impacts have been developed, which if implemented will meet the EES evaluation objective.

Ongoing engagement with First Peoples will occur through the preparation of CHMPs 18201 and 18244, further work to complete the CVA program, and the continued operation of the project's First Peoples Advisory Group. This will enable the project to further understand intangible values and identify appropriate avoidance, management and/or mitigation measures that will be incorporated into the CHMP management conditions.

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Appendix A Aboriginal Archaeological Site Digital Predictive Modelling

INTRODUCTION

The assessment of the likely impact to Aboriginal archaeoligical sites across the study area included the development of a GIS-based digital predictive model which investigated the potential for Aboriginal archaeological sites to be present in certain types of environments within the study area, based on the known distribution of Aboriginal archaeological sites across the study area and the wider geographic region.

Seven site predictive models were developed for the purposes of better understanding patterns of occupation and use of the landscape by Aboriginal people across the study area, based on the following archaeological site types:

- art sites
- artefact scatters
- Ancestral Remains
- quarries
- scarred trees
- shell middens
- stone features

The assessment specifically excluded minor artefact scatters with densities less than 11 per 100 m^2 (now registered in registered in Victoria as low-density artefact scatters or LDADs) as these have the potential to occur on all landforms across the study area without necessarily displaying any readily identifiable patterning in association with specific environmental factors.[34]

The Aboriginal archaeological site predictive model considered several existing spatial datasets including registered cultural heritage places, geomorphological data, ecological vegetation class (EVC) data, hydrological data, ecological data, ethnohistory (observations of Aboriginal lifestyles and activities) and a review of relevant archaeological reports.

The following datasets were used as the base layers in constructing the Aboriginal archaeological site predictive model for the study area:

- modelled 1750s EVCs
- geological units
- distance from freshwater
- slope
- elevation

The datasets were selected on the basis that their attributes were considered to have had a modifying influence on the Aboriginal occupation and use of the geographic region and therefore the study area.

[34] See Bird and Rhoads 2011 for a potential refutation of this position.

This influence is expected to be detectable in variations in the distribution and density of different types of Aboriginal cultural heritage places in the study area.

The specific datasets and the relevant attributes used to generate the model are listed in Table A.1.

Table A1: Datasets used in the construction of the site predictive model

Layer	Dataset	Origin/custodian	Attribute
Vegetation pre-European	NV1750_EVC	© State of Victoria (DELWP)	X_EVCNAME
Geology	GeolUnit_250k_py	© State of Victoria (DEDJTR)	FORMATTED_
Distance to water	HY_WATER_AREA_POLYGON, HY_WATERCOURSE, wetland_pre_european; RAMSAR25 – selected categories, multiring-buffered	© State of Victoria (DELWP)	Distance (classified)
Elevation	EL_CONTOUR – 10m DEM	© State of Victoria (DELWP)	ELEVATION (classified)
Slope	EL_CONTOUR – 10m slope surface	© State of Victoria (DELWP)	SLOPE (classified)

MODEL RATINGS

In preparation for the predictive modelling, summary data was collected regarding the occurrence of attributes from the above-described datasets within the geographic region and within the proposed study area, as well as the prevalence of previously registered Aboriginal cultural heritage places associated with these attributes. Together with the desktop research, this information informed an expert panel assembled to rate the various attributes for their expected influence on the occurrence, distribution and density of different Aboriginal archaeological site types.

The conversion of each spatial dataset for input into the seven models involved the selection of the attribute class(es) to be rated for the actual assignment of ratings to these classes. The ratings range from 1 to 999 in set intervals, with 10 being neutral with respect to the likely presence of Aboriginal archaeological sites (see Table A2). Although the attribute class(es) selected for rating were the same for each of the site type models, the actual ratings vary substantially between the models for the different site types (see below).

Table A2: Rating interpretations used for correlation of each attribute with relevant site type

Rating	Interpretation
1	Strongly positively correlated with places of the relevant type
5	Weakly positively correlated with places of the relevant type
10	Neutral with regard to places of the relevant type
20	Weakly negatively correlated with places of the relevant type
40	Strongly negatively correlated with places of the relevant type
999	No data / disturbed

The strength and type of correlation between sites and particular spatial data classes was established through assessment in workshops with a team of archaeological specialists and was informed by tabulated information regarding the association of known heritage places and environmental variables.

The ratings convey the likelihood that Aboriginal activities resulting in the formation of particular site types were associated with specific attribute classes. In other words, the predictive model is concerned with site formation, not with site preservation. Once the ratings for the first modelling iteration were agreed upon amongst the consulted specialists, rated layers were derived through the reclassification of the input datasets. Rated vector datasets (geology, EVCs and distance from freshwater) were then rasterised in correspondence with the elevation and slope rasters[35].

The ratings applied to each of the five environmental datasets are presented in Tables A3 to A7.

MODEL WEIGHTINGS

To finalise the construction of the predictive models, the rated layers were combined. Rather than averaging the input of these layers, they were weighted differentially to reflect their differential importance in relation to each other in influencing heritage place distribution.

The rated base layers were then converted to rasters and geoprocessed using the ArcGIS Spatial Analyst Raster Calculator. This geoprocessing involved adding up the rating values for each raster cell in a weighted fashion, resulting in a normalized predictive value for each cell. The weightings for the five base layers were constructed by expert comparison of each layer against the other layers, in each case determining which layer was deemed the more influential one in affecting Aboriginal cultural heritage occurrence. The resulting weightings are given in Table A8.

MODEL CLASSIFICATION

Once the rating and weightings were established, the seven predictive models were constructed through raster calculation in an ESRI ArcGIS environment. The models were created using the formulae expressed in Table A9, and subsequently classified into classes ranging from most likely to least likely.

OBSTACLES, LIMITATIONS AND ASSUMPTIONS

The predictive models generated using the above processes have a number of limitations. Some of these are inherited from the input data. The 1750 EVC layer, for instance, is a modelled dataset; the assumptions underlying this modelled dataset also underlie the rated EVC model layer and hence the model itself. The proximity to water dataset was derived from various watercourse data, which is a line dataset that does not take into account the width of watercourse. The limitations of the parent datasets are set out in the relevant metadata statements.

[35] A raster consists of a matrix of cells (or pixels) generally organised into rows and columns (or a grid) where each cell contains a value representing information.

Table A3: 1750s EVC dataset ratings

			Ratings						
EVC_CODE	X_EVCNAME	XGROUPNAME	Ancestral Remains	Art sites	Artefact scatters	Quarries	Shell middens	Scarred trees	Stone features
0001	Coastal Dune Scrub/Coastal Dune Grassland Mosaic	Coastal Scrubs Grasslands and Woodlands	10	10	10	10	10	20	10
0009	Coastal Saltmarsh	Salt-tolerant and/or succulent Shrublands	10	10	10	10	10	20	10
0010	Estuarine Wetland	Wetlands	10	10	10	10	10	20	10
0016	Lowland Forest	Lowland Forests	10	10	10	10	10	7.5	10
0023	Herb-rich Foothill Forest	Dry Forests	10	10	10	10	10	7.5	10
0029	Damp Forest	Wet or Damp Forests	10	10	10	10	10	7.5	10
0030	Wet Forest	Wet or Damp Forests	10	10	10	10	10	5	10
0045	Shrubby Foothill Forest	Dry Forests	10	10	10	10	10	7.5	10
0053	Swamp Scrub	Riparian Scrubs or Swampy Scrubs and Woodlands	10	10	10	10	10	20	10
0055	Plains Grassy Woodland	Plains Woodlands or Forests	10	10	10	10	10	1	10
0083	Swampy Riparian Woodland	Riparian Scrubs or Swampy Scrubs and Woodlands	10	10	10	10	10	5	10
0140	Mangrove Shrubland	Salt-tolerant and/or succulent Shrublands	10	10	10	10	10	20	10
0151	Plains Grassy Forest	Plains Woodlands or Forests	10	10	10	10	10	7.5	10
1106	Damp Heathy Woodland/Lowland Forest Mosaic	Heathy Woodlands	10	10	10	10	10	7.5	10

			Ratings						
0008	Wet Heathland	Heathlands	10	10	10	10	10	20	10
0016	Lowland Forest	Lowland Forests	10	10	10	10	10	7.5	10
0023	Herb-rich Foothill Forest	Dry Forests	10	10	10	10	10	7.5	10
0029	Damp Forest	Wet or Damp Forests	10	10	10	10	10	7.5	10
0030	Wet Forest	Wet or Damp Forests	10	10	10	10	10	5	10
0032	Warm Temperate Rainforest	Rainforests	10	10	10	10	10	20	10
0045	Shrubby Foothill Forest	Dry Forests	10	10	10	10	10	7.5	10
0053	Swamp Scrub	Riparian Scrubs or Swampy Scrubs and Woodlands	10	10	10	10	10	20	10
0055	Plains Grassy Woodland	Plains Woodlands or Forests	10	10	10	10	10	1	10
0083	Swampy Riparian Woodland	Riparian Scrubs or Swampy Scrubs and Woodlands	10	10	10	10	10	5	10
0126	Swampy Riparian Complex	Riparian Scrubs or Swampy Scrubs and Woodlands	10	10	10	10	10	5	10
0151	Plains Grassy Forest	Plains Woodlands or Forests	10	10	10	10	10	7.5	10
1106	Damp Heathy Woodland/Lowland Forest Mosaic	Heathy Woodlands	10	10	10	10	10	7.5	10

Table A4: Geological unit dataset ratings

			Ratings						
CODE	FORMATTED	TEXT_DESCR	Ancestral Remains	Art sites	Artefact scatters	Quarries	Shell middens	Scarred trees	Stone features
-Put	Thorpdale Volcanic Group (-Put)	Tholeiitic and alkalic basalt; minor nephelinite, basanite, nepheline hawaiite, hawaiite, mugearite, nepheline mugearite, tuff, interbedded sandstone and silcrete.	10	10	5	5	10	10	10
-Pv	Latrobe Valley Group (-Pv)	Clastic sedimentary rocks: nonmarine to paralic clastics, marine clastics.	10	10	10	10	10	10	10
-Pvc	Childers Formation (-Pvc): Childers Formation	Sandstone, conglomerate, clay, sand, gravel; fluvial deposits	10	10	10	10	10	10	10
Dxl	Liptrap Formation (Dxl)	Thin-bedded quartz-rich sandstone and siltstone with minor sandstone and gritstone, and rare diamictite which contains chert and limestone pebbles.	10	10	5	5	10	10	10
Ksw	Wonthaggi Formation (Ksw)	Lithic volcaniclastic sandstone, arkose, siltstone, minor conglomerate and coal; fluvial	10	10	10	10	10	10	10
Nlh	Haunted Hills Formation (Nlh)	Sand, silt, gravel: various shades of brown, yellow, red, white; variably sorted; variably rounded; crudely to well-bedded; commonly strongly oxidised with ironstone near	10	10	5	5	10	10	10

			Ratings						
		the top and also within the formation							
Qa1	Alluvium (Qa1)	Gravel, sand, silt: variably sorted and rounded; generally unconsolidated; includes deposits of low terraces; alluvial floodplain deposits	10	10	10	20	10	10	10
Qa2	Alluvial terrace deposits (Qa2)	Gravel, sand, silt: variably sorted and rounded, generally unconsolidated; dissected to form terraces higher than Qa1, alluvial floodplain deposits	10	10	5	20	10	10	10
Qc1	Colluvium (Qc1)	Diamictite, gravel, sand, silt, clay, rubble: sorting variable, usually poor; generally poorly rounded; clasts locally sourced; includes channel deposits with better rounding and sorting	10	10	20	5	10	10	10
Qdl 1	Coastal dune deposits (Qdl1)	Sand, silt, clay: well sorted, poorly consolidated; coastal dune and beach deposits, some swamp deposits	5	10	5	40	5	10	10
Qg	Coastal lagoon deposits (Qg)	Silt, clay: dark grey to black; variably consolidated	5	10	20	40	40	10	10
Sj	Jordan River Group (Sj)	Siltstone, shale, sandstone, rare conglomerate and limestone; sandstone typically quartz-rich, siltstone	10	10	10	10	10	10	10

	Ratings
commonly bioturbated; marine	

Table A5: Distance to freshwater dataset ratings

	Ratings						
Distance to (inland) water	Ancestral Remains	Art sites	Artefact scatters	Quarries	Shell middens	Scarred trees	Stone features
In water	999	999	999	999	999	999	5
0-50m	10	10	5	10	5	5	5
50-100m	10	10	5	10	5	5	5
100-200m	10	10	7.5	10	7.5	7.5	10
200-300m	10	10	7.5	10	7.5	7.5	10
300-400m	10	10	7.5	10	7.5	7.5	10
400-500m	10	10	7.5	10	7.5	7.5	10
500-600m	10	10	7.5	10	7.5	7.5	10
600-700m	10	10	7.5	10	7.5	7.5	10
700-800m	10	10	7.5	10	7.5	7.5	10
800-900m	10	10	7.5	10	7.5	7.5	10
900-1000m	10	10	7.5	10	7.5	7.5	10
1000-1500m	10	10	10	10	10	10	10
1500-2000m	10	10	20	10	20	20	10
2000-2500m	10	10	40	10	40	40	10
>2500m	10	10	40	10	40	40	10

Table A6: Slope dataset ratings

	Ratings						
Slope	Ancestral Remains	Art sites	Artefact scatters	Quarries	Shell middens	Scarred trees	Stone features
<5 deg	5	40	1	10	1	10	1
5-10 deg	20	40	20	10	20	10	20
10-15 deg	20	40	20	10	20	10	20
15-20 deg	20	40	20	10	20	10	20
20-25 deg	20	40	20	10	20	10	20
25-30 deg	20	40	20	10	20	10	20
30-35 deg	20	40	20	10	20	10	20
35-40 deg	20	40	20	10	20	10	20
40-45 deg	20	40	20	10	20	10	20
45-50 deg	20	5	20	10	20	10	20
50-55 deg	20	5	20	10	20	10	20
55-60 deg	20	5	20	10	20	10	20
>60 deg	20	5	20	10	20	10	20

Table A7: Elevation dataset ratings

	Ratings						
Elevation	Ancestral Remains	Art sites	Artefact scatters	Quarries	Shell middens	Scarred trees	Stone features
0-50 m	10	10	10	10	10	10	10
50-100 m	10	10	10	10	10	10	10
100-200 m	10	10	10	10	10	10	10
200-300 m	10	10	10	10	10	10	10

	Ratings						
>300 m	10	10	10	10	10	10	10

Table A8: Base layer dataset weightings

Dataset	Artefact scatters	Art sites	Ancestral Remains	Quarries	Scarred trees	Shell middens	Stone features
Geology	0.119	0.303	0.205	0.444	0.117	0.128	0.388
Elevation	0.095	0.061	0.091	0.089	0.078	0.085	0.082
EVC	0.143	0.197	0.136	0.111	0.392	0.149	0.122
Slope	0.286	0.227	0.295	0.200	0.157	0.255	0.204
Distance to water	0.357	0.212	0.272	0.156	0.255	0.383	0.204
Total	**1.00**	**1.00**	**1.00**	**1.00**	**1.00**	**1.00**	**1.00**

Table A9: Formulae used to create model rasters

Place type	Formula used in modelling
Artefact scatters	("Geology_rated_AS"*0.119047619)+("Elevation_rated_AS"*0.095238095)+("EVC_rated_AS"*0.142857143)+("Slope_rated_AS"*0.285714286)+("Distance_to_water_rated_AS"*0.357142857)
Art sites	("Geology_rated_Art"*0.303030303)+("Elevation_rated_Art"*0.060606061)+("EVC_rated_Art"*0.196969697)+("Slope_rated_Art"*0.227272727)+("Distance_to_water_rated_Art"*0.212121212)
Ancestral Remains	("Geology_rated_AR"*0.204545455)+("Elevation_rated_AR"*0.090909091)+("EVC_rated_AR"*0.136363636)+("Slope_rated_AR"*0.295454545)+("Distance_to_water_rated_AR"*0.272727273)
Quarries	("Geology_rated_Qu"*0.444444444)+("Elevation_rated_Qu"*0.088888889)+("EVC_rated_Qu"*0.111111111)+("Slope_rated_Qu"*0.2)+("Distance_to_water_rated_Qu"*0.155555556)
Scarred trees	("Geology_rated_ST"*0.117647059)+("Elevation_rated_ST"*0.078431373)+("EVC_rated_ST"*0.392156863)+("Slope_rated_ST"*0.156862745)+("Distance_to_water_rated_ST"*0.254901961)
Shell middens	("Geology_rated_SM"*0.127659574)+("Elevation_rated_SM"*0.085106383)+("EVC_rated_SM"*0.14893617)+("Slope_rated_SM"*0.255319149)+("Distance_to_water_rated_SM"*0.382978723)

Place type	Formula used in modelling
Stone features	("Geology_rated_SF"*0.387755102)+("Elevation_rated_SF"*0.081632653)+("EVC_rated_SF"*0.12244898)+("Slope_rated_SF"*0.204081633)+("Distance_to_water_rated_SF"*0.204081633)

In addition to the inherent limitations, the following assumptions and limitations also apply:

- No input was received on the site predictive model from relevant First Peoples groups.
- No cultural values workshops were undertaken.
- No cultural values spatial mapping was prepared for non-archaeological and/or intangible heritage sites.
- Only a single and preliminary iteration of the model was run.
- The non-accessibility of other relevant datasets.
- Absolute elevation data was of limited value without consideration of relative elevation from point to point.
- The outputs are models of the predicted occurrence of specific Aboriginal activities in the landscape and the resulting formation of particular types of Aboriginal cultural heritage places.
- The assumption inherent in the use of the parent datasets is that these datasets adequately reflect the class of phenomena they purport to reflect for the entire time period during which Aboriginal people were present in the areas.
- Expert knowledge of Aboriginal activities in the study areas and their surroundings is based on our knowledge of what is a highly incomplete archaeological record. As a result, there are limitations to the expert assessments.
- The predictive models are limited by the fact that they represent a single modelling iteration and have not benefited from systematic ground-truthing.
- Gaps occur in the existing datasets that will likely require ground-truthing.
- Inconsistencies in the available datasets across the study area exist (e.g., 1:250,000 and 1:50,000 geologies are represented in different areas).
- Conditions of preservation differ between site types.

RESULTS

The results of the Aboriginal archaeological site digital predictive modelling are represented for each site type individually in Figure 31 to Figure 34 (Aboriginal Ancestral Remains), Figure 35 to Figure 38 (artefact scatters), Figure 39 to Figure 42 (art sites), Figure 43 to Figure 46 (quarries), Figure 47 to Figure 50 (scarred trees), Figure 51 to Figure 54 (shell middens), and Figure 55 to Figure 58 (stone features). An overall model representing the potential for Aboriginal archaeological sites to be present across study area is presented in Figure 4 to Figure 8 in the main body of the report.

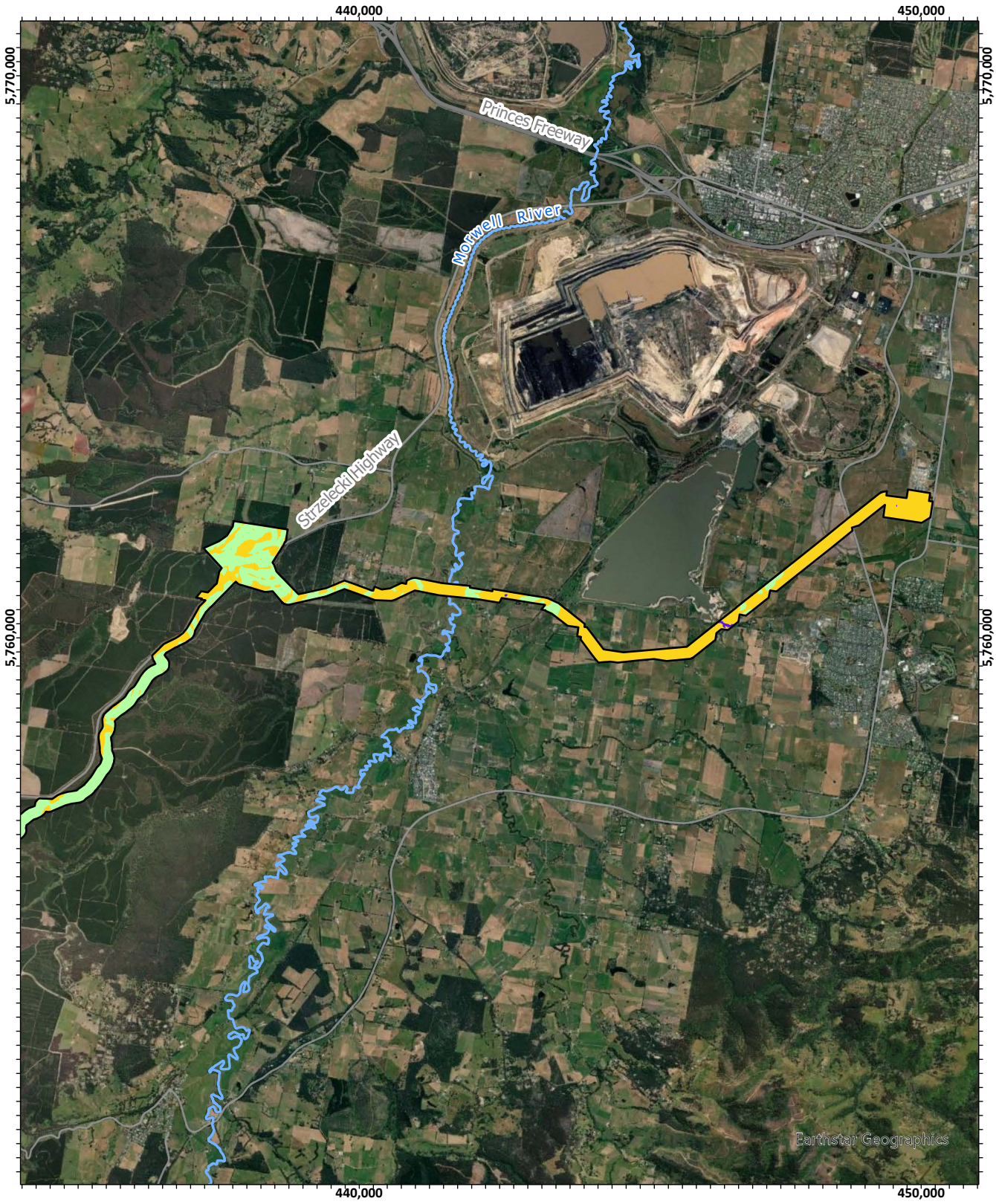

Figure 31: Aboriginal Ancestral Remains predictive model – Map 1

Legend

- Study Area

Ancestral Remains Predictive Model: Value

- Likely (7.5 - 8)
- Somewhat likely (8 - 10)
- Somewhat unlikely (10 - 20)
- Highly unlikely (20 - 40)
- Extremely unlikely (40 - 282.7)

N

Scale: 1:100,000

2 1 0 2 km

Coordinate System: GDA 1994 MGA Zone 55
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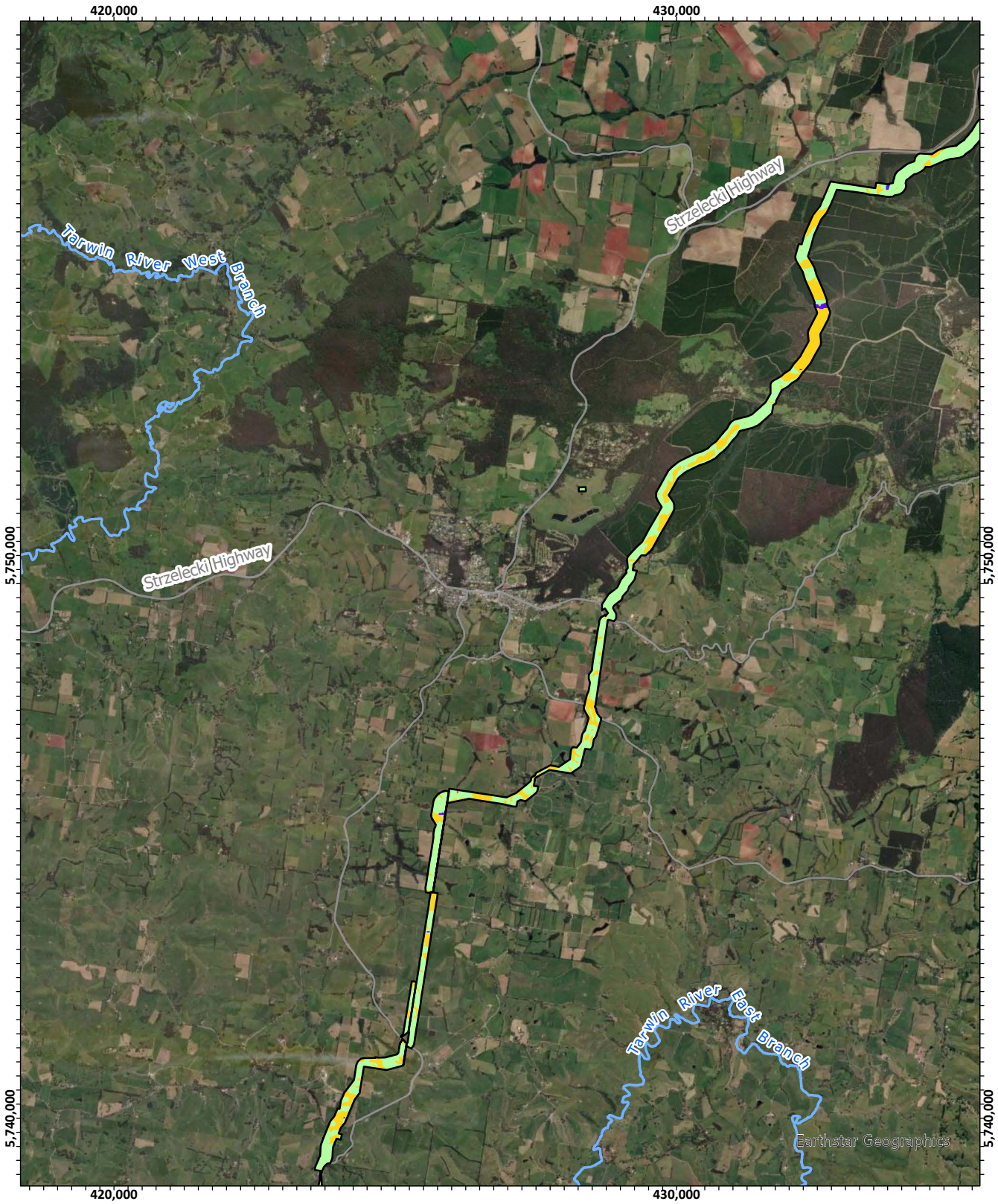

Figure 32: Aboriginal Ancestral Remains predictive model – Map 2

Legend

- Study Area

Ancestral Remains Predictive Model: Value

- Likely (7.5 - 8)
- Somewhat likely (8 - 10)
- Somewhat unlikely (10 - 20)
- Highly unlikely (20 - 40)
- Extremely unlikely (40 - 282.7)

N

Scale: 1:100,000

2 1 0 2 km

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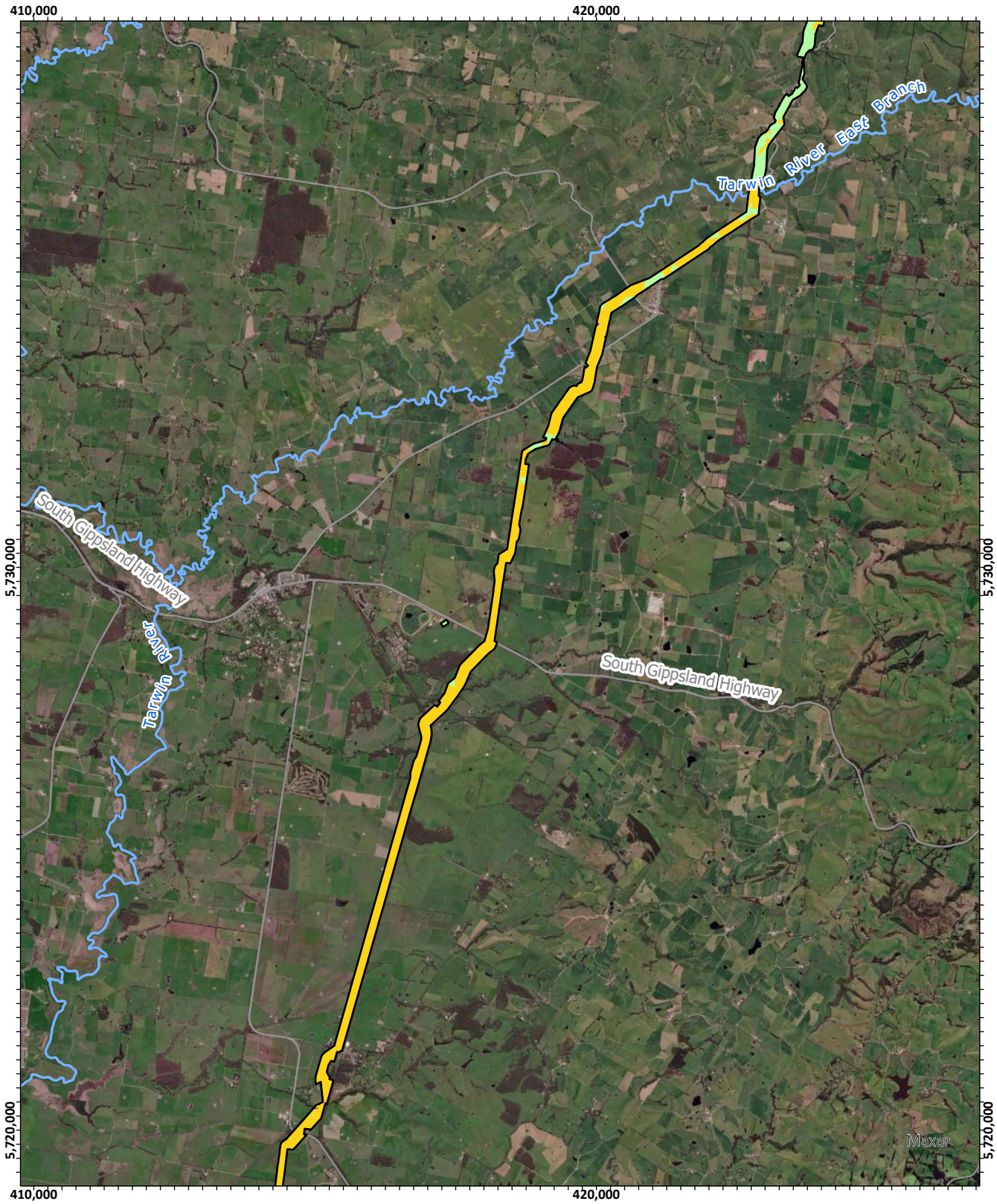

Figure 33: Aboriginal Ancestral Remains predictive model – Map 3

Legend

- Study Area

Ancestral Remains Predictive Model: Value

- Likely (7.5 - 8)
- Somewhat likely (8 - 10)
- Somewhat unlikely (10 - 20)
- Highly unlikely (20 - 40)
- Extremely unlikely (40 - 282.7)

N

Scale: 1:100,000

2 1 0 2 km

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Figure 34: Aboriginal Ancestral Remains predictive model – Map 4

Legend

- Study Area

Ancestral Remains Predictive Model: Value

- Likely (7.5 - 8)
- Somewhat likely (8 - 10)
- Somewhat unlikely (10 - 20)
- Highly unlikely (20 - 40)
- Extremely unlikely (40 - 282.7)

N

Scale: 1:100,000

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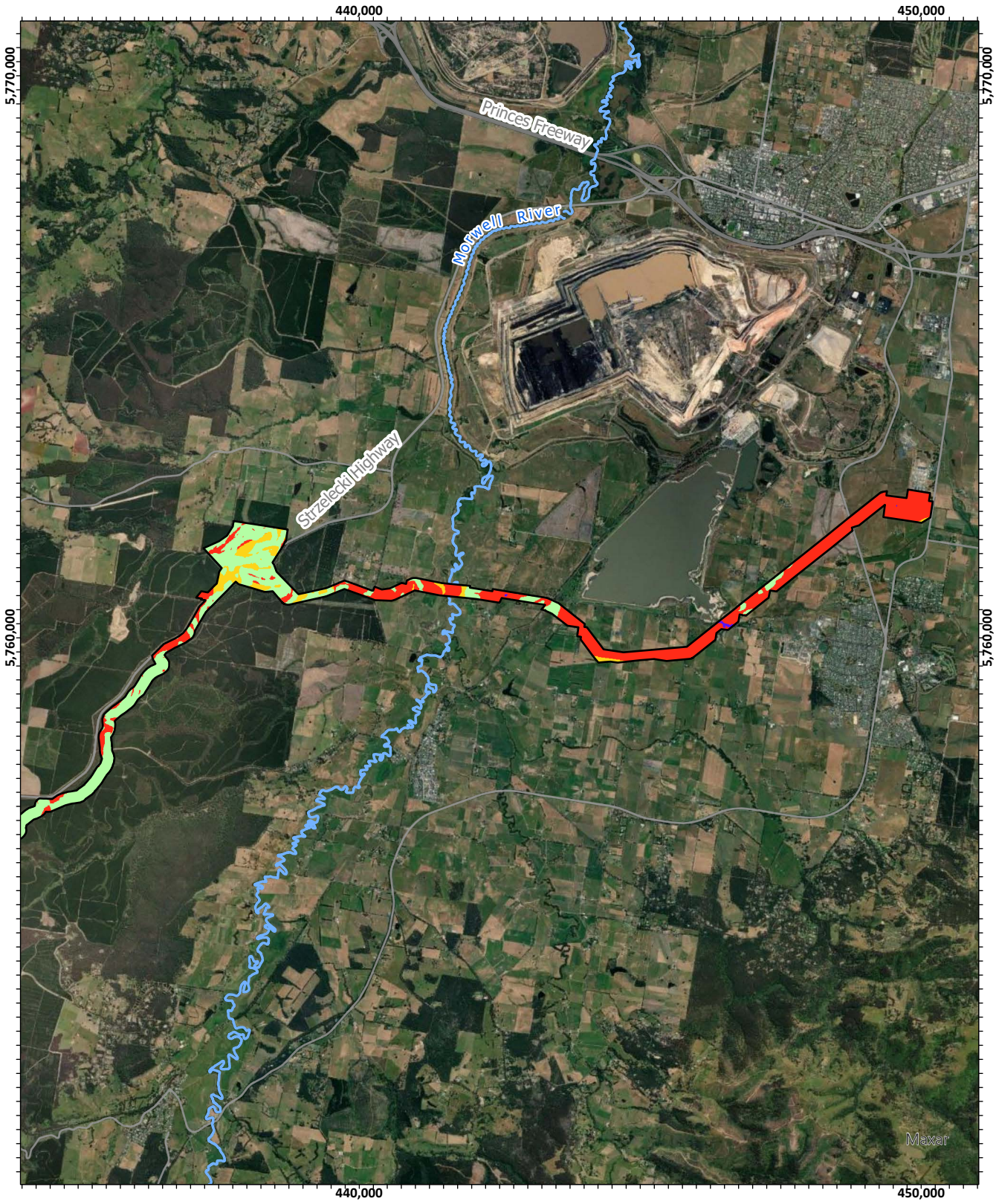

Figure 35: Artefact scatter predictive model – Map 1

Legend

- Study Area

Artefact Scatter Predictive Model Value

- Likely (5 - 6)
- Somewhat likely (6 - 10)
- Somewhat unlikely (10 - 20)
- Highly unlikely (20 - 40)
- Extremely unlikely (40 - 366.1)

N

Scale: 1:100,000

2 1 0 2 km

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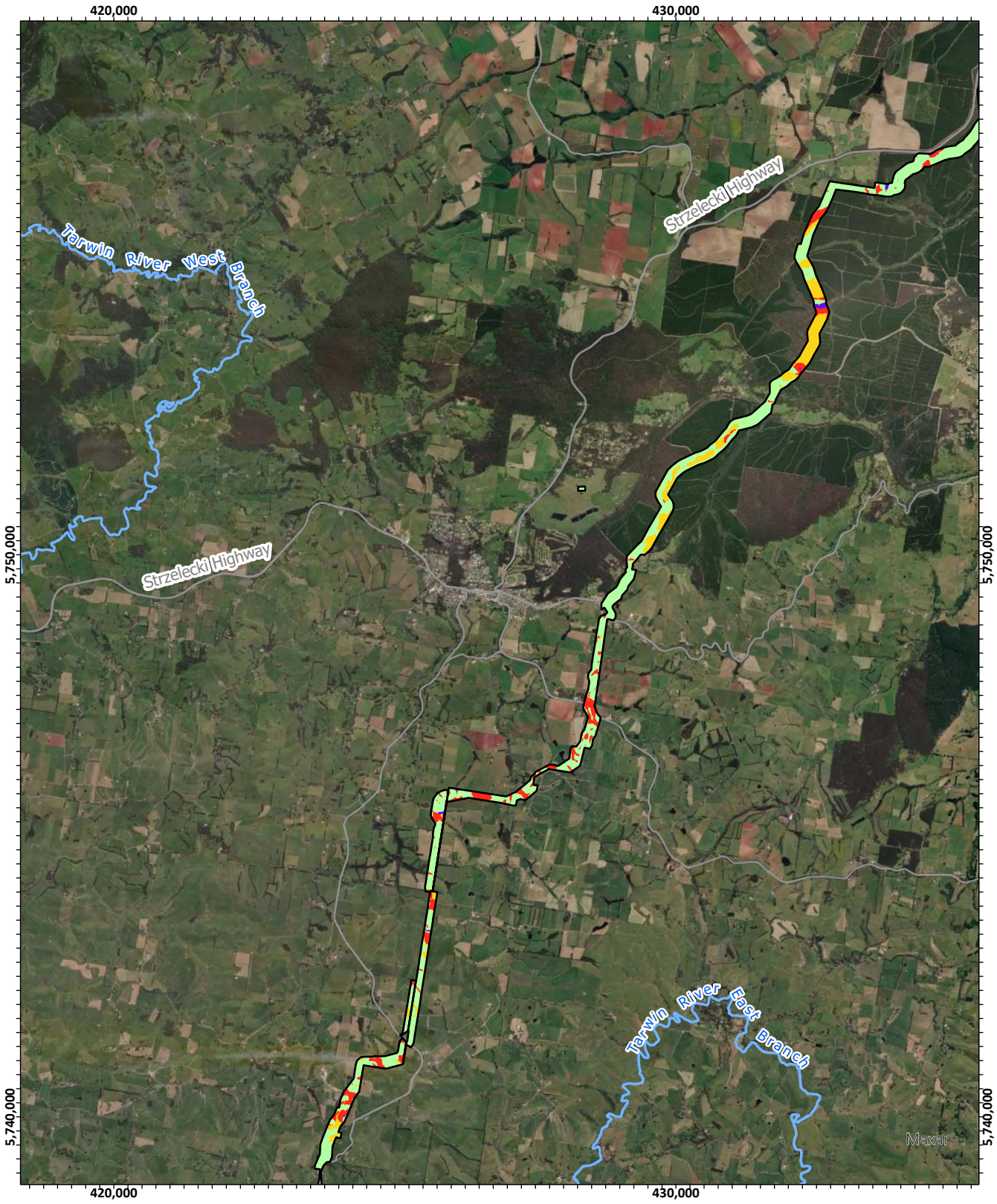

Figure 36: Artefact scatter predictive model – Map 2

Legend

- Study Area

Artefact Scatter Predictive Model Value

- Likely (5 - 6)
- Somewhat likely (6 - 10)
- Somewhat unlikely (10 - 20)
- Highly unlikely (20 - 40)
- Extremely unlikely (40 - 366.1)

N

Scale: 1:100,000

2 1 0 2 km

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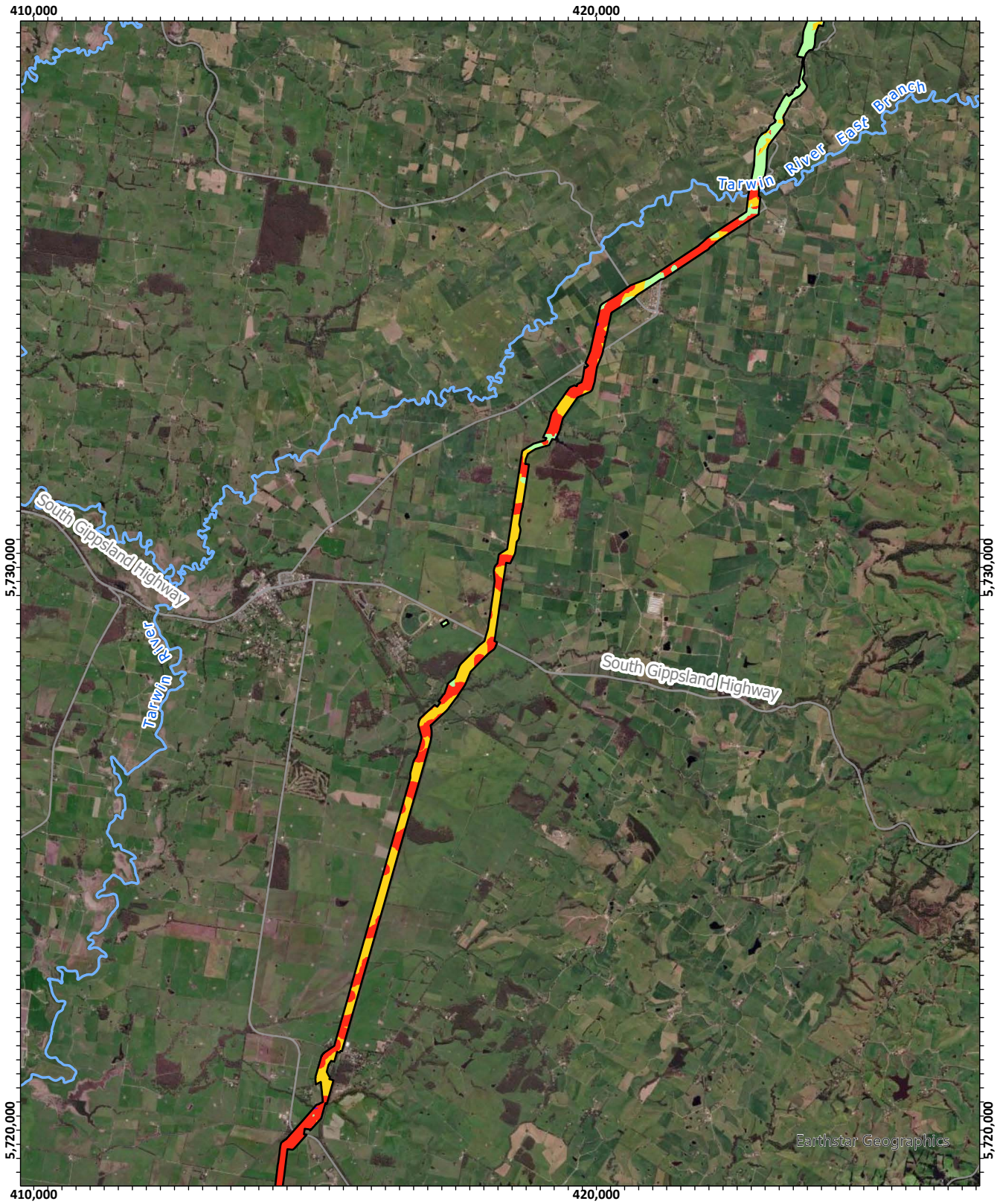

Figure 37: Artefact scatter predictive model – Map 3

Legend

- Study Area

Artefact Scatter Predictive Model Value

- Likely (5 - 6)
- Somewhat likely (6 - 10)
- Somewhat unlikely (10 - 20)
- Highly unlikely (20 - 40)
- Extremely unlikely (40 - 366.1)

N

Scale: 1:100,000

2 1 0 2 km

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Figure 38: Artefact scatter predictive model – Map 4

Legend

- Study Area

Artefact Scatter Predictive Model Value

- Likely (5 - 6)
- Somewhat likely (6 - 10)
- Somewhat unlikely (10 - 20)
- Highly unlikely (20 - 40)
- Extremely unlikely (40 - 366.1)

N

Scale: 1:100,000

2 1 0 2 km

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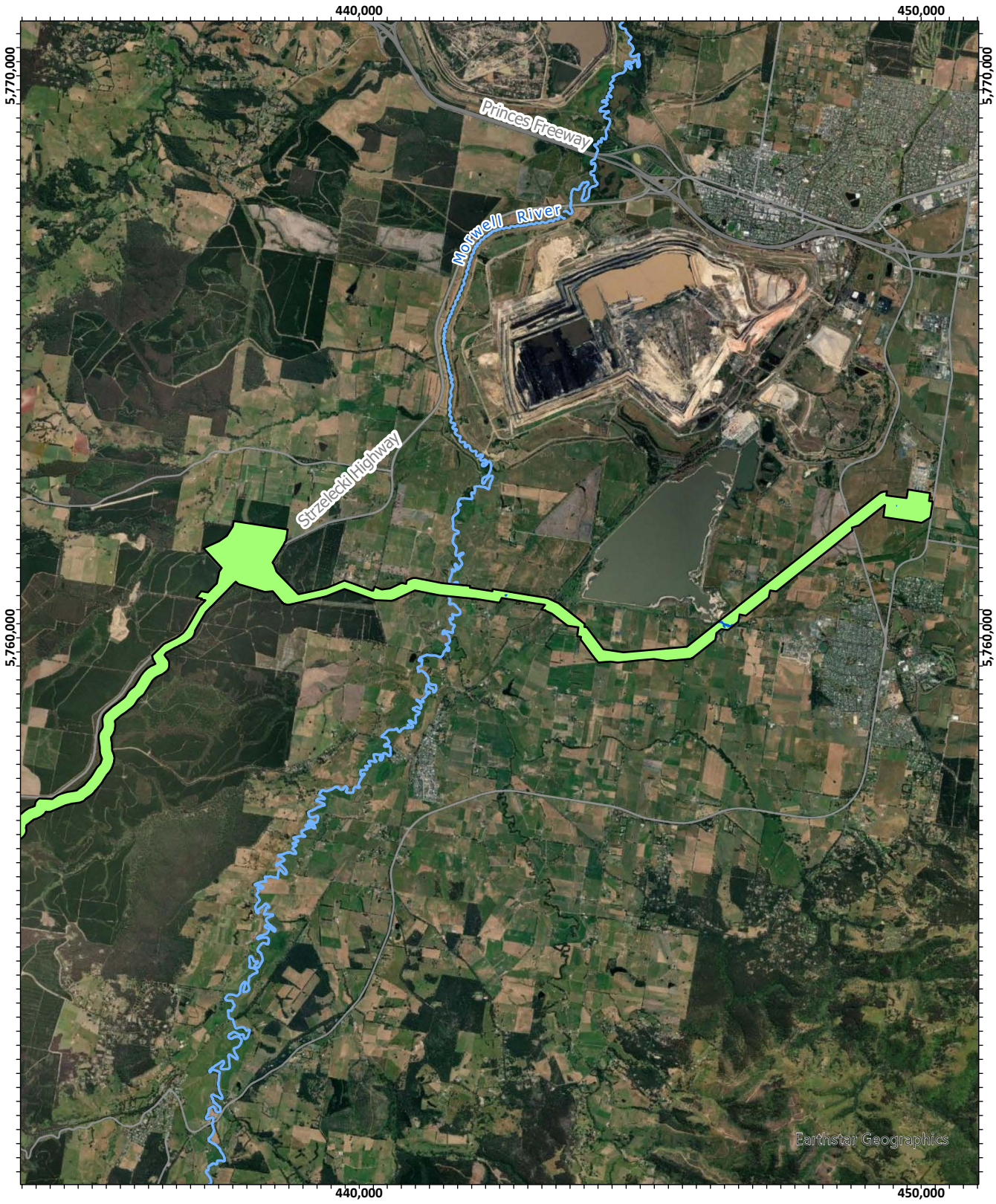

Figure 39: Art site predictive model – Map 1

Legend

- Study Area
- Art Site Predictive Model
- Value
- Somewhat unlikely (16.8 - 20)
- Highly unlikely (20 - 40)
- Extrememly unlikely (40 - 226.6)

N

Scale: 1:100,000

2 1 0 2 km

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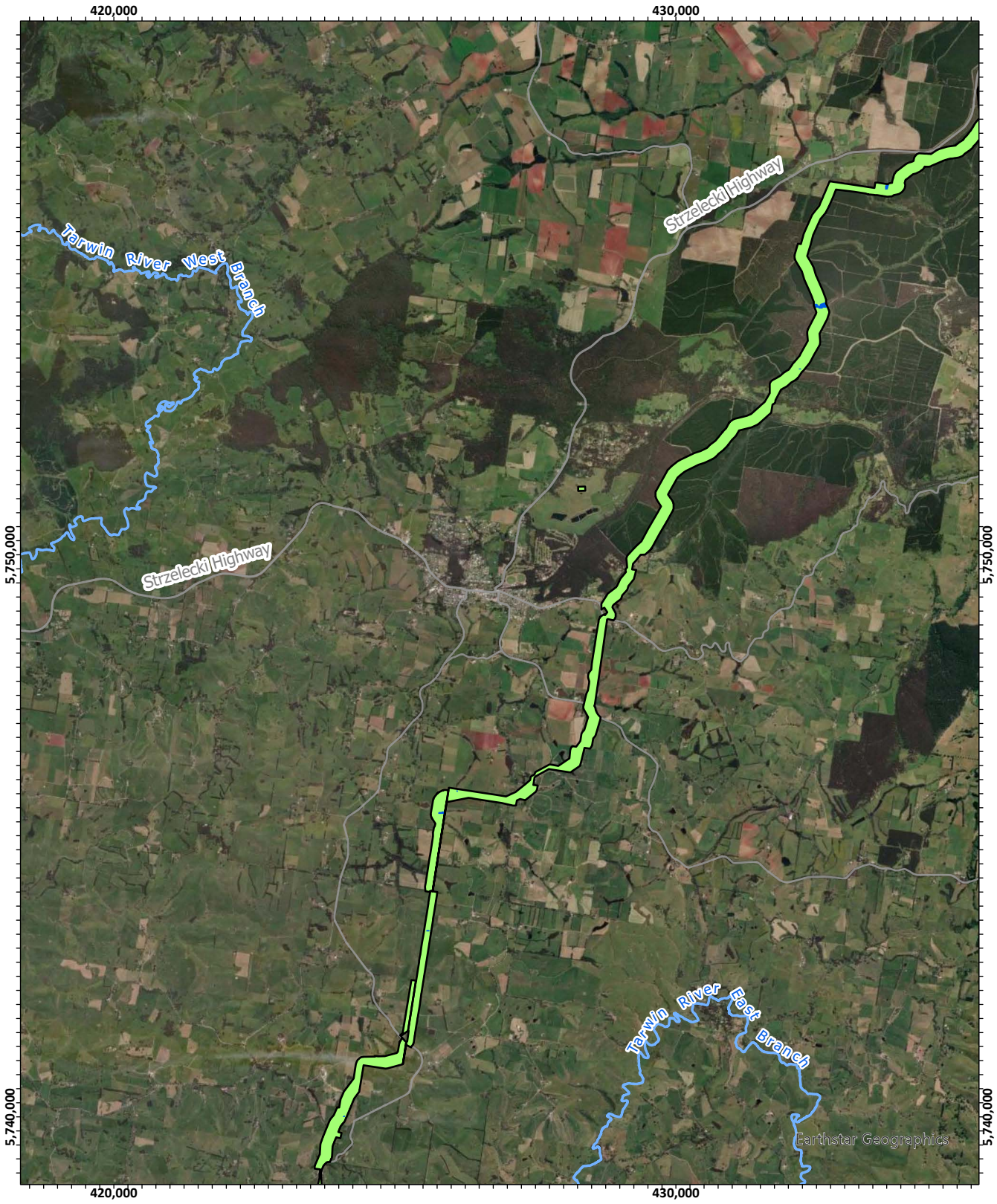

Figure 40: Art site predictive model – Map 2

Legend

- Study Area

Art Site Predictive Model

Value

- Somewhat unlikely (16.8 - 20)
- Highly unlikely (20 - 40)
- Extrememly unlikely (40 - 226.6)

N

Scale: 1:100,000

2 1 0 2 km

Coordinate System: GDA 1994 MGA Zone 55
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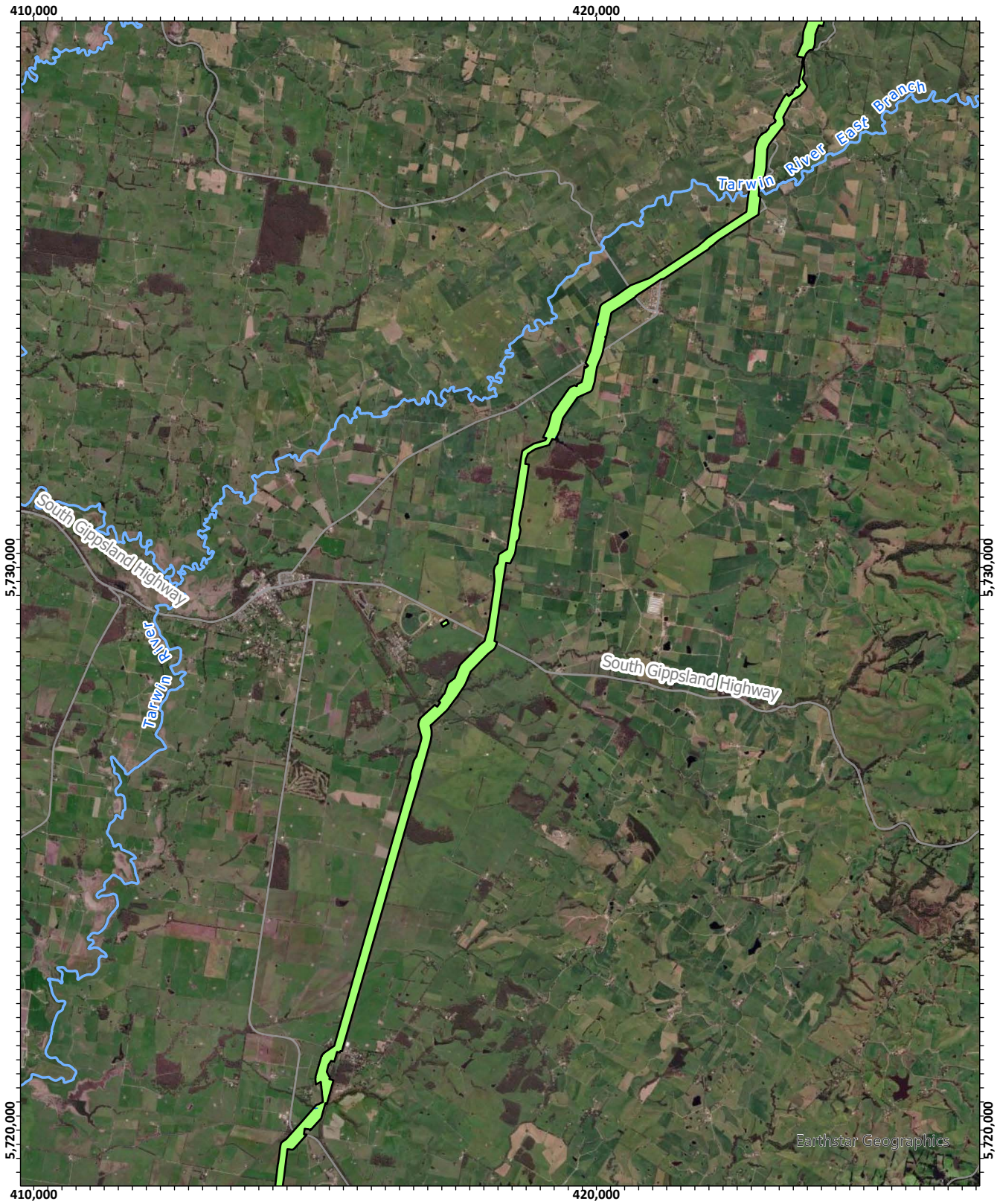

Figure 41: Art site predictive model – Map 3

Legend

Study Area

Art Site Predictive Model

Value

- Somewhat unlikely (16.8 - 20)
- Highly unlikely (20 - 40)
- Extrememly unlikely (40 - 226.6)

N

Scale: 1:100,000

2 1 0 2 km

Coordinate System: GDA 1994 MGA Zone 55
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Figure 42: Art site predictive model – Map 4

Legend

- Study Area
- Art Site Predictive Model
- Value
- Somewhat unlikely (16.8 - 20)
- Highly unlikely (20 - 40)
- Extrememly unlikely (40 - 226.6)

N

Scale: 1:100,000

2 1 0 2 km

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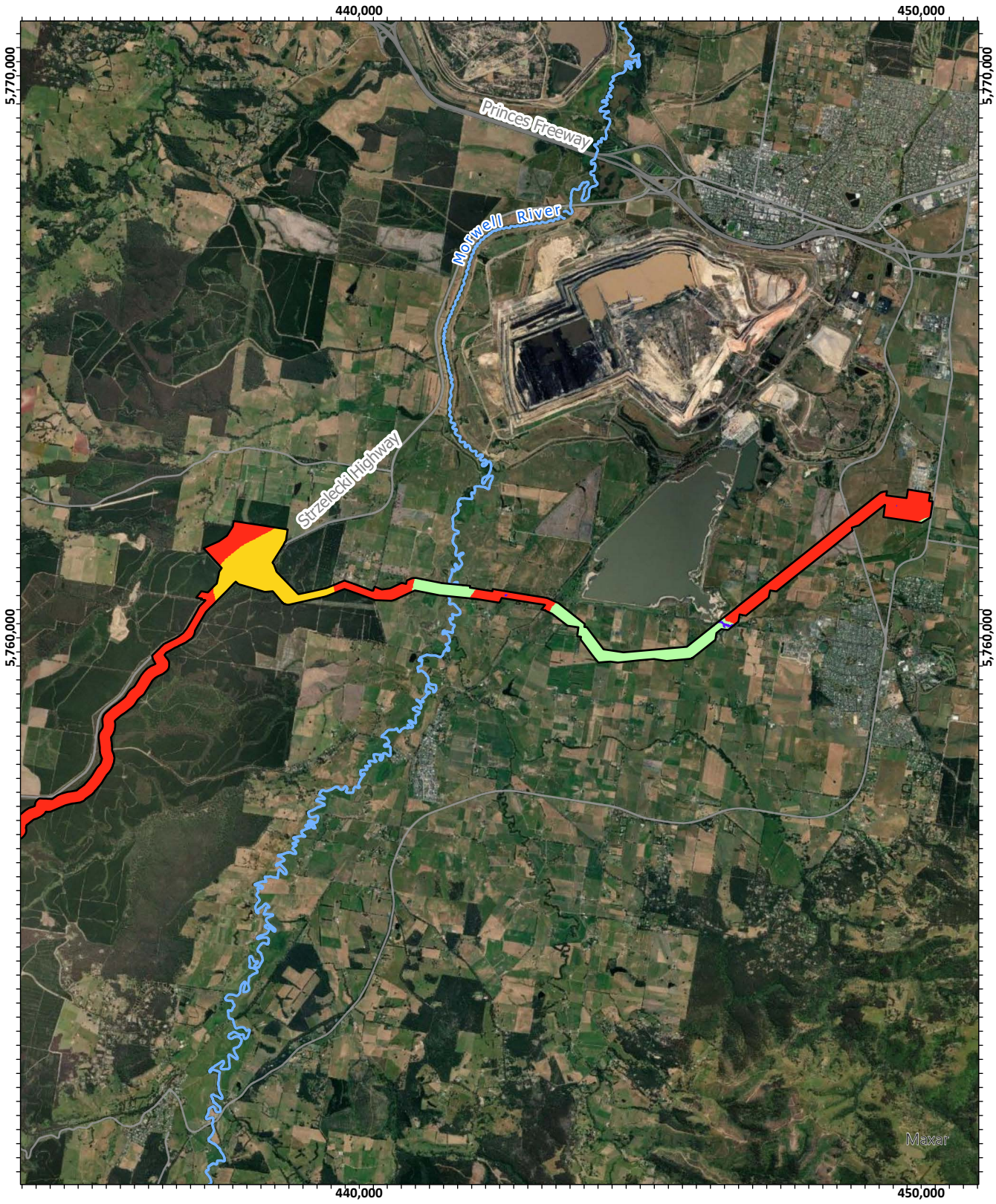

Figure 43: Quarry predictive model – Map 1

Legend

- Study Area
- Quarry Predictive Model Value
- Likely (7.9 - 8)
- Somewhat likely (8.1 - 10)
- Somewhat unlikely (10.1 - 20)
- Highly unlikely (20.1 - 40)
- Extremely unlikely (40.1 - 177.2)

N

Scale: 1:100,000

2 1 0 2 km

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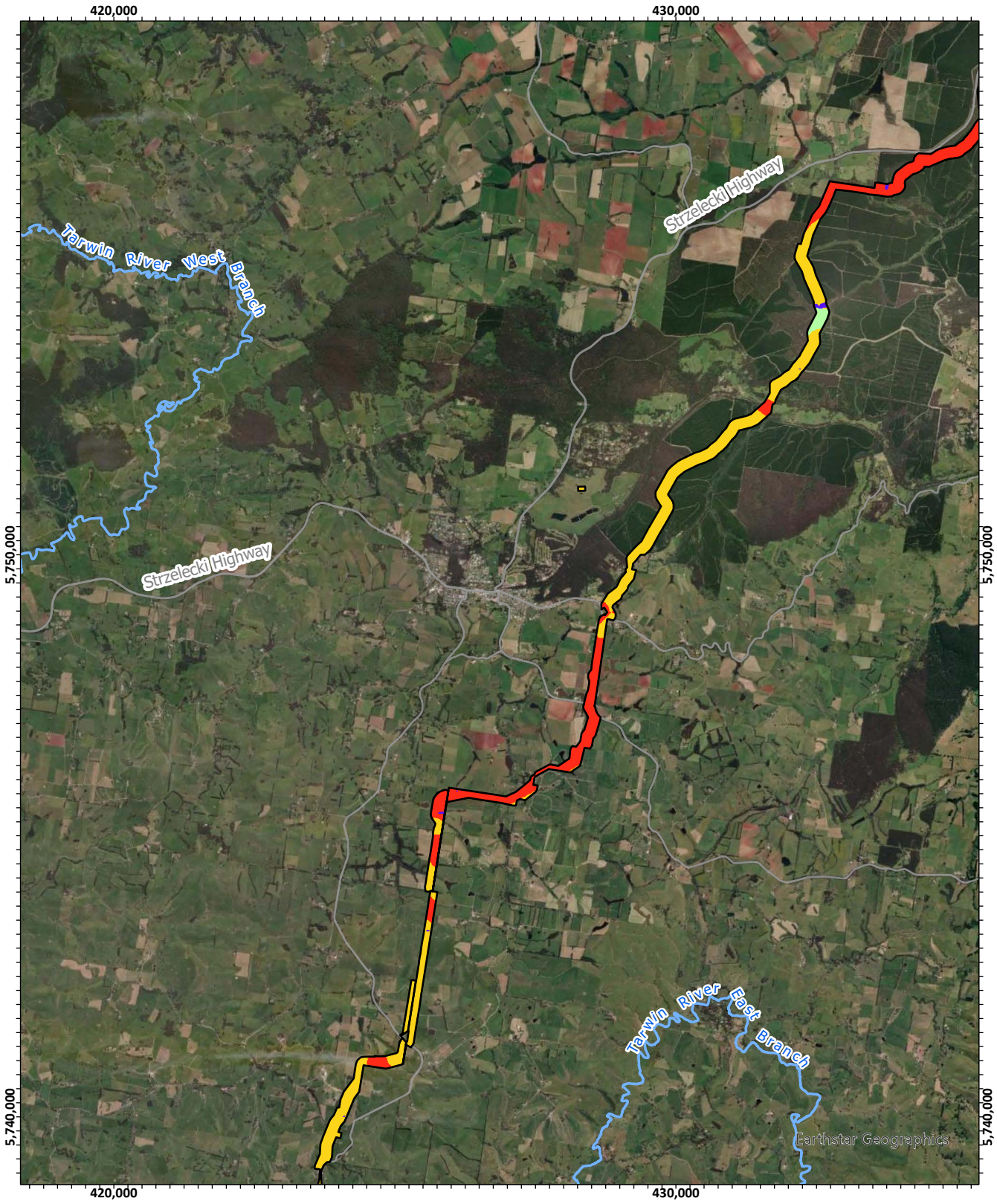

Figure 44: Quarry predictive model – Map 2

Legend

- Study Area

Quarry Predictive Model Value

- Likely (7.9 - 8)
- Somewhat likely (8.1 - 10)
- Somewhat unlikely (10.1 - 20)
- Highly unlikely (20.1 - 40)
- Extremely unlikely (40.1 - 177.2)

N

Scale: 1:100,000

2 1 0 2 km

Coordinate System: GDA 1994 MGA Zone 55
Projection: Transverse Mercator
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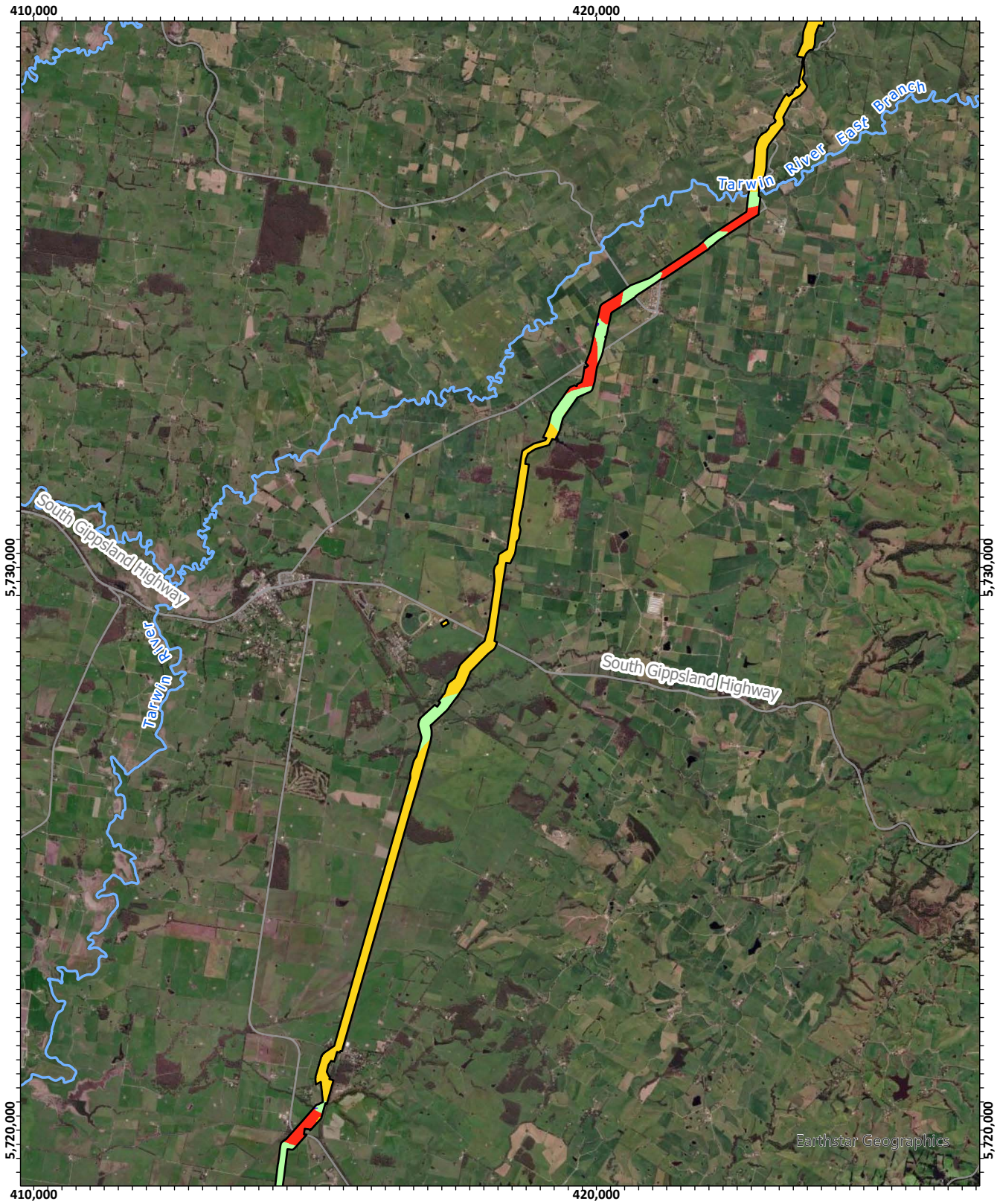

Figure 45: Quarry predictive model – Map 3

Legend

- Study Area

Quarry Predictive Model Value

- Likely (7.9 - 8)
- Somewhat likely (8.1 - 10)
- Somewhat unlikely (10.1 - 20)
- Highly unlikely (20.1 - 40)
- Extremely unlikely (40.1 - 177.2)

N

Scale: 1:100,000

2 1 0 2 km

Coordinate System: GDA 1994 MGA Zone 55
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Figure 46: Quarry predictive model – Map 4

Legend

- Study Area
- Quarry Predictive Model
- Value
- Likely (7.9 - 8)
- Somewhat likely (8.1 - 10)
- Somewhat unlikely (10.1 - 20)
- Highly unlikely (20.1 - 40)
- Extremely unlikely (40.1 - 177.2)

N

Scale: 1:100,000

2 1 0 2 km

Coordinate System: GDA 1994 MGA Zone 55
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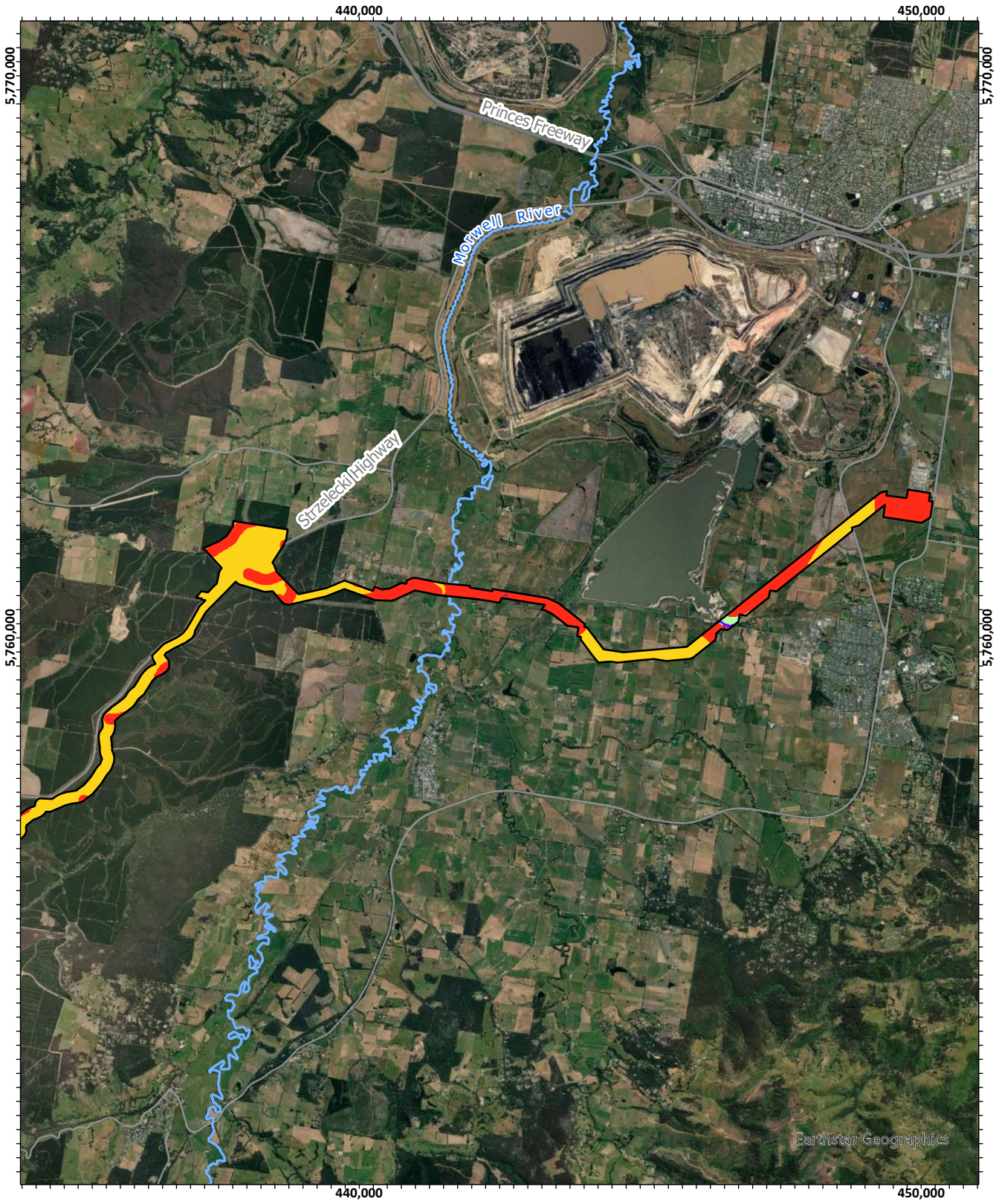

Figure 47: Scarred tree predictive model – Map 1

Legend

- Study Area

Scarred Tree Predictive Model Value

- Likely (5.3 - 8)
- Somewhat likely (8.1 - 10)
- Somewhat unlikely (10.1 - 20)
- Highly unlikely (20.1 - 40)
- Extremely unlikely (40.1 - 266)

N

Scale: 1:100,000

2 1 0 2 km

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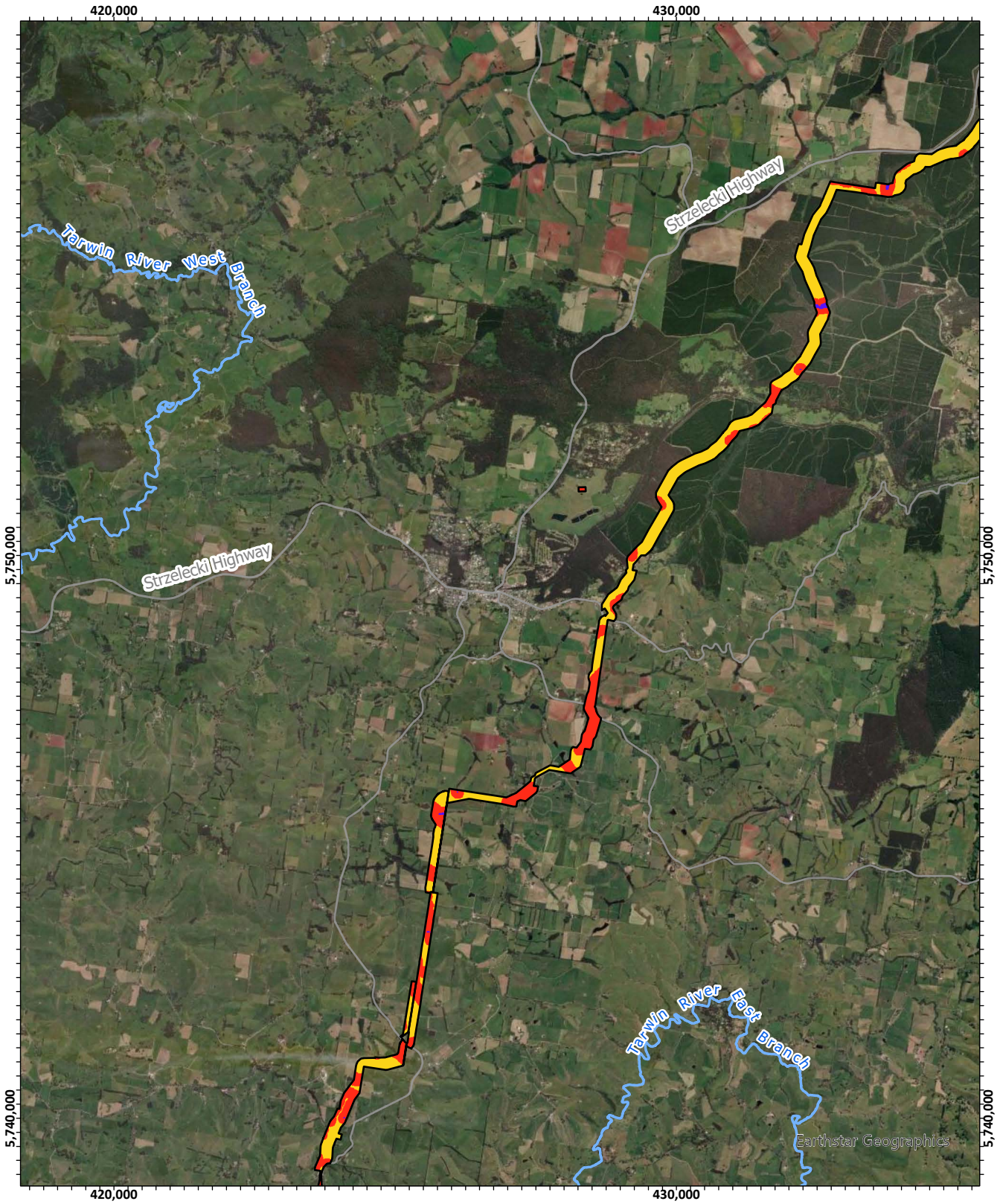

Figure 48: Scarred tree predictive model – Map 2

Legend

- Study Area

Scarred Tree Predictive Model Value

- Likely (5.3 - 8)
- Somewhat likely (8.1 - 10)
- Somewhat unlikely (10.1 - 20)
- Highly unlikely (20.1 - 40)
- Extremely unlikely (40.1 - 266)

N

Scale: 1:100,000

2 1 0 2 km

Coordinate System: GDA 1994 MGA Zone 55
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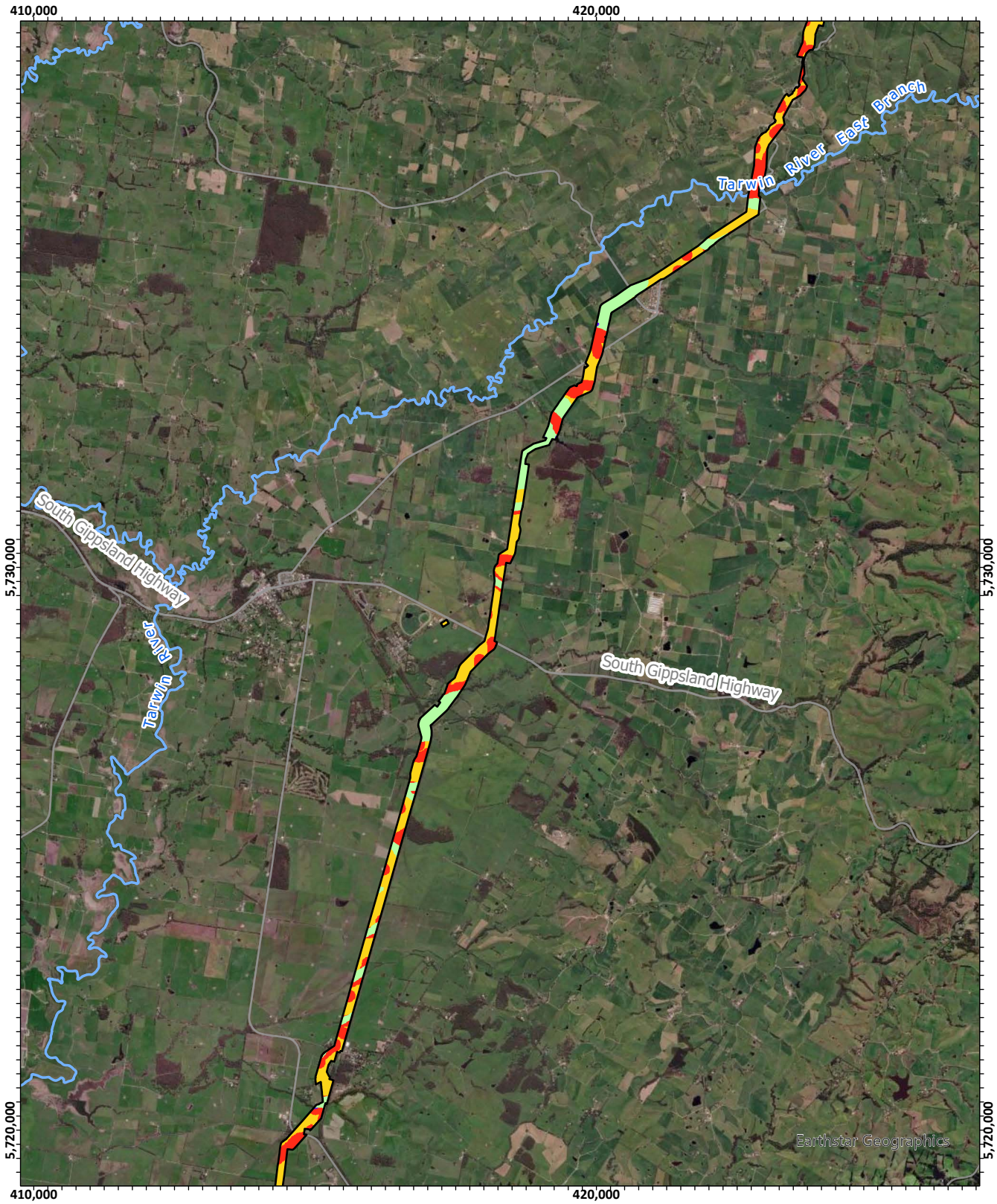

Figure 49: Scarred tree predictive model – Map 3

Legend

Study Area

Scarred Tree Predictive Model Value

- Likely (5.3 - 8)
- Somewhat likely (8.1 - 10)
- Somewhat unlikely (10.1 - 20)
- Highly unlikely (20.1 - 40)
- Extremely unlikely (40.1 - 266)

N

Scale: 1:100,000

2 1 0 2 km

Coordinate System: GDA 1994 MGA Zone 55
Projection: Transverse Mercator
Datum: GDA 1994

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Figure 50: Scarred tree predictive model – Map 4

Legend

- Study Area

Scarred Tree Predictive Model Value

- Likely (5.3 - 8)
- Somewhat likely (8.1 - 10)
- Somewhat unlikely (10.1 - 20)
- Highly unlikely (20.1 - 40)
- Extremely unlikely (40.1 - 266)

N

Scale: 1:100,000

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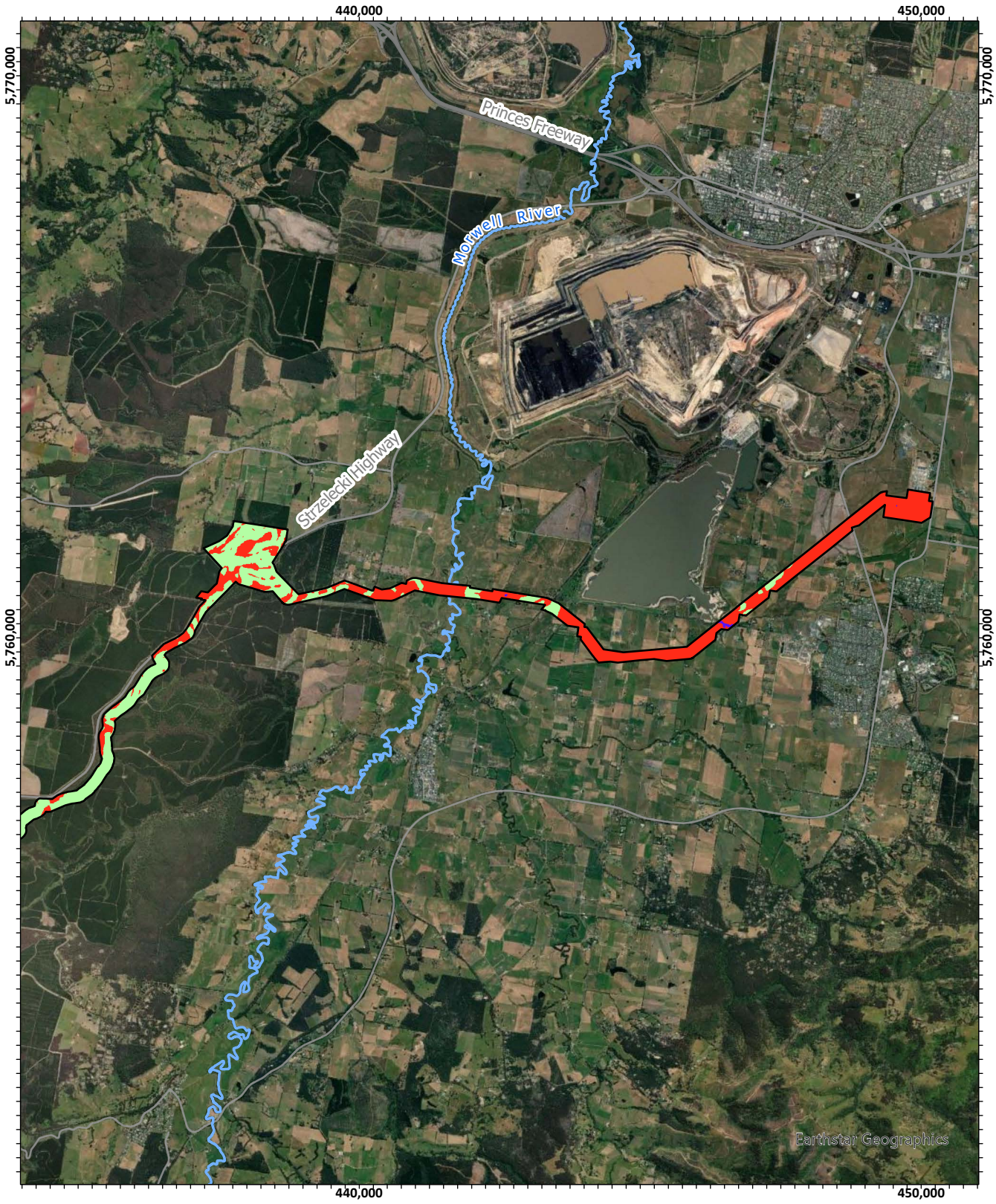

Figure 51: Shell midden predictive model – Map 1

Legend

- Study Area
- Shell Midden Predictive Model Value
  - Likely (5.2 - 8)
  - Somewhat unlikely (8.1 - 10)
  - Somewhat unlikely (10.1 - 20)
  - Highly unlikely (20.1 - 40)
  - Extremely unlikely (40.1 - 391.3)

N

Scale: 1:100,000

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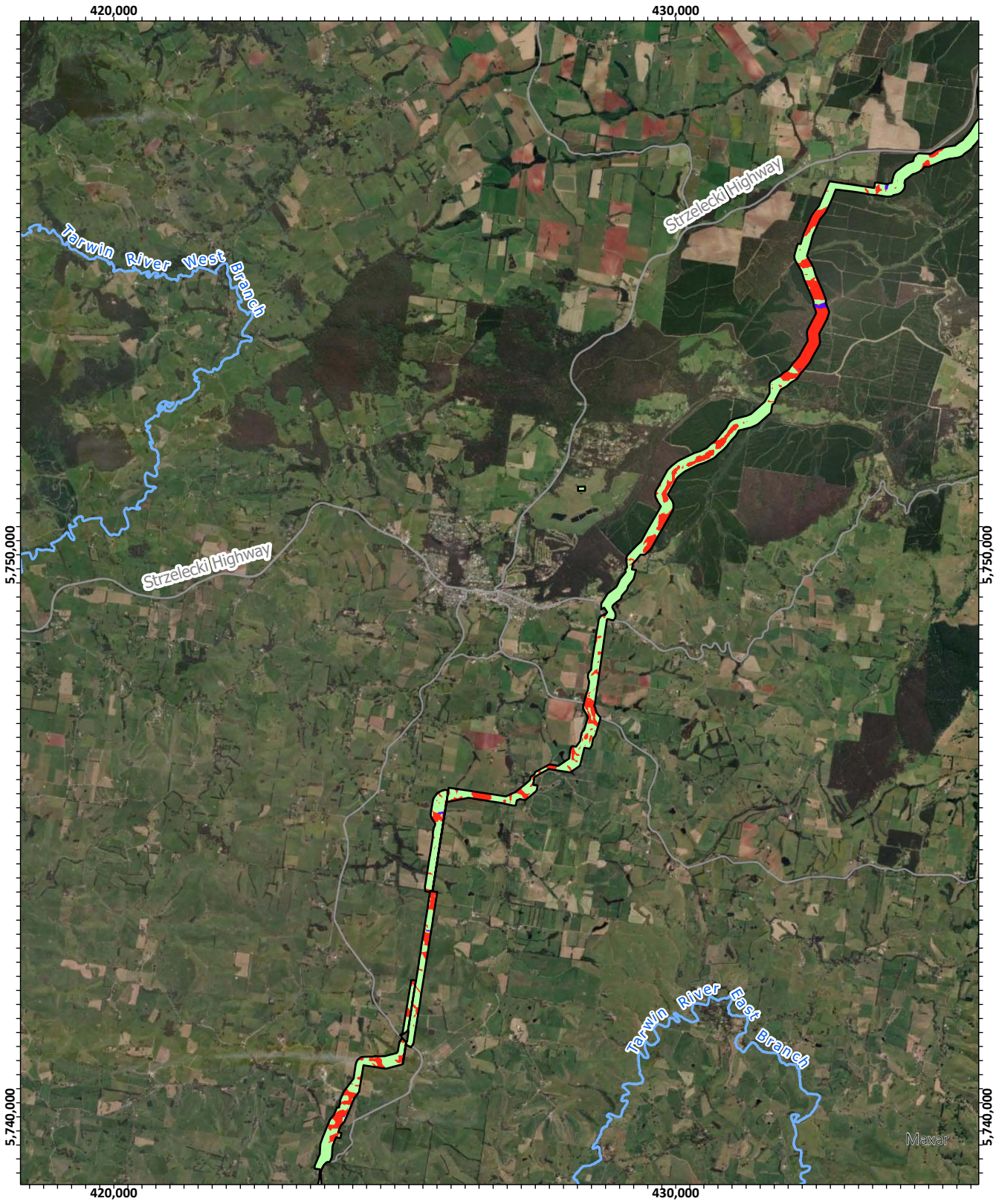

Figure 52: Shell midden predictive model – Map 2

Legend

- Study Area
- Shell Midden Predictive Model Value
- Likely (5.2 - 8)
- Somewhat unlikely (8.1 - 10)
- Somewhat unlikely (10.1 - 20)
- Highly unlikely (20.1 - 40)
- Extremely unlikely (40.1 - 391.3)

N

Scale: 1:100,000

2 1 0 2 km

Coordinate System: GDA 1994 MGA Zone 55
Projection: Transverse Mercator
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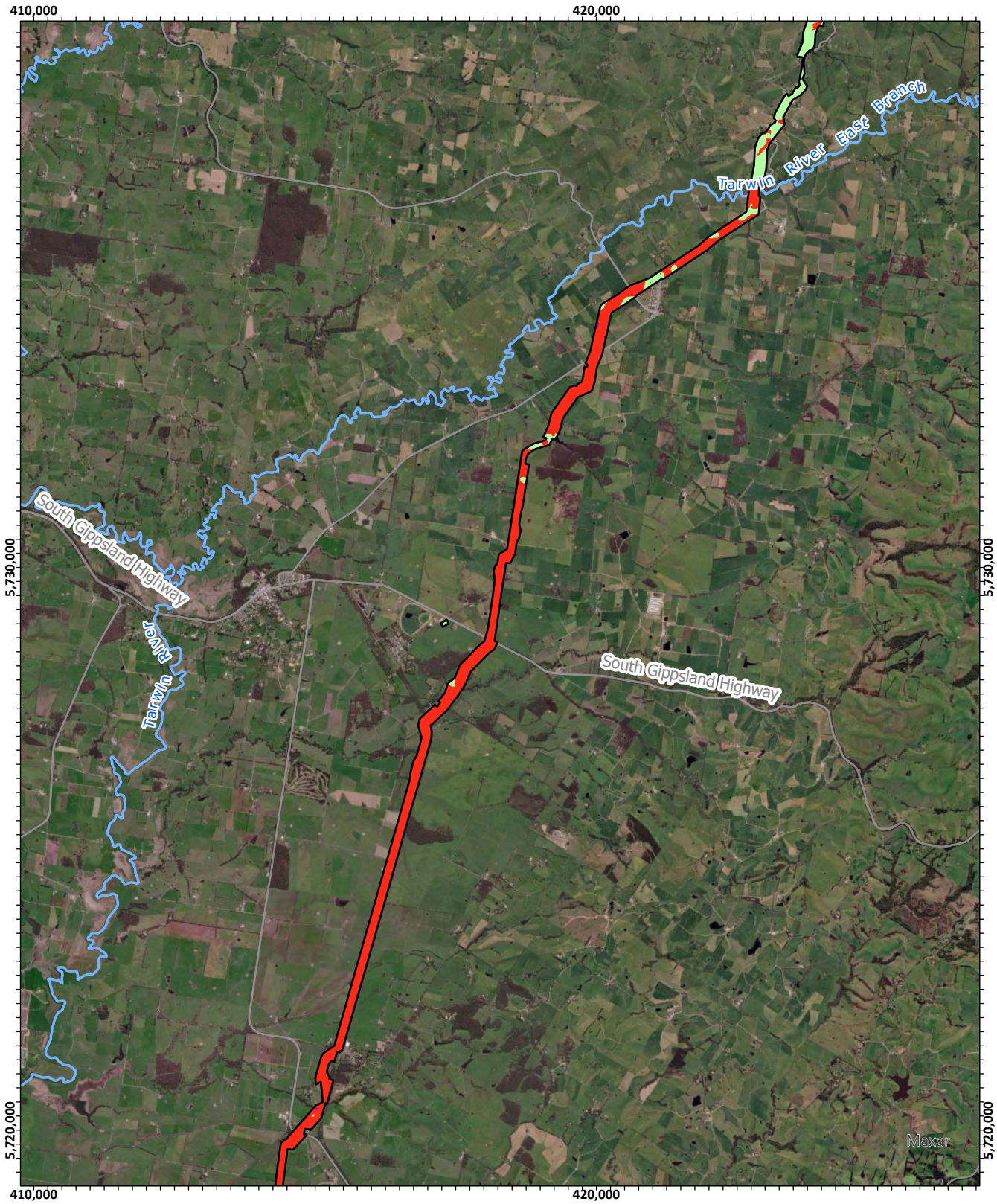

Figure 53: Shell midden predictive model – Map 3

Legend

- Study Area
- Shell Midden Predictive Model Value
  - Likely (5.2 - 8)
  - Somewhat unlikely (8.1 - 10)
  - Somewhat unlikely (10.1 - 20)
  - Highly unlikely (20.1 - 40)
  - Extremely unlikely (40.1 - 391.3)

N

Scale: 1:100,000

2 1 0 2 km

Coordinate System: GDA 1994 MGA Zone 55
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Figure 54: Shell midden predictive model – Map 4

Legend

- Study Area

Shell Midden Predictive Model Value

- Likely (5.2 - 8)
- Somewhat unlikely (8.1 - 10)
- Somewhat unlikely (10.1 - 20)
- Highly unlikely (20.1 - 40)
- Extremely unlikely (40.1 - 391.3)

N

Scale: 1:100,000

2 1 0 2 km

Coordinate System: GDA 1994 MGA Zone 55
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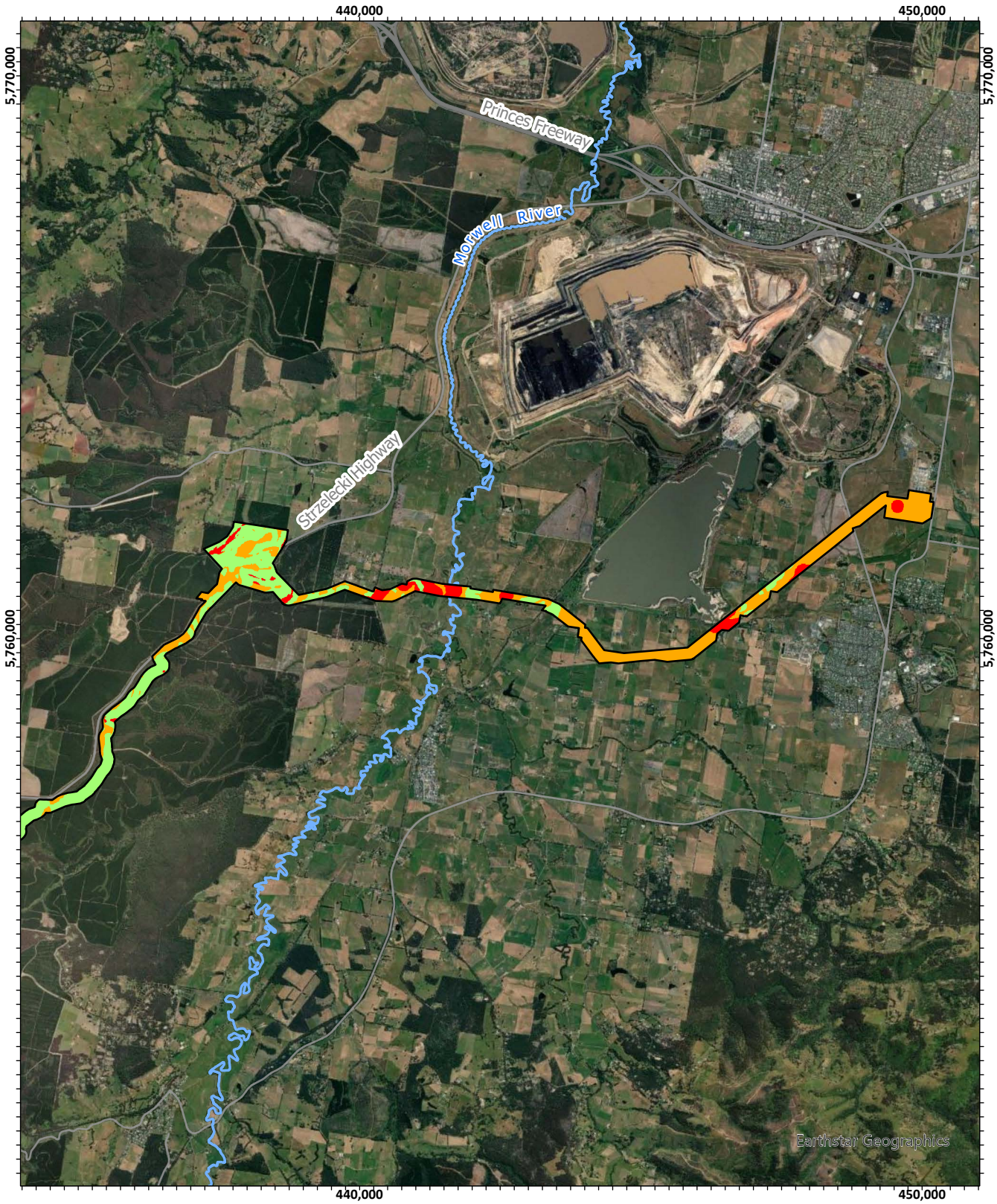

Figure 55: Stone feature predictive model – Map 1

Legend

- Study Area

Stone Feature Predictive Model Value

- Likely (7.2 - 8)
- Somewhat likely (8.1 - 10)
- Somehwat unlikely (10.1 - 12)

N

Scale: 1:100,000

2 1 0 2 km

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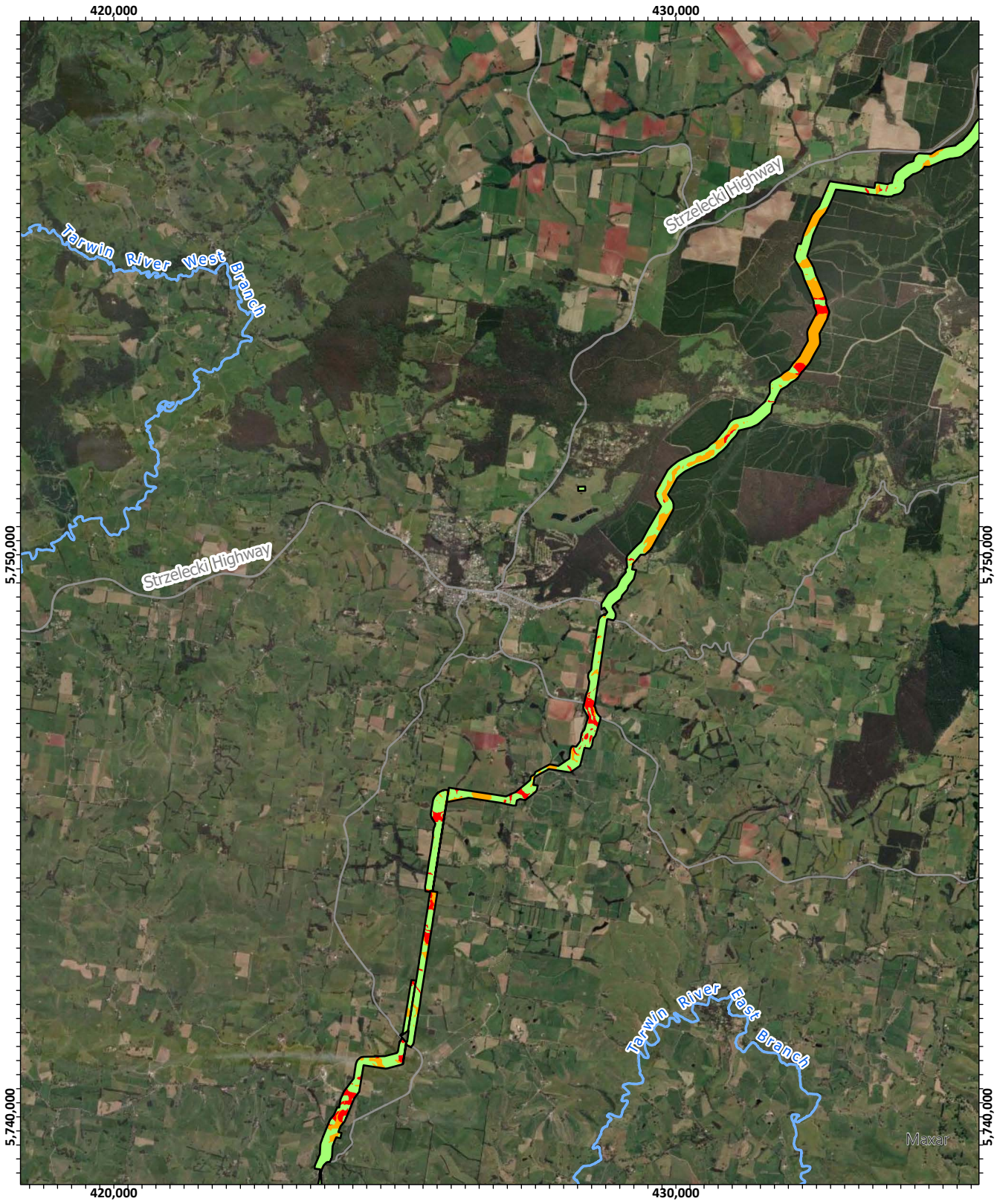

Figure 56: Stone feature predictive model – Map 2

Legend

Study Area

Stone Feature Predictive Model

Value

- Likely (7.2 - 8)
- Somewhat likely (8.1 - 10)
- Somehwat unlikely (10.1 - 12)

N

Scale: 1:100,000

2 1 0 2 km

Coordinate System: GDA 1994 MGA Zone 55
Projection: Transverse Mercator
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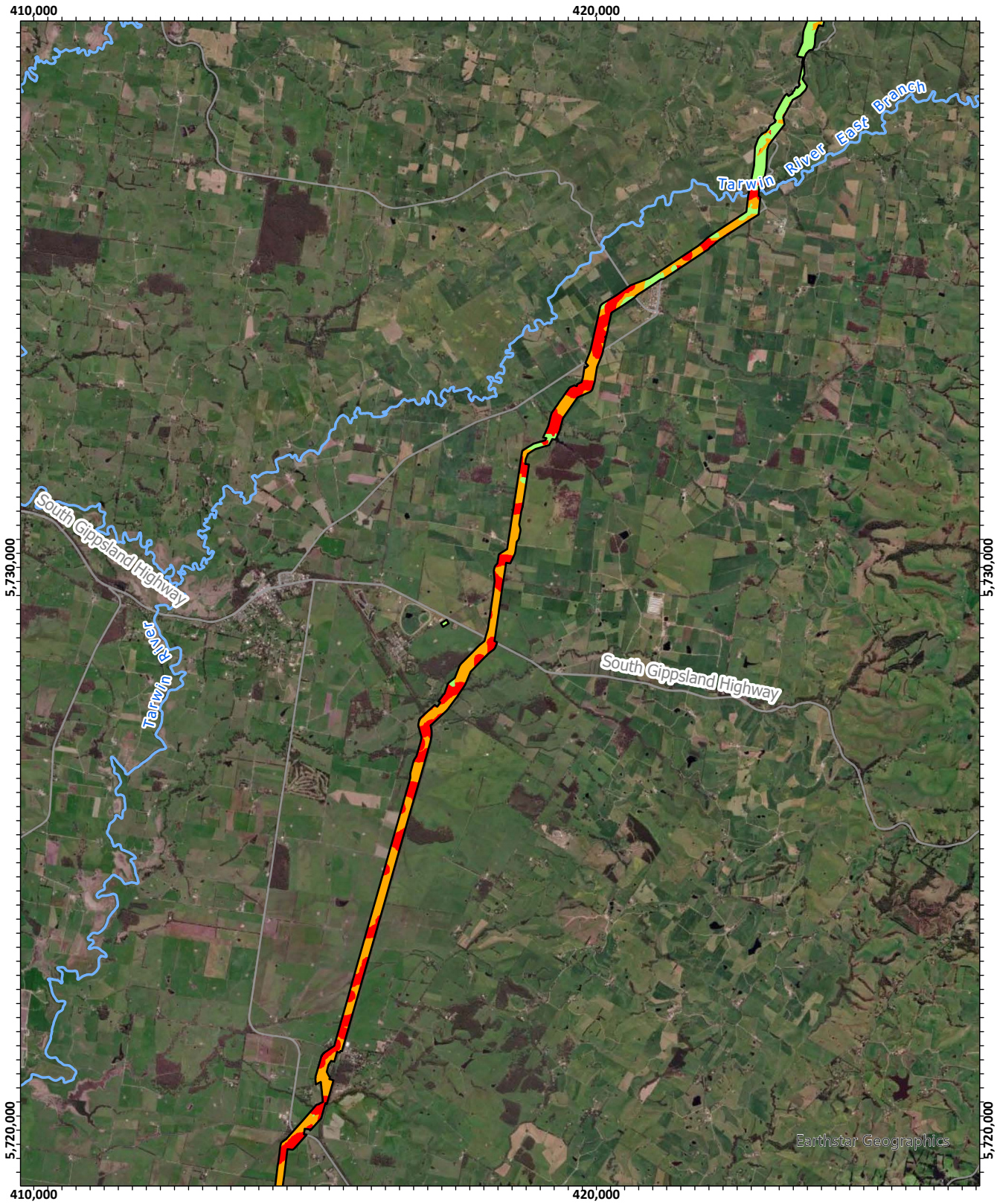

Figure 57: Stone feature predictive model – Map 3

Legend

Study Area

Stone Feature Predictive Model Value

- Likely (7.2 - 8)
- Somewhat likely (8.1 - 10)
- Somehwat unlikely (10.1 - 12)

N

Scale: 1:100,000

2 1 0 2 km

Coordinate System: GDA 1994 MGA Zone 55
Projection: Transverse Mercator
Datum: GDA 1994

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Figure 58: Stone feature predictive model – Map 4

Legend

- Study Area

Stone Feature Predictive Model Value

- Likely (7.2 - 8)
- Somewhat likely (8.1 - 10)
- Somehwat unlikely (10.1 - 12)

N

Scale: 1:100,000

2 1 0 2 km

Coordinate System: GDA 1994 MGA Zone 55
Projection: Transverse Mercator
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Appendix B Registered Aboriginal cultural heritage places in the study area and geographic region listed on the VAHR

VAHR No.	Place Name	Place Type	Surface/ subsurface	Depth (mm)	No. of artefacts	Contents	Landform
8020-0285	Tarwin LDAD 1	LDAD	Surface/Subsurface	0-350 mm	14	S (n=12); Q (n=2); Flakes; Cores; Angular fragments	Plains/ Uplands
8020-0286	Tarwin AS 1	Artefact Scatter	Surface/Subsurface	0-400 mm	10	S (n=10); Flakes; Angular fragment	Ridge
8020-0287	Tarwin AS 2	Artefact Scatter	Surface/Subsurface	0 - 350 mm	54	S (n= 49); Qz (n=2); CQ (n=2); G (n=1); Flakes; Cores; Angular fragments	Ridge
8020-0288	Tarwin AS3	Artefact Scatter	Subsurface	200 - 500 mm	217	S (n= 201); Qz (n=13); G (n=2); C (n=1); Flakes; Cores; Tools; Angular Fragments	Ridge
8020-0299	Black Spur Koonwarra LDAD 1	LDAD	Subsurface	0-550 mm	7	S (n=4); Qz (n=1); Q (n=1); Andesite (n=1); Flakes; Cores	Plains/ Ranges
8020-0300	Black Spur Koonwarra AS 1	Artefact Scatter	Subsurface	150 mm	13	G (n=13); Flakes	Alluvial River Flat
8020-0301	Koonwarra AS 3	Artefact Scatter	Surface/Subsurface	0-280 mm	30	S (n=20); Q (n=5); Qz (n=5); Flakes; Cores; Angular Fragments	Hillcrest
8020-0305	Tarwin River West Branch- Black Spur Creek Koonwarra LDAD 1	LDAD	Surface/Subsurface	0-200 mm	2	S (n=2); Flake; Tool	Slope
8020-0306	Black Spur Koonwarra	Artefact Scatter	Surface/Subsurface	0-200 mm	75	S (n=37); G (n=21); Q (n=10); Qz (n=6); F (n=4); C (n=3); CQ (n=2); B (n=1); Flakes	Spur
8020-0307	Tarwin River West branch- Black Spur Creek Koonwarra	Artefact Scatter	Subsurface	0-350 mm	4	S (n=1); Petrified Wood (n=1); Clay Balls (n=2); Flakes; Clay Balls	Mid slope/Hill
8120-0123	Heywood 2	Artefact Scatter	Surface	NA	1	Qt (n=1); Hammerstone (possible Sandstone)	Coastal dunes
8120-0148	O.R. COTTERS BEACH NORTH 11	Shell Midden	Surface	NA	NA	Shell; Charcoal	Dune/Rocky Shore
8120-0201	SANDY POINT 1	Shell Midden	Subsurface	0-150 mm	NA	Shell; Charcoal	Rocky Shore/ Dune/ Hill
8120-0202	SANDY POINT 2	Shell Midden	Surface	NA	NA	Shell	Rocky Shore/ Dune/ Hill
8120-0203	SANDY POINT 3	Shell Midden	Surface	NA	Unknown	Shell; Flint	Dune Blowout/ Rocky Shore
8120-0204	SANDY POINT 4	Shell Midden	Unknown	Unknown	Unknown	Shell; Charcoal; S; F; Q	Dune/ Shore
8120-0205	SANDY POINT 5	Artefact Scatter	Surface	NA	1	S (n=1); Tool	Lowland Plain
8120-0206	SANDY POINT 6	Shell Midden	Surface	NA	NA	Shell; Charcoal	Sandy Shore
8120-0206	SANDY POINT 6	Artefact Scatter	Surface	NA	Unknown	Unknown	Dune/ Shore
8120-0207	SANDY POINT 7	Shell Midden	Surface	NA	NA	Shell; Charcoal	Dune/Rocky Shore
8120-0208	WARATAH BAY 1	Shell Midden	Surface	NA	NA	Shell	Dune/ Shore
8120-0209	WARATAH BAY 2	Shell Midden	Surface/Subsurface	0-50 mm	NA	Shell; Charcoal	Dune/Rocky Shore
8120-0212	Heywood 1	Artefact Scatter	Surface	NA	1	S (n=1); Core	Coastal dunes
8120-0214	Heywood 3	Artefact Scatter	Surface	NA	2	Qz (n=2); Flakes	Coastal dunes
8120-0224	WARATAH BAY 3	Artefact Scatter	Unknown	Unknown	Unknown	S; Q; Cores; Flakes	Dune
8120-0225	WARATAH BAY 4	Artefact Scatter	Subsurface	Unknown	1	S (n=1); Flake (Blade)	Upper Slope/Levee/ Bank
8120-0272	120 Sweeneys Lane	LDAD	Subsurface	180-300 mm	3	S (n=2); R (n=1); Core; Flake; Scraper	Valley/ Uplands
8121-0044	MORWELL-THORPDALE ROAD 1	Artefact Scatter	Surface	NA	1	Unknown	Spur between two creeks
8121-0045	MORWELL-THORPDALE ROAD 2	Artefact Scatter	Surface	NA	1	S (n=1)	Side of creek valley
8121-0046	TWIN WILLOW 1	Artefact Scatter	Surface	NA	1	S (n=1)	Escarpment beside creek
8121-0048	DAVALGLEN 1	Artefact Scatter	Surface	NA	2	Q (n=2)	Spur between two creeks
8121-0049	DAVALGLEN 2	Artefact Scatter	Surface	NA	1	Q (n=2)	Escarpment beside creek
8121-0050	MORWELL-THORPDALE ROAD 3	Artefact Scatter	Surface	NA	1	S (n=1)	Side of creek valley
8121-0052	SMITHS ROAD 1	Artefact Scatter	Surface/Subsurface	Unknown	5	S (n=4) ; Q (n=1)	Gentle spur
8121-0053	SMITHS ROAD 2	Artefact Scatter	Surface	NA	1	Q (n=1)	Escarpment beside creek
8121-0056	HOLSTONS ROAD 1	Artefact Scatter	Surface	0	12	S, Q, C	Ridge between permanent and intermittent creeks
8121-0057	HOLSTONS ROAD 2	Artefact Scatter	Surface	NA	10	Q, S, Flint/Chert	Ridge between permanent and intermittent creeks
8121-0058	SILVER CREEK TRACK 1	Artefact Scatter	Surface	NA	5	Q (n=1), F (n=1), S (n=3)	Ridge between permanent and intermittent creeks

VAHR No.	Place Name	Place Type	Surface/ subsurface	Depth (mm)	No. of artefacts	Contents	Landform
8121-0059	HOLSTONS ROAD PINES 1	Artefact Scatter	Surface	0	NA	Q, F and Hornfels	Intermittent creek valley
8121-0060	MOUNTAIN HUT ROAD 1	Artefact Scatter	Surface	0	1	S (n=1)	Flat, level ridge
8121-0061	MOUNTAIN HUT ROAD 2	Artefact Scatter	Surface	0	1	Unknown	Ridge between an intermittent creek
8121-0062	KINGS ROAD EXTENSION 1	Artefact Scatter	Surface	0	3	S (n=2) and Q (n=1)	Hill slope
8121-0063	KINGS ROAD TRACK 1	Artefact Scatter	Surface	0	14	Q, S and F	Flat, level
8121-0065	65A PINES TRACK 1	Artefact Scatter	Surface	NA	3	S (n=3)	Intermittent creek valley
8121-0066	65A PINES TRACK 2	Artefact Scatter	Surface	0	1	S (n=1)	Sloping landform
8121-0067	65A PINES TRACK 3	Artefact Scatter	Surface	NA	4	Q (n=2); S(n=2)	Top of hill slope
8121-0068	KINGS RD EXTENSION 2	Artefact Scatter	Surface	0	8	Q (n=3), S (n=1), F (n=1)	Top of a hill slope
8121-0069	MOUNTAIN HUT RD 3	Artefact Scatter	Surface	0	4	Q (n=3), S (n=1)	Ridge between an intermittent creek
8121-0070	SMITHS RD-TEN MILE CREEK	Artefact Scatter	Surface	NA	1	S (n=1)	Top of creek valley
8121-0074	BIRDS GULLY PINES 1	Artefact Scatter	Surface	NA	1	Glass (n=1)	Lowland Plain
8121-0104	MORWELL RIVER 1	Scarred Tree	Surface	NA	1	Eucalyptus	Lowland Plain/ River bank
8121-0130	CHURCHILL 1	Scarred Tree	Surface	NA	1	Unknown	Hill
8121-0131	CHURCHILL 2	Scarred Tree	Surface	NA	1	Eucalyptus	Hill
8121-0176	PERIMETER RD ISA 1	Artefact Scatter	Surface	NA	2	Qz (n=1); S (n=1)	Hill
8121-0177	PERIMETER RD ISA 3	Artefact Scatter	Surface	NA	1	Qz (n=1)	Hill
8121-0178	PERIMETER RD SAS 2	Artefact Scatter	Surface	NA	Unknown	Q, S, B, Foreign material to area	Alluvial Terrace/Slope
8121-0182	MORWELL MONOCLINE	Artefact Scatter	Surface	NA	Unknown	Q, S	Hill
8121-0186	EHC-SS1	Earth Feature	Surface/Subsurface	Unknown	Unknown	Soil Deposit, Q, S	Hill/ Floodplain
8121-0187	EHC-IA1	Artefact Scatter	Surface/Subsurface	Unknown	3	S (n=3)	Hill/ Floodplain
8121-0188	WALDON 1	Artefact Scatter	Subsurface	Unknown	1	S (n=1)	Hill
8121-0194	WALSH AND GIBSONS ROAD ONE	Scarred Tree	Surface	NA	1	Stringybark	Undulating Land
8121-0199	VINALLS ROAD 1	Artefact Scatter	Unknown	NA	3	Qz (n=1); S (n=2)	Flat Land
8121-0221	VINALLS ROAD 2	Artefact Scatter	Surface	NA	66	Q (n=28); S (n=11); C (n=27)	Lowland Plain
8121-0222	DRIFFIELD 1	Artefact Scatter	Surface	NA	9	Q (n=2); Qz (n=1); S (n=1); Chert (2); Volcanic (n=1); Unknown (n=2)	Lowland Plain/ Terrace
8121-0223	DRIFFIELD 2	Artefact Scatter	Surface	NA	36	CQ (n=1); Q (n=14); Qz (n=1); S (n=3); C (n=17)	Lowland Plain/Crest
8121-0224	DRIFFIELD 3	Artefact Scatter	Surface	NA	3	S (n=2); C (n=1)	Lowland Plain/Crest
8121-0227	WILDERNESS CREEK 1	Artefact Scatter	Surface	NA	4	Q (n=2); S (n=1); C (n=1)	Lowland Plain/Crest
8121-0228	WILDERNESS CREEK 2	Artefact Scatter	Surface	NA	2	Q(n=1); C (n=1)	Lowland Plain/Crest
8121-0229	WILDERNESS CREEK 3	Artefact Scatter	Surface	NA	6	Q (n=5); C (n=1)	Lowland Plain/Crest
8121-0230	WILDERNESS CREEK 4	Artefact Scatter	Surface	NA	11	C (n=6); S (n=2); Q (n=2); Unknown (n=1)	Lowland Plain/Crest
8121-0302	Yinnar 1	Artefact Scatter	Subsurface	100-180mm	14	S (n=12); Q (n=1); B (n=1)	Lowland Plain
8121-0303	Yinnar 3	Artefact Scatter	Subsurface	20-35mm	46	S (n=46)	Lowland Plain
8121-0304	Yinnar 4	Artefact Scatter	Subsurface	0-150mm	7	S (n=6); Q (n=1)	Lowland Plain
8121-0305	Yinnar 6	Artefact Scatter	Surface (n=3)/Subsurface (n=14)	0-300mm	17	(n=16); Q (n=1)	Lowland Plain
8121-0306	Yinnar 7	Artefact Scatter	Subsurface	150-400mm	18	S (n=14); Q (n=3); Qz (n=1)	Lowland Plain
8121-0307	Yinnar 2	Artefact Scatter	Subsurface	400mm	1	Qz (n=1)	Lowland Plain

VAHR No.	Place Name	Place Type	Surface/ subsurface	Depth (mm)	No. of artefacts	Contents	Landform
8121-0308	Yinnar 5	Artefact Scatter	Subsurface	0-150mm	1	Q (n=1)	Lowland Plain
8121-0312	MORWELL-THORPDALE ROAD 4 IA	Artefact Scatter	Subsurface	0-280mm	1	Q (n=1)	Lowland Plain
8121-0339	Churchill-Jumbuk LDAD1	LDAD	Subsurface	0-100mm	1	S (n=1)	Lowland Plain
8121-0340 (1-2)	Churchill-Jumbuk AS1	Artefact Scatter; Object Collection	Subsurface	200-350mm	14	S (n=14)	Lowland Plain
8121-0354	Strzelecki Highway 1	LDAD	Surface and subsurface	0-500 mm	51	S (n=44), Q (n=2), Qz (n=3), R (n=1), C (n=1)	Dissected plains
8121-0369	Eel Hole Creek 1	Artefact Scatter	Surface	0	300	S (n=7); Q (n=10); Qz (n=1)	Creekline/Flats/Floodplain/Low Rises/Stream
8121-0374	Mirboo North LDAD 1	LDAD	Subsurface	200-500mm	2	S (n=1); Qz (n=1)	Lowland Plain
8121-0382	Mirboo North LDAD 2	LDAD	Subsurface	100-300mm	3	S (n=1); Qz (n=1); Chalcedony (n=1)	Volcanic Plain
8121-0397	Eel hole Creek 2	Artefact Scatter/ Quarry	Surface	0	300	S (n=10); Q (n=3); Qz (n=1)	Low Rises
8121-0398	Eel Hole Creek 3	Artefact Scatter	Surface	0	101	S (48), Q (n=34), Qz (n=15)	Low rise, creek line
8121-0399	Eel hole Creek 4	Artefact Scatter/ Quarry	Surface	0	60	S (n=55), Qz (n=4), Q (n=1)	Lowland Creek line within a floodplain
8121-0400	Eel Hole Creek 5	Artefact Scatter / Earth Feature	Surface	0	27	S (n=13), Q (n=9), Qz (n=3)	Floodplain
8121-0401	Creamery Road Delburn 1 LDAD	LDAD	Surface	0	9	S (n=7); Hornfels (n=1); B (n=1)	Unknown
8121-0401	Eel Hole Creek 6	LDAD	Unknown	Unknown	1	S	Unknown
8121-0411	Darlimurla Road Delburn 1 LDAD	LDAD	Subsurface	0-100mm	1	S (n=1)	Unknown
8121-0412	Delburn Wind Farm 1 LDAD	LDAD	Surface	0	15	S (n=15)	Unknown
8121-0414	Ten Mile Creek 1 LDAD	LDAD	Subsurface	0-200mm	11	S (n=11)	Unknown
8121-0416	Tramway Road Artefacts 1	Artefact Scatter	Subsurface	100-400mm	78	Unknown	Alluvial Terrace/ Low Rises
8121-0417	Tramway Road Artefacts 2	Artefact Scatter	Subsurface	100-300mm	15	S (n=15)	Alluvial Terrace/ Low Rises
8121-0833	Whitelaws LDAD	LDAD	Surface	0	39	S (n=9); Qz (n=3); Unknown (n=27)	Volcanic Plain

Appendix C Archaeological Ground Survey Investigation Area Maps

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Appendix D Subsurface Testing Program Maps

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