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Appendix 7

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Surface Water Impact Assessment

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Surface Water Impact Assessment

Hazelwood East BESS

23-Jun-2026
Hazelwood East BESS

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Surface Water Impact Assessment

Hazelwood East BESS

Client: Voyager Renewables Pty Ltd

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Quality Information

Document Surface Water Impact Assessment

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Executive Summary

Overview

Voyager Renewables Pty Ltd is proposing to develop, construct and operate a Battery Energy Storage System (BESS) of approximately 500 MW/ 2,000 MWh capacity, at 545 Tramway Road, Hazelwood North. The Hazelwood East BESS (the Project) would connect to Hazelwood Terminal Station on the adjacent site and would comprise a containerised BESS, underground cable connection to the Hazelwood Terminal Station, and key auxiliary infrastructure to support operations and maintenance.

The purpose of this report is to assess the potential surface water impacts associated with the construction, operation, and decommissioning of the Project to inform the preparation of the planning permit required for the Project.

Existing Environment

The proposed site covers approximately 140 hectares and is primarily used for grazing. The project area is situated within the Latrobe River Basin, a region characterised by temperate climate, moderate rainfall, and a landscape shaped by agricultural use, energy generation and urban development.

The site lies in the Bennetts Creek, Waterhole Creek, and Wades Creek sub-catchments, which are all tributaries of the Latrobe River. The Latrobe River ultimately discharges into the ecologically significant Gippsland Lakes Ramsar site, located approximately 90 km downstream. The site itself is intersected by Bennetts Creek and contains two farm dams that are categorised as dam storages <8ha in the DEECA Victorian Wetland Inventory (current).

Flooding is a known risk in the region, with mapped flood extents affecting parts of the Project site during significant storm events, though the site is not currently within any planning flood overlays. Water quality in the Latrobe River and its tributaries is variable, with some parameters (such as phosphorus, turbidity, and electrical conductivity) posing a possible risk to extended environmental objectives, largely due to historical land use and regional land use. The local waterways are documented in the Index of Stream Condition Report as being in poor condition primarily due to altered hydrology and water extraction.

Key Findings

The assessment identified that the construction, operation, and decommissioning of the Hazelwood East BESS have the potential to impact surface water quality, hydrology, and flood risk.

During construction, the main risks include sediment runoff from exposed soils, accidental spills of fuels or chemicals, and localised flooding due to altered drainage patterns. The operations phase could result in increased stormwater runoff and pollutant loads due to the introduction of impervious surfaces and the presence of electrical and mechanical infrastructure. However, with the implementation of best-practice design and management measures, the residual impacts on water quality and flood risk are expected to be minor, localised, and manageable.

The risk of significant adverse surface water effects on any of the DEECA listed wetlands on or around site is considered low given the location of these assets and the nature of the proposed activities. Decommissioning impacts are anticipated to be lower than those during construction, as works would primarily involve removal of above-ground infrastructure and site rehabilitation.

Overall, it is considered that the Project would result in a low residual risk to the environmental values of surface water, provided that all recommended mitigation measures are implemented.

Mitigation Measures

A broad range of mitigation measures is recommended to avoid, minimise, or manage the potential impacts on surface water quality and flood risk. A central mitigation strategy during construction is the implementation of an Environmental Management Plan that includes a dedicated section on surface water management. The EMP will outline the site specific details on how to address and manage key risks around erosion and sediment controls, chemical storage and handling, spill management and personnel responsibilities. Flood risks during construction will be managed through site layout optimisation, adjusting work programs in anticipation of storm events, and ensuring all works comply with relevant guidelines.

For the operations phase, stormwater drainage infrastructure will be designed to meet Latrobe City Council and EPA requirements, incorporating water quality treatment devices such as oil separators and gross pollutant traps, and potentially green infrastructure solutions.

On-site detention will also be used to manage increased runoff, protect downstream waterways and ensure existing flood conditions are not exacerbated. Regular water quality monitoring will be carried out during the construction phase and planned maintenance of water quality and drainage infrastructure will also be undertaken throughout the Project lifecycle.

Decommissioning works will be carried out in accordance with the guidelines and requirements that are relevant at the end of the Project lifetime, including considerations around recycling of materials and rehabilitating land.

Conclusion

With the adoption of the recommended mitigation measures, it is expected that the identified surface water impacts associated with the Hazelwood East BESS project will be minor, of short duration, and manageable.

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Abbreviations and glossary of terms

Table 1-1 Abbreviations and Glossary of Terms

Abbreviation/Term	Definition
AECOM	AECOM Australia Pty Ltd
BESS	Battery Energy Storage System
BoM	Bureau of Meteorology
EMP	Environmental Management Plan
DEECA	Department of Energy, Environment and Climate Action
DTP	Department of Transport and Planning
EP Act	Environment Protection Act 2017
EPA	Environment Protection Authority
EPBC Act	Environment Protection and Biodiversity Conservation Act 1999
ERS	Environmental Reference Standard
ISC	Index of Stream Condition
GED	General Environmental Duty
MNES	Matters of National Environmental Significance
P&E Act	Planning and Environment Act 1987
WGCMA	West Gippsland Catchment Management Authority

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1.0 Introduction

Voyager Renewables Pty Ltd (Voyager) is proposing to develop, construct and operate the Hazelwood East Battery Energy Storage System (BESS) in response to significant changes in Australia's energy market and policy settings, including the rapid growth of variable renewable energy generation and the progressive retirement of coal-fired power stations. Large-scale battery storage presents an opportunity to enhance grid flexibility and reliability by enabling renewable energy to be stored and dispatched when it is most needed, supporting the ongoing transition of Victoria's energy system.

Hazelwood East is strategically located within the Latrobe Valley, a region with established electricity infrastructure and a long history of energy generation. The proposed Project would leverage existing transmission capacity associated with the former Hazelwood Power Station, reducing the need for new transmission lines. This development approach minimises potential environmental impacts and supports the continued evolution of the Latrobe Valley as a key energy precinct.

Voyager's objective for the Project is to provide large-scale energy storage that supports grid stability during periods of peak demand. The facility would store excess electricity generated from renewable sources, such as wind and solar, and dispatch this energy when demand exceeds supply or when generation is constrained. In doing so, the Project would contribute to the reliability of Victoria's energy grid and support local economic outcomes through construction employment and supplier engagement, while continuing the area's legacy as a critical contributor to Victoria's electricity supply.

The purpose of this report is to assess the potential surface water impacts associated with the construction, operation, and decommissioning of the Project to inform the preparation of the planning permit required for the Project.

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2.0 Project Description

2.1 Project overview

Voyager Renewables Pty Ltd (Voyager) is proposing to develop, construct and operate a Battery Energy Storage System (BESS) of approximately 500 MW/ 2,000 MWh capacity, at 545 Tramway Road, Hazelwood North. The Hazelwood East BESS (the Project) would connect to Hazelwood Terminal Station on the adjacent site and would comprise a BESS to store excess energy from the grid during periods of low demand, releasing it back to the grid during high demand periods.

The project includes the construction, operation, and maintenance of a BESS with a 500 MW maximum power output capacity with 4-hour duration (i.e. 2,000 MWh) and associated infrastructure.

The BESS will consist of:

- Approximately 394 containerised battery units and approximately 142 inverters and two main power transformers to step up from 33 kV to 500kV
- 33kV underground cable connection from the battery units to the project collector substation
- A project collector substation comprising 33 kV switchgear, main power transformers, protection and control systems, control rooms and switchrooms, 500 kV high-voltage switchgear (including switchyard) and associated harmonic filtering equipment
- 500 kV underground cable connection from the electrical substation to the Hazelwood Terminal Station (Point of Connection), including underground transmission lines crossing Tramway Road.
- Operations and maintenance (O&M) compound including O&M building, amenities, car parking sufficient for employees and contractors during operation (16 spaces)
- Stormwater management infrastructure, firewater management devices including water tanks and hydrants, internal access tracks and acoustic barriers.
- Upgrades to existing, and construction of new 7 m trafficable width access track and crossover from Tramway Road.
- Other ancillary infrastructure including boundary security fencing, lighting and landscaping.

Water storage and management infrastructure for the project is proposed to include:

- Two water tanks with a capacity totaling approximately 600 kL.
- A firewater retention system (FWRS) (retention basin) with a capacity of approximately 600 kL.
- A stormwater detention basin with a capacity of approximately 4,000 m³.

2.2 Site context

The site is approximately 4.2 kilometres south of Morwell and 1.5 kilometres north of Churchill, within the City of Latrobe local government area. The site is approximately 140 hectares and is primarily used for grazing within the Farming Zone (FZ). The Hazelwood Terminal Station is located in the western area the site (Figure 2-1). Surrounding areas include Jeeralang Power Station and Wooreen BESS to the west and farmland with rural properties to the north, east and south.

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Spatial Reference: GDA2020 MGA Zone 55
Imagery Source: ESRI Satellite
11/06/2026

Hazelwood East BESS
BESS Layout

Revision: 01 Created by: SW Reviewed by: AMBR Notes: 1. For information only, 2. Not to survey, 3. This document is confidential.

Figure 2-1 Site boundary and indicative site layout

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2.3 Project construction

The Project will move through various phases during construction. Figure 2-2 highlights what these different phases will be and the key activities within each phase.

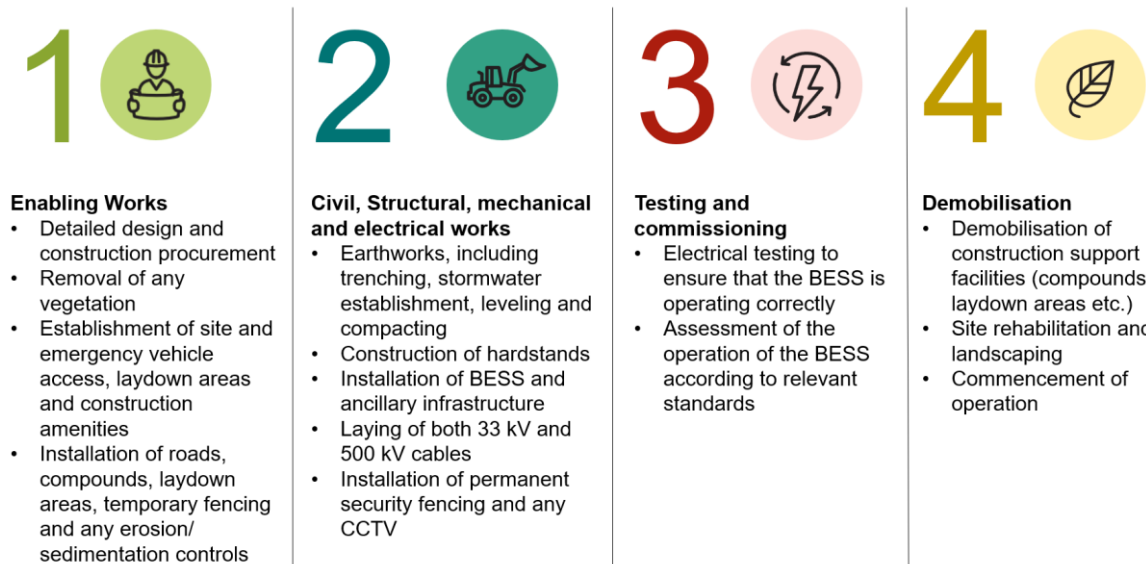


Figure 2-2 Phases of Project construction

2.4 Operation

The operational life of the BESS is indicatively estimated at 40 years, contingent on component replacement and ongoing asset management. The Project would operate 24 hours a day, seven days a week as an unmanned facility. The BESS would be managed remotely and staffed by up to two (2) full time equivalent staff as well as ad hoc contractors, as required during both planned and unplanned maintenance periods. It would be anticipated no more than 10 people would be on site any anytime.

During operation, key activities would include:

- Environmental monitoring in accordance with the conditions of approvals and management plans.
- Service and repair of any onsite infrastructure.
- Maintenance of internal access tracks, drainage and culverts, fencing/gate and other civil works.
- Maintenance of BESS, electrical reticulation system, substation and control systems.

2.5 Decommissioning

The operational life of the BESS is indicatively estimated at 40 years, after which time the Project would commence decommissioning. During decommissioning above ground components would be removed and recycled where possible, and land rehabilitated. The battery units would either be disposed of, repurposed or recycled at a licensed disposal facility. The decommissioning timeframe is expected to be approximately 12 months post operation phase.

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3.0 Legislation, Policies, Guidelines and Standards

The legislation, policy, guidelines and standards relevant to this assessment are summarised in Table 3-1. The mitigation strategies that are necessary to meet these requirements are presented in Section 7.0 of this assessment report.

Table 3-1 Legislation, policy, guidelines and standards relevant to the assessment

Document title	Summary	Relevance to the Project
Commonwealth government		
<i>Environmental Protection and Biodiversity Conservation Act 1999 (EPBC Act)</i>	The EPBC Act establishes a unified, national framework for safeguarding the environment, heritage, and biodiversity. This Act prioritises the protection of Matters of National Environmental Significance (MNES), which include World Heritage Properties, National Heritage Places, Ramsar wetlands, nationally listed threatened species and ecological communities, as well as listed migratory species. Under the EPBC Act, actions classified as 'controlled' those deemed likely to significantly impact MNES, must undergo a process of assessment and approval to ensure compliance with the Act's provisions.	The site is in the Latrobe River Basin. The Latrobe River discharges into the Gippsland Lakes Ramsar Site. The Gippsland Lakes Ramsar site, which is a significant distance from the Project site, has been detailed in Section 5.5 of this report. Where any significant impacts on these matters are identified, approval of the Australian Minister for the Environment may be required.
<i>National Water Quality Management Strategy - Australian and New Zealand Guidelines for Fresh and Marine Water Quality (ANZG 2018 Water Quality Guidelines)</i>	The ANZG 2018 Water Quality Guidelines establish the water quality objectives designed to preserve the existing environmental values of natural and semi-natural water resources across Australia and New Zealand. It outlines specific thresholds for acceptable changes in water quality, ensuring that these limits continue to safeguard the associated environmental values.	These guidelines are not mandatory. However, adhering to the guidelines ensures a high degree of confidence that waterways, wetlands, and their intended uses, would remain unaffected by significant impacts.
Victorian government		
<i>Water Act 1989 (Vic) (Water Act)</i>	The Water Act provides the legal framework for the management and protection of water resources throughout Victoria. The Act promotes the integrated management of all aspects of the water cycle and emphasises the importance of community involvement in the use,	Any works on, over, under or near a designated waterway (e.g. on a floodplain or within 50m from top of bank) would need approval from the WGCMA

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Document title	Summary	Relevance to the Project
	conservation, and management of water resources. It also designates the responsible authority for overseeing the control and management of waterways. Under the Act, catchment management authorities have developed a series of By-Laws to safeguard and regulate waterways. These By-Laws include provisions for permitting works and activities conducted in, under, on, or over designated waterways, land, or works.	
<i>Environment Protection Act 2017 (Vic) (EP Act)</i>	The <i>Environment Protection Act 2017 (Vic)</i> adopts a proactive approach to environmental management, emphasising the prevention of impacts rather than addressing them after they occur. The legislation is designed to ensure the protection of both Victoria's environment and human health through a balanced, risk-based framework. At the heart of the EP Act is the General Environmental Duty (GED), which requires any individual engaged in activities that could potentially harm human health or the environment due to pollution or waste to take all reasonably practicable measures to minimise these risks.	Any discharge into waterways or during the Project's construction must comply with the EP Act and its subordinate legislation.
<i>Environmental Reference Standard 2021(ERS)</i>	The ERS defines the environmental values that must be protected or maintained. It also specifies the indicators and objectives required to ensure compliance with the EP Act.	Achieving the environmental quality objectives outlined in Part 5 (Water) of the ERS would support the Project in minimising potential adverse impacts on surface water quality. This would also ensure the protection of existing environmental values.
<i>Planning and Environment Act 1987 (Vic) (P&E Act)</i>	The P&E Act establishes the framework for the use, development, and protection of land within the State. It outlines broad planning objectives, the principles governing the planning system, essential procedures, key legal instruments, and the roles and responsibilities of stakeholders involved in the planning process. The Victorian	Development in areas identified with surface water related planning overlays (e.g. LSIO, FO) would need to comply with this Act and the Victoria Planning Provisions.

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Document title	Summary	Relevance to the Project
	Planning Provisions are a legal instrument under the <i>Planning and Environment Act 1987 (Vic)</i> that sets the templates for all local government planning schemes.	
<i>Central and Gippsland Region Sustainable Water Strategy (2022) (CGRSWS)</i>	The CGRSWS emphasises the critical role of long-term water management in safeguarding jobs, agriculture, ecosystems, communities, and the cultural values of Traditional Owners. The strategy also establishes environmental water recovery targets for the Latrobe River system to enhance the region's socio-economic stability and resilience.	The Project should support the key objectives of the CGRSWS, including those identified for the Gippsland sub-region. These objectives include managing pollutant loads for Lake Wellington which forms part of the Ramsar listed Gippsland Lakes complex and eventual discharge point of the Latrobe River.
<i>The Dangerous Goods (Storage and Handling) Regulations (2022)</i>	This copied document to be made available for the sole purpose of enabling its consideration and review as part of a planning process under the Planning and Environment Act 1987. The document is not to be used for any other purpose. The Dangerous Goods (Storage and Handling) Regulations (2022) serve as the primary legal framework for the safe management of dangerous goods in Victoria. Regulations aim to safeguard people, property, and the environment from risks associated with the storage and handling of hazardous materials, including flammable liquids, corrosives, and compressed gases. They establish comprehensive guidelines to ensure safety in various settings where dangerous goods are present.	Compliance with these regulations will help protect personnel and the environment during the construction phase.
Local government		
Latrobe Planning Scheme	Planning Schemes in Victoria designate potential flood-prone areas and regulate development through the use of overlays. Overlays are the primary tool for managing land development within the state. Local Government organisations set development controls related to a specific planning overlay type.	The Latrobe Planning Scheme includes specific development controls for areas designated as LSIO and FO. The Project must align with the flood risk management objectives set by Latrobe City Council, even where there are no areas formally identified as LSIO or FO.
<i>Infrastructure Design Manual</i> Latrobe City Council (2007)	The Infrastructure Design Manual (IDM) is a collaborative initiative adopted Victorian rural and regional Councils to establish consistent standards for infrastructure design and management. The IDM enhances	The project will adhere to the conditions and standards contained within the IDM and ensure the operational design meets the requirements required by Latrobe City Council.

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Document title	Summary	Relevance to the Project
	accountability at the Victorian Civil Appeals Tribunal (VCAT), promotes collaboration through shared resources, and ensures consistency for consultants and developers. It also facilitates quality improvement by sharing best practices and clearly documents each Council's design requirements.	
Guidelines		
<i>Guidelines for Development in Flood Affected Areas</i> (DEECA 2019)	The intent of these guidelines is to provide a clear, consistent and transparent process for managing land use and development in flood affected areas in Victoria. The guidelines were prepared in consultation with floodplain managers from the nine regional Catchment Management Authorities, Melbourne Water and representatives from 22 local councils.	Adhering to the process and recommendations presented in these guidelines help reduce the risks and impacts associated with flooding.
<i>EPA Guideline 1698; Liquid Storage and Handling Guidelines</i>	This guide presents the fundamental principles aimed at safeguarding the environment and human health during the storage and handling of liquid substances.	Following these guidelines would help reduce the likelihood of pollution caused by the release of liquids.
<i>EPA Publication 1739.1: Urban Stormwater Management Guidance</i> (2021)	This guide aims to enhance urban stormwater management in Victoria by incorporating current scientific understanding and addressing the risks posed by flows from new development. It emphasises the impact of impervious surfaces on waterways, outlines general objectives and strategies for assessing and mitigating these risks, and provides guidance on effective stormwater management for Victorian communities.	Implementing these guidelines will ensure runoff from new impervious areas meets the best practice environmental management objectives for stormwater quality.
<i>EPA Victoria Publication 1834: Civil Construction, Building and Demolition Guide.</i> (2020)	This guide addresses a wide array of environmental concerns related to land development, construction, and decommissioning activities, providing both recommended and mandatory risk management strategies.	Implementing the management framework and mitigation strategies outlined in these guidelines help minimise the risk of environmental impacts throughout construction and decommissioning activities.

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Document title	Summary	Relevance to the Project
<i>EPA Victoria Publication 1896: Working within or adjacent to waterways.</i> (2020)	This guide emphasizes the risks of waterway contamination and offers guidance on preventing or mitigating harm caused by waste materials, erosion, sediment, dust and spills during activities in or near waterways.	Applying the principles outlined in these guidelines help minimise the risk of waterway pollution during activities in and around waterways.
WorkSafe Victoria: <i>Compliance Code: Hazardous Substances</i>	The code provides practical guidance on how to comply with obligations under Victoria's occupational health and safety legislation when work involves the use of hazardous substances.	Compliance with the code would reduce the likelihood of pollution caused by the release of hazardous substances.
<i>IECA Best Practice Erosion and Sediment Control Guidelines</i>	These guidelines provide specific guidance on the application of best practice erosion and sediment controls. They describe the various temporary drainage, erosion and sediment control measures that can be applied during the construction phase, including guidance on where they should be applied.	Applying the practical approaches presented in these guidelines would help the Project mitigate the impacts of erosion and sediment loss during the construction phase.

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4.0 Method

4.1 Study Area

For the purposes of this Surface Water Impact Assessment:

- **Project area** includes the land required for the Project infrastructure including the BESS, access track, and underground cables
- **Study area** includes the Project area, the local catchments and relevant sections of Bennetts Creek, Waterhole Creek, Wades Creek, and Latrobe River systems.

4.2 Determining Existing Environments

A desktop review of publicly available information was undertaken to define the existing environment and inform the environmental impact assessment of the Project on surface water. It included a review and assessment of the following:

- Regional and local environmental and water related legislation and frameworks
- Hydrological and meteorological data
- Regional and local scale surface water context
- Desktop review of existing flood modelling and risks
- Site scale surface water context and key features.

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4.3 Surface Water Impact Assessment

Project activities have the potential to alter existing hydrological conditions or baseline surface water quality, leading to impacts on receiving waterways, wetlands, and their associated environmental values as outlined in the Environmental Reference Standard (ERS).

The primary objective of the impact assessment is to identify these potential impacts and define suitable mitigation strategies to protect the environmental values of surface water. This was achieved by the following methodology:

- Identifying the relevant construction, operation and decommissioning activities and infrastructure, that have the potential to alter baseline water quality, existing drainage conditions, or flood risk over the entire lifetime of the Project.
- Assessing the potential impacts of the proposed Project activities on the environmental values of surface water, for all stages of the Project.
- Developing mitigation measures for the construction, operation and decommissioning phases that safeguard receiving waterways and wetlands from adverse changes to water quality and hydrology.

4.4 Limitations, Uncertainties and Assumptions

The following limitations, uncertainties and assumptions apply to this assessment:

- No site visit was undertaken as part of the assessment which is desktop only
- The impact assessment was based on the proposed site development at the time of assessment.
- The assessment relied on data and information that is either provided by Voyager or publicly available
- Mitigations presented are conceptual in nature and would require additional design in subsequent phases of the Project
- The study was a qualitative desktop-based study and did not include hydrological or hydraulic modelling or calculations in the assessment.

5.0 Existing Environment

5.1 Overview

The following sections describe the existing surface water environment, providing a high-level overview of regional topography, land use, and climate, alongside a detailed characterisation of the surface-water features at the BESS location.

The Project lies within the Latrobe River Basin in the West Gippsland region of Victoria. This basin covers central West Gippsland, encompassing the southern slopes of the Baw Baw Plateau, the Strzelecki Ranges, extensive agricultural areas, forest plantations, significant urban settlements, and expansive open-cut brown coal mines, including Yallourn and Hazelwood.

5.2 Climate

The climate of West Gippsland is classified as temperate (Cfb) according to the Köppen-Geiger system, featuring mild summers and cool winters. This region receives some of the highest annual rainfall in Victoria, primarily concentrated in the west-facing mountains, hills, and coastlines. In contrast, the Latrobe Valley experiences slightly lower rainfall, mainly due to the rain shadow effect created by its geographical position relative to Wilsons Promontory and the Strzelecki Ranges.

The nearest rainfall gauge to the Project site is situated at Hazelwood Pondage (Station No. 502251A), approximately 3.5 km away (BoM, 2026). However, this station is currently inactive and has limited rainfall data, which was recorded only from 1987 to 1992.

In contrast, the rain gauges at Traralgon South (Station No. 226415) and Jerralang (Station No. 226829) provide representative rainfall records for the Latrobe Valley, with data spanning from 1999 to 2025 and 2013 to 2025, respectively. These gauges are located 8.5 km and 7.5 km from the Project site, with average annual rainfall depths of 786 mm and 756 mm.

Table 5-1 shows mean rainfall depths for these gauging sites based on Bureau of Meteorology (BoM) data. Figure 5-1 shows the approximate location of these gauging sites.

Table 5-1 Mean monthly and mean annual rainfall depth (mm) for the Latrobe River Basin. Light green shading indicates the three drier months, and dark green shading indicates the three wetter months (BoM, 2026)

Station	Location	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Annual
502251A	Hazelwood	47	26	59	42	52	68	65	74	80	74	56	72	725
226415	Traralgon South	54	41	50	68	67	77	68	83	83	78	83	61	786
226829	Jerralang	45	30	42	52	65	64	70	76	57	69	74	39	756

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Figure 5-1: Rainfall Gauge locations used for assessment

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5.3 Site topography and land use

The site covers an area of approximately 140 hectares in Hazelwood North, southeast of the Hazelwood Open Cut Mine. The site is intersected by Tramway Road and sits between Boldings Road to the south, Hazelwood Road to the east, and Church Road to the north.

Land use to the east is predominantly agricultural, while the west is dominated by the Hazelwood Open Cut Mine and associated infrastructure, with additional surrounding agricultural land. The area west of Tramway Road is zoned Special Use Zone – Schedule 1 (Brown Coal) and currently accommodates the Hazelwood Terminal Station. Vegetation comprises grass and low-lying cover across the site, with scattered trees along Bennetts Creek.

Topographic data indicates the site has gentle to moderately sloping terrain. The eastern portion falls from south to north, with elevations ranging from approximately 105 m AHD to 95 m AHD. West of the BESS and east of Bennetts Creek, the land generally falls from southeast to northwest toward the creek, from around 103 m to 90 m AHD. Between Bennetts Creek and Tramway Road, grades typically fall from south to north, with a locally increased eastward slope near the creek; elevations in this area range from about 100 m AHD to 90 m AHD. Bennetts Creek traverses the site within a shallow, gently graded valley.

5.4 Waterways

The Project site is crossed by Bennetts Creek, a designated waterway that forms part of the Wades Creek catchment, a sub-catchment of the Latrobe River system. The Latrobe River extends over 270 km and descends approximately 760 metres before discharging into Lake Wellington, east of Sale. From Lake Wellington, the river continues into Lake Victoria, forming confluences with Forge Creek and the Mitchell River, before ultimately connecting with the ocean near Lakes Entrance in East Gippsland.

Latrobe River is important to the regions infrastructure and supplies water for energy generation. The system also links to high-value habitats such as streamside reserves and the Ramsar-listed Gippsland Lakes, which are internationally recognised for their ecological significance.

The Victorian Environmental Reference Standard (ERS) defines Environmental Values for all surface waters within designated geographic regions. For the Central Foothills and Coastal Plains region, which includes the Latrobe River basin, the environmental values for surface water are as follows (EPA VIC, 2021):

- Water dependent ecosystems and species that are slightly to moderately modified
- Human consumption after appropriate treatment
- Agriculture and irrigation
- Human consumption of aquatic foods
- Aquaculture
- Industrial and commercial
- Water based recreation (primary contact)
- Water based recreation (secondary contact)
- Water based recreation (aesthetic enjoyment)
- Traditional Owner cultural values.

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The Third Index of Stream Condition (ISC) assessment (DEECA, 2010) evaluated major waterways and graded each river reach using a composite ISC score across hydrology, water quality, streamside zone, aquatic life, and physical form. The score given to each assessment category ranges between 0-10, with a total maximum ISC score of up to 50. The assessment rated the Latrobe River as 'very poor' in Reach 4, which includes the confluences with Waterhole Creek (to which Bennetts Creek is a tributary) and the Morwell River.

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Reach 15 of Waterhole Creek, including the section downstream of Bennetts Creek also received a 'very poor' condition rating. The primary driver of these ratings was very low hydrology sub-index scores (1–2), reflecting regulated flows, water extraction, and stress during drier months (refer to Table 5-2).

Table 5-2 2010 ISC Score Summary

Reach	Hydrology Score	Water Quality Score	Streamside Zone	Aquatic Life	Physical Score	ISC Score	Condition
Latrobe River (reach 4)	1	8	5	4	7	19	Very Poor
Waterhole Creek (reach 15)	2	N/A	6	3	8	19	Very Poor

Bennetts Creek has undergone significant modifications in several reaches, both upstream and downstream of the site. Upstream of the site (approximately 450 meters downstream of Bouldings Road), low flows of Bennetts Creek are diverted westward, crossing beneath Tramway Road and Monash Way before discharging into Eel Hole Creek and the Hazelwood Cooling Pond.

Bennetts Creek flows from south to north across the site in a meandering channel that generally runs parallel to Tramway Road. In this reach, the Creek's channel is incised and could experience erosion during periods of elevated flow. Additionally, riparian vegetation is sparse along the creek, with only a few isolated trees present. A notable characteristic of Bennetts Creek in this reach is the embankment that defines the eastern boundary of the floodplain.

Downstream of the site, after passing beneath Monash Way and the Princes Highway, Bennetts Creek enters a series of culverts and concrete trapezoidal channels before merging with Waterhole Creek on the outskirts of Morwell.

Waterhole Creek meanders through predominantly agricultural land, located about 1.2 km north of the Project site, running adjacent to Hazelwood North Primary School. This creek continues through Morwell within a waterway reserve, featuring dense vegetation in this section. Downstream of Morwell, Waterhole Creek becomes slightly less vegetated and converges with Wades Creek before ultimately discharging into the Latrobe River near Traralgon.

A single gauging station is situated on Waterhole Creek in central Morwell, downstream of the confluence with Bennetts Creek (Station 226016). This station is approximately 5.0 km upstream of the convergence of Wades Creek and Waterhole Creek, and about 10 km upstream of the Latrobe River confluence. However, it has been inactive since 1982.

Approximately 11 km upstream of the confluence of Wades Creek and the Latrobe River is the Thoms Bridge Gauging Station (Station 226005). The first active gauging station downstream of this confluence is the stream gauge located in Rosedale (Station 226228).

A summary of the mean daily stream flows for each of these gauging stations is presented in Table 5-3. The lowest flows were recorded between January and March (indicated in light green) for all waterways. Streamflow data indicate that mean daily stream flows peaked for all waterways between June and October (shown in dark green), with peak flows occurring in July for Waterhole Creek and in September for both locations on the Latrobe River.

Table 5-3 Mean daily stream flow for each month at Latrobe River & Waterhole Creek (Mega Litres / day) (DEECA, 2026)

Station	Location	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
226016	Waterhole Creek Morwell	9.7	9.7	13.1	13.3	13.5	54.4	85.6	58.8	41.7	25.1	13.8	12.9
226228	Latrobe River at Rosedale (main stream)	1071	900	889	1076	1564	2182	2782	3325	3478	3142	2502	1674

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Station	Location	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
226005	Latrobe River at Thoms Bridge	734	605	591	771	1069	1611	1983	2458	2658	2165	1648	1119

Flow duration curves for the Latrobe River at Thoms Bridge and Rosedale gauging stations are shown in (Figure 5-2 and Figure 5-3). These graphically represent the discharge rate (m^3/Second) for a given percentage of time, over a range of periods (e.g. 5 years). Figure 5-4 presents the same for Waterhole Creek in Morwell.

Figure 5-2 and Figure 5-3 indicate that baseline discharge rates, flows occurring 90 to 100% of the time, have been markedly lower from 2020 to 2026 compared with 2000–2009 (which included the Millennium Drought). The underlying cause of this reduction remains unconfirmed.

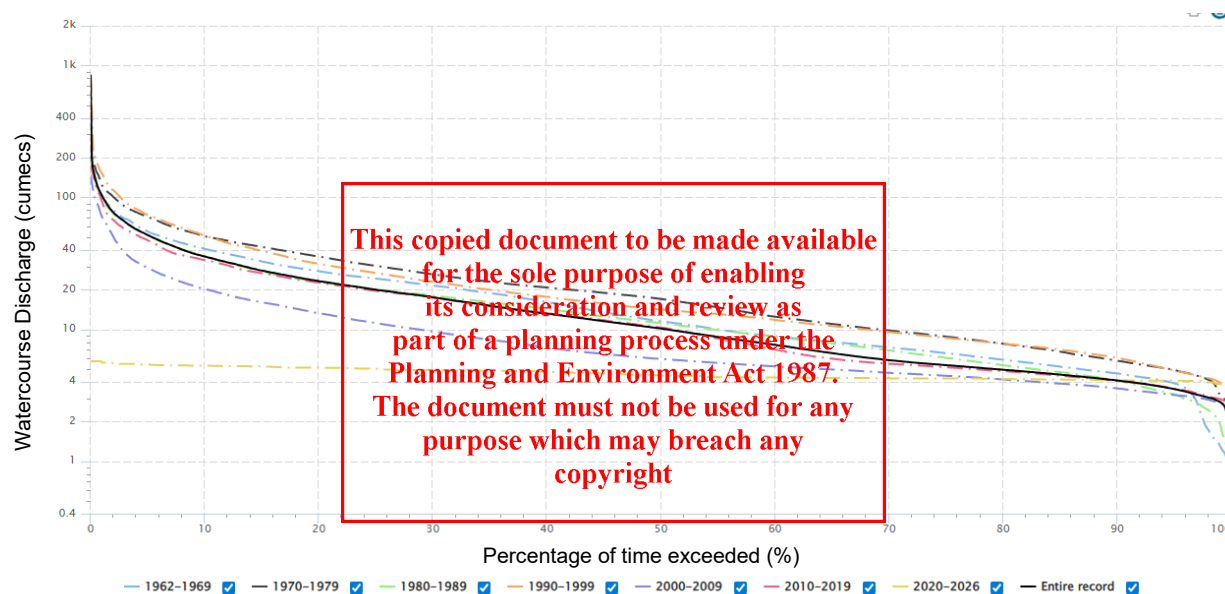


Figure 5-2: Flow duration curve for Latrobe River at Thoms Bridge (Station No. 226005) (BoM, 2026)

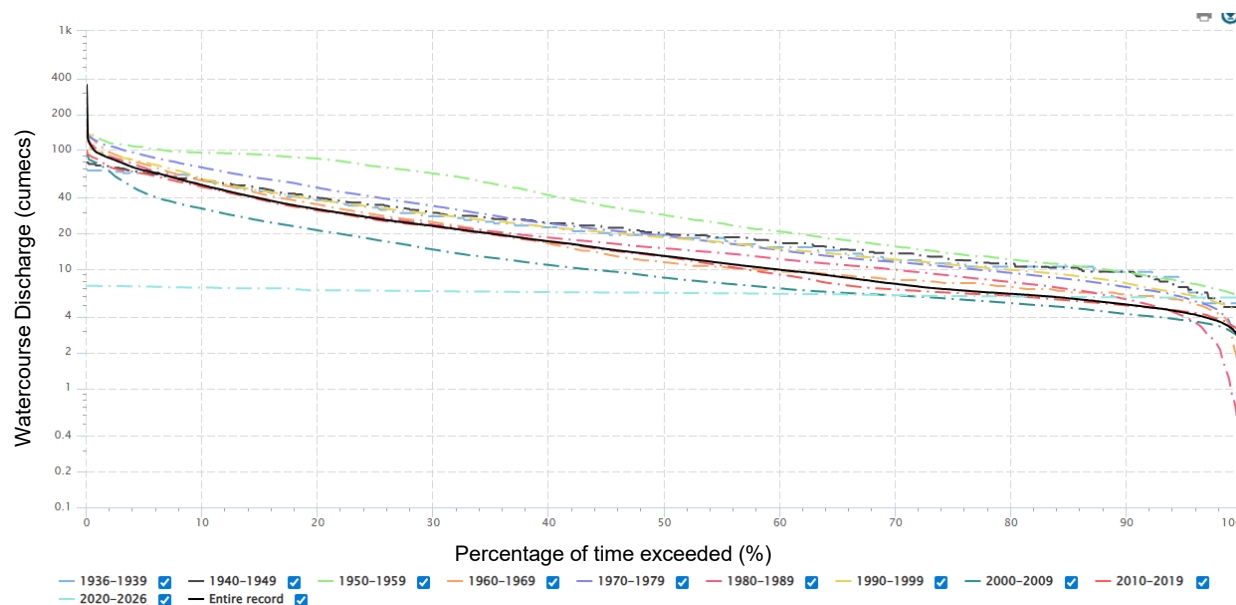


Figure 5-3: Flow duration curve for Latrobe River (main stream) at Rosedale (Station No. 226228) (BoM, 2026)

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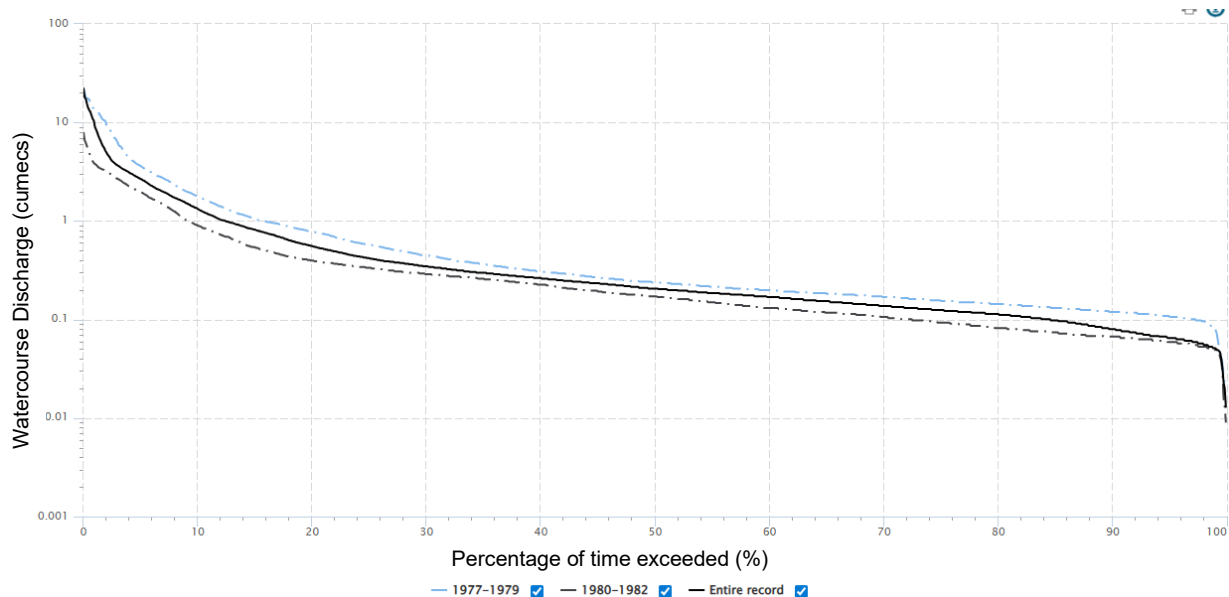


Figure 5-4: Flow-duration curve for Waterhole Creek in Morwell (Station No. 226016) (BoM, 2026)

5.5 Wetlands

The Gippsland Lakes are the most significant wetlands in the Latrobe River basin, representing Australia's largest interconnected inland network of coastal lagoons, marshes, and wetlands. This network primarily includes Lake Wellington, Lake King, and Lake Victoria, and is fed by seven major rivers: the Latrobe, Avon, Nicholson, Ginn, Mitchell, Murrumbidgee, and Thomson rivers. The Latrobe River discharges into Lake Wellington, located approximately 90 km east of Sale.

Internationally recognised for their ecological significance, the Gippsland Lakes are listed under the Ramsar Convention on Wetlands and include acknowledged nationally important wetlands, such as The Heart Morass, which lies just outside the Ramsar site boundary. These wetlands and lagoons are crucial for maintaining the health of the surrounding environment, functioning as natural filters and supporting diverse flora and fauna. The discharge point of the Latrobe River into Lake Wellington is about 90 km downstream from the Project site.

The Department of Energy, Environment and Climate Action (DEECA) maintains the Victorian Wetland Inventory (Current) dataset, a comprehensive spatial resource that maps all current wetlands, dams, and water storages across the state (DEECA, 2026). The Latrobe River features a significant number of mapped wetlands along its course, primarily formed from remnants of former meanders (oxbow lakes) that have been disconnected from the main river channel. DEECA predominantly classifies these wetlands as temporary shallow wetlands, temporary shallow claypans, temporary freshwater swamps, and temporary freshwater marshes or meadows. Some of these wetlands are located near the confluence of Wades Creek and the Latrobe River.

Immediately upstream of the confluence of Wades Creek and the Latrobe River is a 36ha dam/storage wetland, adjacent to the A.P.M Aeration Pond. Other notable wetlands include a temporary shallow wetland (16ha) downstream of Morwell at the confluence of Waterhole Creek and Plough Creek, and a the Firmins Lane Wetlands (constructed) that appear to be typical for water quality treatment.

Other DEECA mapped wetlands are documented through the Bennetts Creek floodplain, between Monash Way and Princes Drive. These wetlands include temporary freshwater lakes and swamps, and also small dams/storages (< 8ha).

The DEECA mapped wetlands inventory identified 3 wetlands across the Project site (Wetland ID: 478362, 478357 and 478358) (Figure 5-5). These wetlands are categorised as dams or storages with a surface area of less than 8ha, with wetlands 478362 and 378358 mapped atop farm dams. Wetland 478357 is mapped atop a constructed wetland near the western boundary of the Hazelwood Terminal Station. There are also several other wetlands to the north of site, at a minimum distance of 500m, with the same classification as those on site.

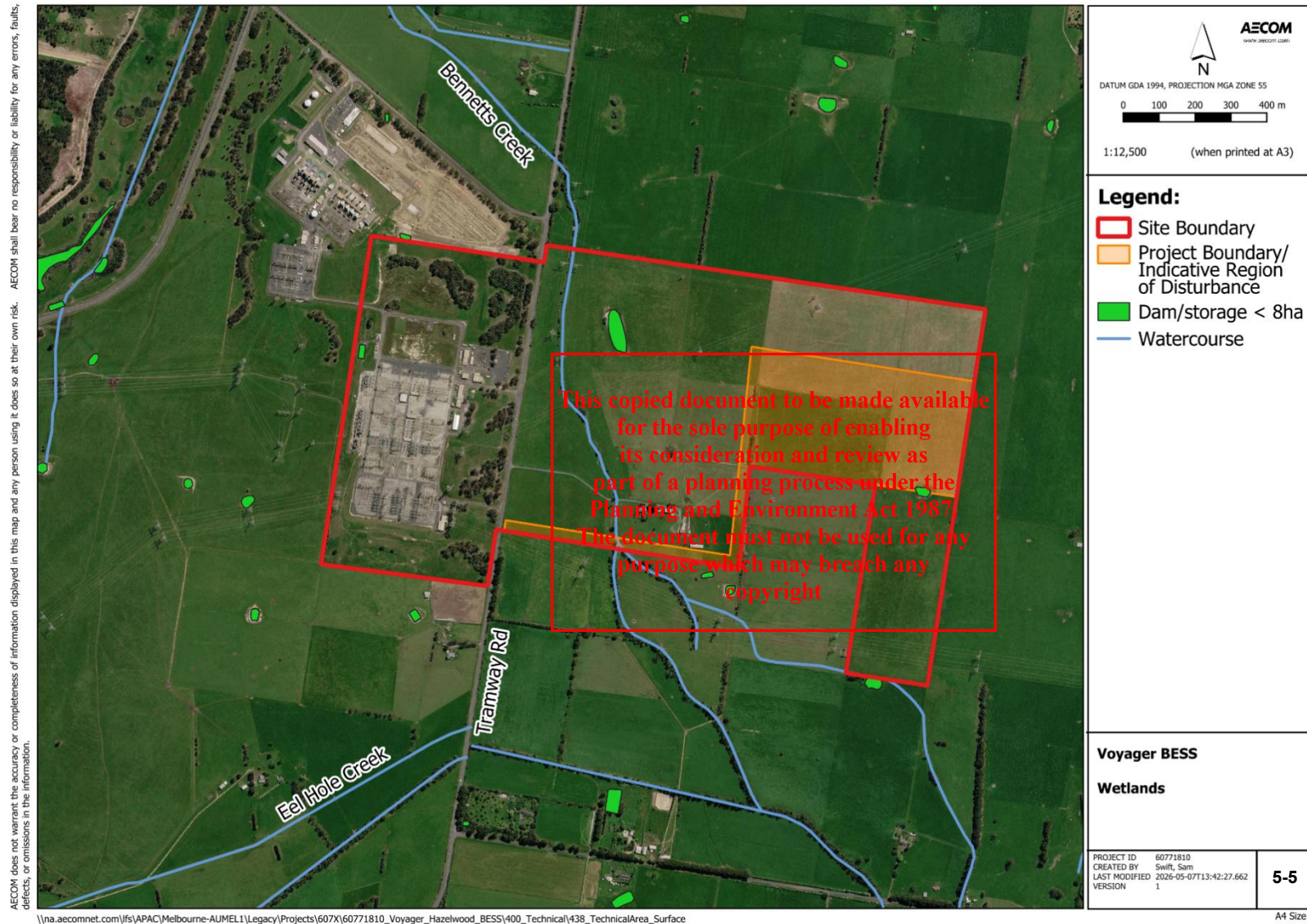


Figure 5-5: Wetland distribution on and around project site (DEECA, 2026)

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5.6 Flooding

Historical records document frequent flooding on Latrobe River, with significant events in December 1934, February and August 1951, June 1952, June 1978, September 1993, November 1995, June 2012, June 2021, and November 2022.

For a 1% annual exceedance probability (1% AEP) event, the Latrobe River inundation extent measures approximately 800 m wide immediately downstream of the Wades Creek confluence, widening progressively to greater than 2 km near Traralgon.

Under the same 1% AEP event, extensive flooding is likely along Waterhole Creek and Bennetts Creek upstream of Morwell. Within Morwell, flood mapping indicates extents of roughly 400 m wide through Waterhole Creek. Downstream of Morwell, flood extents broaden, particularly to the west of Waterhole Creek, before narrowing again after overtopping Maryvale Road. Along Wades Creek, the flood extent remains relatively narrow to its confluence with the Latrobe River. Plough Creek and additional eastern tributaries of Waterhole Creek also flood in a 1% AEP event, affecting mostly agricultural land as well as Latrobe Valley Airport and Latrobe Valley Hospital.

Bennetts Creek and Waterhole Creek, both upstream and downstream of their confluence, contain areas designated as Floodway Overlay (FO) and Land Subject to Inundation Overlay (LSIO) in the local planning scheme. No FO or LSIO areas are mapped within the Project site; the nearest LSIO lies on the downstream side of Church Road to the north of the site on the Waterhole Creek floodplain (Figure 5-6).

Within the Project site, the 1% AEP flood extent indicates potential impacts could occur along the Bennetts Creek corridor on the west side and in the southeast corner. The northeast corner could also experience flooding under this event. Flooding may be expected on the eastern edge of the site, as the straight line edge of the flood extent suggests a model boundary has constrained mapping of the full extent in this location (Figure 5-7).

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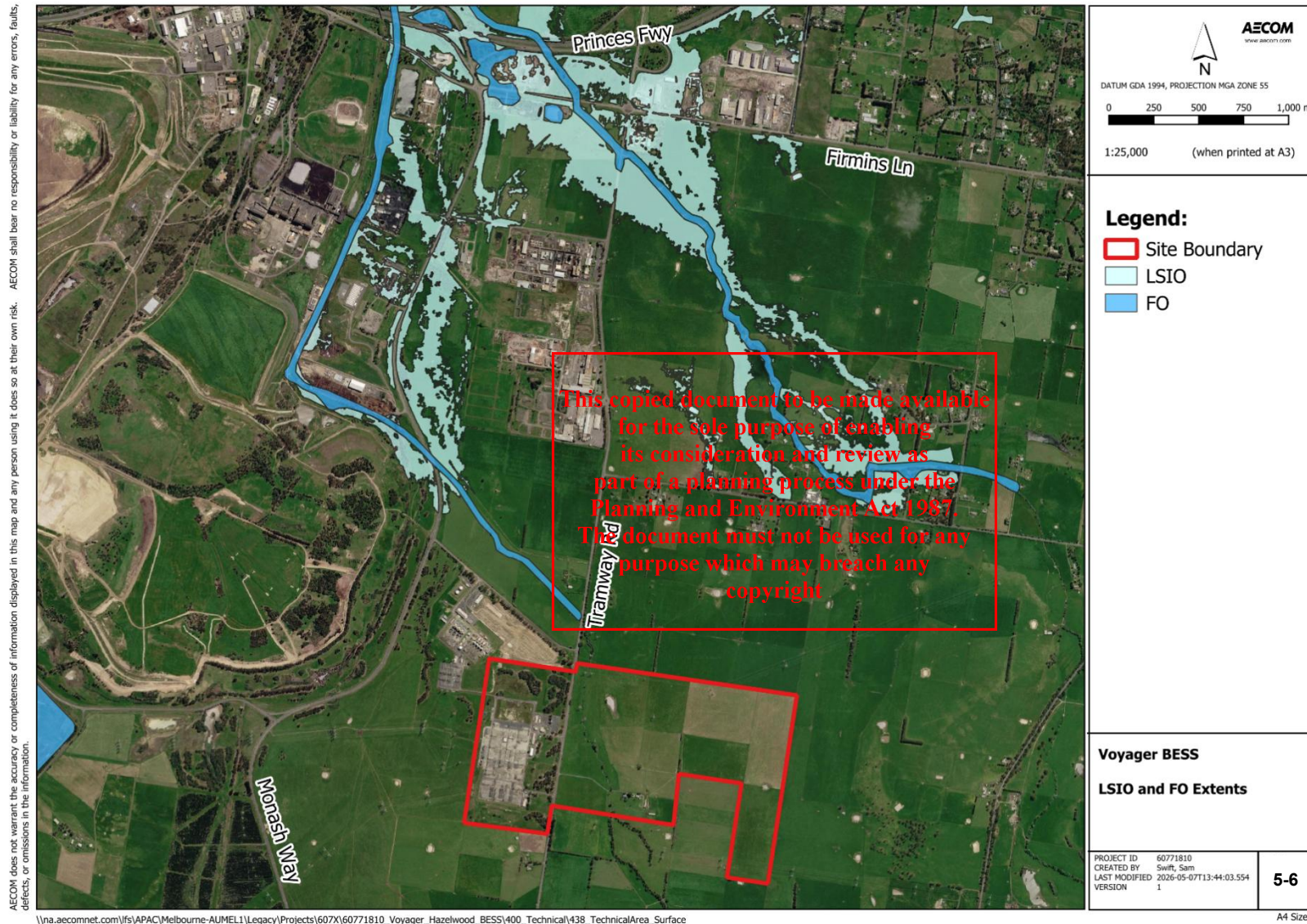


Figure 5-6: Areas of LISO and FO to the north of project site (Department of Transport and Planning, 2026)

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Figure 5-7: Areas of mapped 1% AEP flood extent (light blue) and site boundary (red outline) (Department of Transport and Planning, 2026)

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5.7 Water Quality

Water quality varies significantly across the Latrobe River basin. Headwaters in largely natural catchments typically exhibit good to excellent quality, but conditions decline through the middle reaches due to the influences of urban development, industrial use, and agricultural runoff.

The ERS define the environmental indicators and objectives that are necessary to protect the environmental values of Victorian rivers and streams. The water quality indicators are provided in Table 5.8 of the ERS for the *central foothills and coastal plains* geographic region, incorporating Latrobe River Basin. These values are summarised in Table 5-4.

Table 5-4 Water quality indicators and objectives for the central foothills and coastal plains geographic region, relevant to the Latrobe River

Total Phosphorus (µg/L)	Total Nitrogen (µg/L)	Dissolved Oxygen (% saturation)		Turbidity (NTU)	Electrical Conductivity (µS/cm@ 25°C)	pH (pH units)		Toxicants (Water)*
75th Percentile	75th Percentile	25th Percentile	Maximum	75th Percentile	75th Percentile	25th Percentile	75th Percentile	% Protection
≤55	≤1,100	≥75	130	≤25	≤250	≥6.7	≤7.7	95

Publicly available water quality monitoring data is limited in the reaches of the Latrobe River close to the site, and there is no publicly available monitoring data in either of Bennetts Creek, Waterhole Creek or Wades Creek.

Data from reaches of the Latrobe River closest to the Project site are summarised in Table 5-5 and shown in Figure 5-8. Of these, only Rosedale continues to actively monitor water quality, with the most recent recordings at Thoms Bridge and Scarnes Bridge being November 2002 and April 2013 respectively. All water quality monitoring was carried out as spot water quality sampling, with no continuous data recording.

Table 5-5 Water quality monitoring sites relevant to the site

Location	Station No.	Years Active	Data collection type	Key parameters relevant to the ERS
Latrobe River at Scarnes Bridge	226033	Nov 1996 to April 2013 (Inactive)	Spot	Total Phosphorus, Total Nitrogen, Turbidity, Electrical Conductivity, pH
Latrobe River at Rosedale	226228	Dec 1936 to Mar 2026 (Active)	Spot	Total Phosphorus, Turbidity, Electrical Conductivity, pH
Latrobe River at Thoms Bridge	226005	Jan 1962 to Nov 2002 (Inactive)	Spot	Total Phosphorus, Turbidity, Electrical Conductivity, pH

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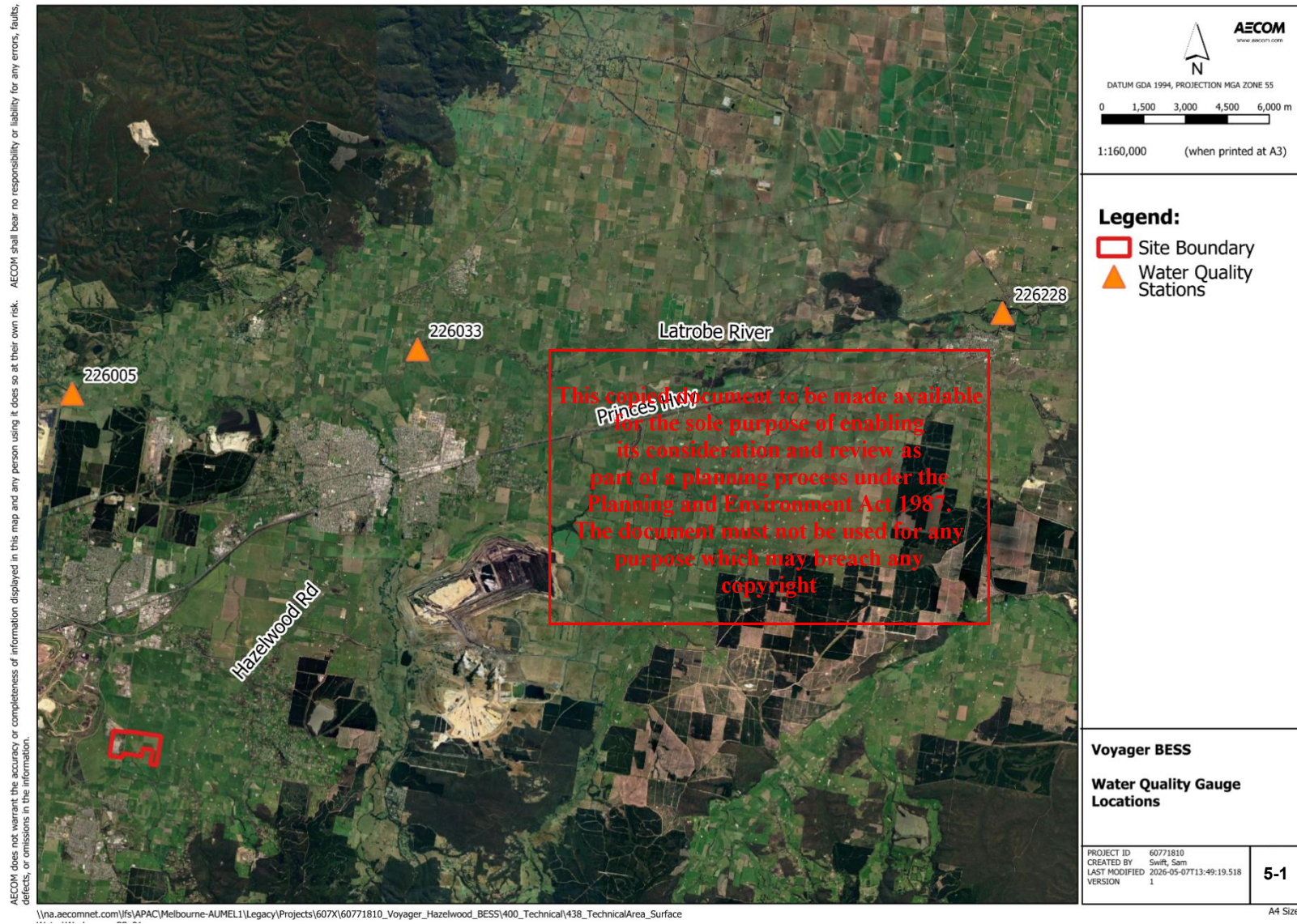


Figure 5-8: Location of project site and water quality monitoring sites on the Latrobe River (DEECA, 2026)

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Table 5-6, Table 5-7 and Table 5-8 summarise the mean monthly water quality monitoring results for the active water quality monitoring site on the Latrobe River at Rosedale, and the now inactive sites at Thoms Bridge and Scarnes Bridge (DEECA, 2026). The results indicate that these water quality indicators remain reasonably consistent along this reach of the Latrobe River, both upstream and downstream of Wades Creek. At all locations, total phosphorus (TP), electrical conductivity, and turbidity regularly exceed the indicators and objectives, as presented in the ERS, an exception being that Turbidity is at an acceptable level at Thoms Bridge (furthest upstream) from February to June.

Table 5-6: Mean monthly water quality monitoring results on the Latrobe River at Thoms Bridge, relevant to the ERS indicators and objectives

Parameter		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
TP (µg/L)	75 th Percentile	80	100	80	75	80	85	120	110	90	110	100	90
	25 th Percentile	6.7	6.7	6.9	7.0	6.9	6.8	6.7	6.9	6.9	6.8	6.6	6.8
pH	75 th Percentile	7.3	7.4	7.4	7.4	7.4	7.3	7.35	7.3	7.3	7.3	7.2	7.4
	25 th Percentile	7.3	7.4	7.4	7.4	7.4	7.3	7.35	7.3	7.3	7.3	7.2	7.4
EC @ 25°C (µS/cm)	75 th Percentile	240	310	362.5	360	372.5	350	345	320	305	280	260	260
Turbidity (NTU)	75 th Percentile	26	19	20	18	15	22	28	33	46	32	34	25

Table Note: Light green indicates readings that are outside of the ERS objectives.

Table 5-7: Mean monthly water quality monitoring results on the Latrobe River at Scarnes Bridge, relevant to the ERS indicators and objectives

Parameter		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
TP (µg/L)	75 th Percentile	93	98	82	93	110	100	79	154	127	112	163	91
	25 th Percentile	6.9	7.1	7.0	7.0	6.9	7.0	7.1	6.9	6.9	7.0	6.9	6.9
pH	75 th Percentile	7.3	7.4	7.1	7.3	7.3	7.2	7.3	7.3	7.3	7.2	7.3	7.1
	25 th Percentile	7.3	7.4	7.1	7.3	7.3	7.2	7.3	7.3	7.3	7.2	7.3	7.1
EC @ 25°C (µS/cm)	75 th Percentile	320	340	355	330	352	373	371	395	377	370	359	355
Turbidity (NTU)	75 th Percentile	43	41	34	30	36	50	68	64	48	64	60	48

Table Note: Light green indicates readings that are outside of the ERS objectives.

Table 5-8: Mean monthly water quality monitoring results on the Latrobe River at Rosedale, relevant to the ERS indicators and objectives

Parameter		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
TP (µg/L)	75 th Percentile	110	100	110	80	63	80	110	90	112	120	120	109
	25 th Percentile	7.0	7.0	6.9	6.9	6.9	6.9	7.0	6.9	6.8	6.8	6.9	6.9

Parameter		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
	75 th Percentile	7.3	7.4	7.2	7.3	7.2	7.3	7.3	7.2	7.2	7.2	7.2	7.2
EC @ 25°C (µS/cm)	75 th Percentile	350	350	355	381	361	414	389	397	388	347	335	330
Turbidity (NTU)	75 th Percentile	49	46.25	48.5	42.5	39	30	40.5	45	53	49.5	51	55

Table Note: Light green indicates readings that are outside of the ERS objectives.

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6.0 Surface Water Impact Assessment

6.1 Construction phase

6.1.1 Runoff from Construction Sites

Project construction activities are anticipated to increase surface exposure, leading to potential erosion, soil and sediment loss. Vulnerable areas typically include disturbed or unvegetated ground, laydown areas, site compounds, and excavation spoil. Sediment mobilised in runoff can easily be transported into nearby drainage paths and potentially enter receiving waterbodies, thereby degrading downstream water quality and impacting the environmental values. This is a particular risk where the access track is proposed to be constructed crossing Bennetts Creek as works will be required in the waterway and riparian areas.

Surface water impacts to the DEECA mapped wetlands within the project site boundary are expected to be minimal. Though intersected by the project boundary, and closest to the BESS, wetland 478362 is located upstream of site and unlikely to be impacted by runoff from the construction works. Wetlands 478357 and 478358 are also unlikely to be at any increased risk of impacts resulting from erosion and sedimentation as they are neither directly downstream of or near to the primary area of works to be of concern. Risk presented to downstream Ramsar wetlands is negligible due to the significant distance between site and the receiving systems.

To address these risks, the Project's EMP would include measures on surface water management. This plan would outline the necessary mitigation measures and their application across the site to prevent surface water runoff from contaminating nearby waterways and wetlands.

Mitigation strategies would incorporate erosion and sediment control measures aligned with best practice guidelines, such as *EPA Publication 1834: Civil Construction, Building and Demolition Guide* and the International Erosion Control Association Australasia (*IECA*) *Best Practice Erosion and Sediment Control*. A Works on Waterways Permit will also be required to be obtained from the WGCMA which may specify additional conditions to be met.

Typical measures include clean water catch drains to divert uncontaminated runoff away from the site, sediment basins and sediment fencing. Operational controls, such as staged works and programming specific activities for drier conditions would also be considered.

Additionally, the EMP would include details on the site-specific monitoring measures. Monitoring would typically involve assessment of the erosion and sediment controls and, where necessary, daily or real-time turbidity measurements in surface water runoff and the potential receiving environments.

While the release of contaminated surface water runoff from construction activities is considered possible, the implementation of the mitigation measures outlined above and in Section 7.0 will minimise the consequences of waterway pollution. Residual impacts would be minor, localised, and short-term.

6.1.2 Horizontal Directional Drilling

The Project will install a 500 kV cable crossing beneath Bennetts Creek using horizontal directional drilling (HDD) construction techniques. HDD operations beneath waterways pose a risk of waterway pollution caused by the return of drilling fluids to the surface in an event termed 'frac-out.'

Frac-out occurs when the drilling pressure exceeds the pressure of the overburden material, causing drilling fluids to escape to the surface. This risk is exacerbated in cases where the overburden is shallow or made of loose materials. While most drilling fluids on land can be recovered to prevent waterway contamination via runoff, frac-out occurring beneath the channel of Bennetts Creek could result in direct discharges into the creek.

Mitigation measures to prevent frac-out include site-specific, technical risk assessments, adjustments to drilling profiles, appropriate drill configurations, and continuous monitoring of drilling fluids during operations. Implementing these measures significantly reduces the likelihood of waterway pollution, and any impacts from frac-out during crossings are expected to be minor and localised, resulting in a low residual risk

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6.1.3 Spills

The construction phase of the Project presents a potential risk of fuel or liquid contaminant spills entering onsite and downstream wetlands and waterways. Such spills are most likely during refuelling activities or from poor storage and handling of hazardous materials. Though as with section 6.1.1, the location of the on and off-site DEECA and RAMSAR wetlands are such that they are unlikely to be at risk of pollution from any spillage on site. Bennetts Creek is more likely to be impacted by spills during the construction of the main access road and culvert crossing, as these aspects reside within its catchment area. Prior to construction of the bench surface, there is a small portion of the intended BESS site that would also transport spill flows to Bennetts Creek. The majority of construction works will occur within the Waterhole Creek catchment. However, it is unlikely for there to be a spill of sufficient magnitude that any significant concentration of pollutant would reach the creek located 1.5 km north of site.

Effective management of the risks associated with fuel or chemical spills can be achieved by adhering to established standards and industry best practices. Key measures include minimising on-site chemical storage, bunding of storage areas, and the provision of spill kits and appropriate training for personnel.

As outlined above and in 7.0, implementation of industry-standard mitigation measures ensures the risk of significant impacts from fuel spills during construction are unlikely. Any spills that may occur are expected to be minor, manageable locally, and unlikely to enter surface waters. As a result, the residual risk for this impact is considered low.

6.1.4 Flood Damage and Disruption

The project site is located outside of areas identified as LSIO and FO, however it remains likely that the waterway corridors across the site become inundated during significant flood events. Overland flows may also cause additional flooding in both the northeast and southeast corners of site. This is evidenced by the flood maps presented in section 3.0 of this assessment report. There is also a likelihood that these published flood maps will eventually inform updates to the LSIO and FO extents.

Flooding can present significant risks to both the Project and site personnel. Specifically, these flood events compromise the safety of the construction workers and employees, damage site infrastructure, plant, and equipment, and mobilise contaminants, potentially degrading water quality in receiving waterways. Additionally, flooding can increase Project costs and disrupt the overall construction schedule.

The EMP will outline the management strategies and controls that are necessary to mitigate these potential flood impacts. This would include measures such as optimising construction site layouts to avoid existing drainage pathways and adjusting work programs in anticipation of storm events. Further details on these mitigation strategies are provided in Section 7.0. Any flood impacts that may occur are expected to be minor, and avoidable through the implementation of the proposed mitigation measures. As a result, the residual risk for this impact is considered low.

6.2 Operation and maintenance phase

6.2.1 Stormwater Runoff Quality

The overall increase in the impervious surface area of the site, created by the Project, may increase levels of sediment, nutrients and litter in stormwater runoff. Additionally, some areas of site may have infrastructure that holds potentially polluting materials that could pose a risk of contamination if released to the environment (e.g. oil used for cooling and insulation). To manage these impacts, the Project would adhere to the pollutant reduction targets outlined in EPA Publication 1739.1: Urban Stormwater Management Guidance, the Infrastructure Design Manual (Latrobe City Council), and all relevant electricity industry specific design guidelines.

As such the site stormwater drainage network would feature water quality improvement devices to assist in achieving the pollutant reduction targets as required by the Council, prior to discharge into the Waterhole Creek catchment. These would be identified at the detailed design stage and may include oil separation devices (e.g. gross pollutant traps with an oil separator), and, space permitting, may also include green infrastructure solutions such as water sensitive urban design measures (e.g. combined with the proposed on-site detention basin). As described in Section 2.0, a firewater retention system

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(FWRS) (retention basin) is also proposed to support appropriate management of any firewater runoff from the site.

Specifically, surface water risk presented to the on-site DEECA mapped wetlands is expected to be negligible during operation phase. This is primarily because the intended grade of the BESS surface is sloping towards the north-east, diverting runoff away from these wetlands. This would be complemented by the proposed implementation of swale drains bordering the BESS, and a downstream detention basin. As such, polluted stormwater is unlikely to reach these wetlands, or any DEECA and Ramsar listed wetlands downstream of site.

With the full implementation of the measures described above and those presented in Section 7, the potential impacts of stormwater quality affecting Bennetts Creek and downstream waterways and wetlands during the operations phase are considered unlikely, with only minor and localised consequences. Therefore, the residual risk for this impact is low.

6.2.2 Stormwater Runoff Quantity

The construction of benches and hardstand, and the associated reduction of existing grass areas would lead to increased impervious area within the catchment. Such changes can increase the volume of stormwater runoff and discharge rates, potentially causing localised flooding within the waterways across the site and exacerbating existing flooding downstream.

The increase in runoff generated by the development can be effectively managed through standard design practices. These practices would account for runoff volume, discharge rates, discharge locations, overland flow paths, and the impacts of climate change.

To reduce the volume of stormwater runoff from the site, measures such as on-site detention basin would be implemented. A stormwater management strategy would need to be developed including details on the drainage solution for the site (e.g. conveyance, retardation, flood protection, outfall and stormwater quality treatment) and how the solution would be implemented (e.g. interim works, staging, responsible parties and required approvals). The design would also need to comply with the requirements set by Latrobe City Council, such as those presented in Infrastructure Design Manual (IDM) and make allowances for climate change where appropriate.

With the full implementation of these measures, as well as those outlined in Section 7.0, the likelihood of flood risk impacts is considered low, with only minor and localised consequences. The residual risk for this impact is low.

6.2.3 Flood Damage and Disruption

Section 5.6 demonstrates that current, publicly available flood modelling information does not represent the full extent of potential flooding across the Project site. Nonetheless, both Bennetts Creek and the overland flow corridors to the east of site present some risk of flooding during a significant flood event.

In the absence of appropriate design measures, flooding during the operations phase could impact the proposed infrastructure, leading to generation failure and potential shutdown, with ensuing downtime for recovery. Flooding across the site access roads may also impair access, which could become critical during storm events.

The detailed design of the Project will be informed by flood modelling to ensure all proposed infrastructure, access tracks and waterway crossings are designed to accommodate these potential flood risks and ensure existing flooding conditions are not detrimentally changed beyond the site boundary. This flood modelling assessment would include an allowance for climate change that is representative of the Project lifespan. Flood mitigation measures during design could include setbacks from the identified flood extent, elevation of infrastructure above the modelled flood depth and construction of access tracks on existing grade to allow the free flow of water through the floodplain.

Further details on these mitigation strategies are provided in Section 7.0 of this assessment report. Any flood impacts that may occur are expected to be minor, and avoidable through the implementation of the proposed mitigation measures. As a result, the residual risk for this impact is considered low.

6.3 Decommissioning phase

The operational life of the BESS is indicatively estimated at 40 years, after which time the Project would commence decommissioning

During decommissioning, above ground components would be removed and recycled where possible, and land rehabilitated. The battery units would either be disposed of, repurposed or recycled at a licensed disposal facility. The decommissioning timeframe is expected to last approximately 12 months post operation phase.

Decommissioning works are typically less intense than construction phase works, with some assets potentially remaining in-situ (e.g. access tracks). This reduction in ground disturbance, delivered over a shorter timeframe means the decommissioning works will have a lower risk profile than the construction phase.

It is anticipated that decommissioning activities will be managed in accordance with the relevant legislation, standards and guidelines at the time of decommissioning, ensuring any impacts will be minor, localised, and short-term, with a low residual risk.

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7.0 Recommended Mitigation Measures

The mitigation measures that are recommended to avoid, mitigate or manage surface water impacts associated with the Project are summarised in Table 7-1.

Table 7-1 Mitigation measures relevant to surface water

Measure ID	Mitigation measure	Phase
SWM-01	Runoff from Construction Sites - All construction activities to be completed in accordance with industry standard best practice guidelines including: - IECA Best Practice Erosion and Sediment Control Guidelines - EPA Publication 1834; Civil Construction, Building and Demolition Guide - Development of a project wide Environmental Management Plan EMP outlining erosion and sedimentation control measures for construction phase works.	Construction
SWM-02	Horizontal Directional Drilling - Frac-out risks should be assessed in accordance with industry best practice guidelines (e.g. modelling). - Where the risk of frac-out is identified, drilling profiles will be adjusted, and drilling fluid properties will be monitored during HDD operations. - Drainage channels and bunding will be placed around the HDD drill sites and work areas to divert natural runoff away from the operations and prevent mixing with drilling compound runoff. - The WGCMA will be engaged during the planning stage for HDD works beneath Bennetts Creek.	Design, Construction
SWM-03	Fuel and Chemical Spills - The storage, handling and management of fuels and chemicals would be performed in accordance with the following: - The <i>Dangerous Goods (Storage and Handling) Regulations</i> (2022) <i>EPA Guideline 1698; Liquid Storage and Handling Guidelines</i> <i>WorkSafe Victoria's Compliance Code: Hazardous Substances</i> - Typical management measures would include: - Reducing onsite fuel and chemical storage. - Bunding of fuel and chemical storage facilities, and areas of regular use of these substances. - Provision of spill kits at locations where machinery/plant are operating, refuelling points and fuel and chemical storage locations - Spills of hazardous materials would be rendered safe, and where required, collected and transported by licenced contractors for disposal at appropriately licenced facilities,	Construction, Operation

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Measure ID	Mitigation measure	Phase
	including cleaning materials, absorbents and contaminated soils - Emergency response plans for spills should be developed as per safety, hazard and risk assessments.	
SWM-04	Flood Damage and Disruption • The EMP would include emergency management procedures and establish controls to manage potential flooding impacts. • Optimisation of construction site layout to minimise encroachment into known waterway corridors, wetlands and drainage pathways. • Adjustment of work programs in anticipation of storm events.	Construction
SWM-05	Stormwater Runoff Quality • The stormwater drainage network would be designed to meet the water quality objectives of CSIRO Best Practice Environmental Guidelines for stormwater management (1999), <i>EPA Publication 1739.1: Urban Stormwater Management Guidance</i>, and the Infrastructure Design Manual, prior to discharging into receiving waters • The stormwater drainage network would be designed to isolate clean stormwater runoff from potentially contaminated areas • Prioritisation of green infrastructure solutions, such as water sensitive urban design, over proprietary stormwater quality improvement devices This copied document to be made available for the sole purpose of enabling its consideration and review as part of a planning process under the Planning and Environment Act 1987. The document must not be used for any purpose which may breach any copyright	Operation
SWM-06	Increased Flood Risk • Latrobe City Council and WCCMA would be engaged to discuss the site stormwater management strategy prior to commencing detailed design. • Both permanent works and temporary construction works must not increase overall flood risk or modify the flow regime of waterways without the acceptance of the relevant drainage authorities. • The stormwater management strategy would describe the implementation of a drainage solution for the site, including details on conveyance, retardation, flood protection, outfall and treatment. • The stormwater drainage system would be designed according to the Infrastructure Design Manual and requirements set by Latrobe City Council. • The stormwater drainage system would be designed to allow for climate change over the operational life of the Project.	Construction
SWM-07	Flood Damage and Disruption • Site detailed design would be informed by a flood modelling assessment including an allowance for climate change that is representative of the Project lifespan • Where feasible, the design would be located outside of the 1% AEP flood extent	Operation

Measure ID	Mitigation measure	Phase
	• Access tracks would be constructed to match the existing grade and allow the free flow of water through the floodplain. • Waterway crossings would be designed in accordance with the conditions of a Works on Waterways Permit issued by WGCMA. • All sensitive or critical infrastructure would be located a minimum of 300 mm above the 1%AEP flood depth, unless a greater freeboard is required (e.g. through industry specific design guidelines) • Site access would be maintained during the 1% AEP flood event. • Where feasible, Project infrastructure (including any temporary laydown areas) would be set back a minimum of 50m from Bennetts Creek (measured from top of bank).	

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8.0 Conclusion

This study assesses the potential surface water impacts and risks associated with the Hazelwood East BESS to inform the preparation of the planning permit required for the Project. The assessment found that the proposed construction, operation, and decommissioning activities present manageable risks to the environmental values of surface water, with implementation of the proposed mitigations and best practice management approaches.

The construction phase will be guided by an Environmental Management Plan that includes dedicated surface water management measures for erosion and sediment control, spill prevention and response, and construction phase planning that addresses the potential water quality and flood risks. Subsequently, the construction phase impacts to surface water, including on and off-site wetlands, are expected to be minor, localised, and short-term. A Works on Waterways Permit will also be required for the construction of the access track across Bennetts Creek, HDD crossing and for any works on the floodplain (e.g. construction of the bench).

During the operations phase, the proposed stormwater drainage system will be designed to meet Latrobe City Council and EPA requirements, along with water quality treatment devices and on site detention. This will effectively reduce the volume of runoff, manage discharge rates, and reduce pollutant loads in the receiving water bodies. These measures will effectively reduce overall risks of surface water impacts to ensure any residual impacts are minor, localised and of short term duration.

The decommissioning phase will likely result in works that are smaller in scale and duration than those carried out during the construction phase. To manage the potential impacts, the works will adhere to legislative requirements and guidelines that are relevant at the time of these works. Therefore, the potential impacts of surface water are also expected to be minor, localised and short term.

With implementation of the recommended mitigation measures, the residual risk to the environmental values of surface water will be low. This risk of impacts to the Gippsland Lakes Ramsar site is also considered low, given its significant distance from the site.

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