

Environment
Effects Statement

Technical Report K

Historical heritage



North East Link Project

North East Link Environment Effects Statement

Technical report K – Historical heritage assessment

Prepared for North East Link

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Executive summary

This technical report is an attachment to the North East Link Environment Effects Statement (EES). It has been used to inform the EES required for the project and defines the Environmental Performance Requirements (EPRs) necessary to meet the EES objectives.

Overview

North East Link is a proposed new freeway-standard road connection that would complete the missing link in Melbourne's ring road, giving the city a fully completed orbital connection for the first time. North East Link would connect the M80 Ring Road (otherwise known as the Metropolitan Ring Road) to the Eastern Freeway, and include works along the Eastern Freeway from near Hoddle Street to Springvale Road.

The Major Transport Infrastructure Authority (MTIA) is the proponent for North East Link. The MTIA is an administrative office within the Victorian Department of Transport with responsibility for overseeing major transport projects.

North East Link Project (NELP) is an organisation within MTIA that is responsible for developing and delivering North East Link. NELP is responsible for developing the reference project and coordinating development of the technical reports, engaging and informing stakeholders and the wider community, obtaining key planning and environmental approvals and coordinating procurement for construction and operation.

On 2 February 2018, the Minister for Planning declared North East Link to be 'public works' under Section 3(1) of the *Environment Effects Act 1978*, which was published in the *Victorian Government Gazette* on 6 February 2018 (No. S 38 Tuesday 6 February 2018). This declaration triggered the requirement for the preparation of an EES to inform the Minister's assessment of the project and the subsequent determinations of other decision-makers.

The EES was developed in consultation with the community and stakeholders and in parallel with the reference project development. The reference project has been assessed in this EES. The EES allows stakeholders to understand the likely environmental impacts of North East Link and how they are proposed to be managed.

Lovell Chen was commissioned to undertake a historical heritage impact assessment for the purposes of the EES.

Historical heritage context

The scoping requirements for the EES issued by the Minister for Planning set out the specific environmental matters to be investigated and documented in the project's EES, which informs that scope of the EES technical studies. The scoping requirements include a set of evaluation objectives. These objectives identify the desired outcomes to be achieved in managing the potential impacts of constructing and operating the project.

The following evaluation objective is relevant to the historical heritage assessment:

- To avoid or minimise adverse effects on Aboriginal and historical cultural heritage values.

A summary of the key assets, values or uses potentially affected by the project and an assessment of the project's impacts on those assets, values and uses is set out below.

Definitions

Historical heritage: The term 'historical cultural heritage' or 'historical heritage' (the two are used interchangeably) is understood in this report to mean places and objects that are of aesthetic, archaeological, architectural, cultural, scientific or social significance. It does not include places or objects that are of significance only on the grounds of their association with Aboriginal tradition. Accepting this, it is noted that the term 'historical heritage' should not be interpreted as excluding Aboriginal cultural heritage values and there are many historical heritage places which have Aboriginal cultural heritage values in addition to non-Aboriginal cultural values (shared values). This is consistent with the definitions and exclusions in the *Heritage Act 2017* (Vic) ('Heritage Act').

Heritage place: In an historical heritage context; the term ‘place’ is wide ranging. An industry standard which is most frequently referenced as a guide to best practice management of cultural heritage places in Australia is the Australia ICOMOS Burra Charter, 2013 (Burra Charter). Consistent with the Burra Charter, a ‘place’ is a geographically defined area. It may include elements, objects, spaces and views. Places may have tangible and intangible dimensions (Australia ICOMOS: 2013, refer Article 1). Heritage places can encompass a range of place types, including buildings, gardens, trees, shipwrecks, archaeological sites, precincts, sites and associated land. Monuments and memorials can also be considered, whether as heritage places (or as part of a heritage place) or as objects.

Historical archaeology: As defined in the Heritage Act, historical archaeological sites are those heritage places that contain archaeological artefacts, deposits or features which are more than 75 years old, and that provide information of past activity in the state and require archaeological methods to reveal information about the settlement, development or use of the place, and are not associated only with Aboriginal occupation of the place. Sites which contain artefacts, deposits or features less than 75 years in age can be approved by the Heritage Council as approved sites of archaeological value.

Aboriginal cultural heritage

Aboriginal cultural heritage is not the primary focus of this report and is assessed in Technical report L – Aboriginal cultural heritage. However, a number of places addressed in this historical heritage assessment have multiple values, including Aboriginal cultural heritage values. For these places, both technical reports should be reviewed.

A Cultural Heritage Management Plan (CHMP) is also being prepared under the *Aboriginal Heritage Act 2006* (Vic).

NELP has also commenced a cultural values mapping exercise with Wurundjeri Woi-wurrung Cultural Heritage Aboriginal Corporation (WWCHAC) in addition to the CHMP. It is hoped that consultation and fieldwork conducted for North East Link will provide for a greater appreciation of Aboriginal cultural heritage values, including on places with shared values.

Existing conditions

The existing conditions work for the historical heritage assessment has described a diverse range of heritage values and places, reflecting the patterns of historical development within the historical heritage study area. Place types within the study area are also diverse, including archaeological sites, buildings and landscapes, significant trees and broader cultural landscapes. The existing conditions can be discussed in four sections as follows:

Yarra River and environs

A significant portion of the historical heritage study area for North East Link extends through the Yarra River valley. The river is a large-scale geographical feature with significant cultural values. While specific areas abutting the river have been identified as being of heritage value and some have statutory controls, the river has not been formally identified or recognised as a single heritage place. Despite this, it does have heritage values and is therefore an important consideration for the historical heritage study.

M80 Ring Road to northern portal

In the M80 Ring Road to northern portal section of the historical heritage study area there are relatively few heritage places with statutory controls. These sites are a former school, some institutional buildings, a residence and some archaeological sites.

Further south, Simpson Barracks occupies a large area of Commonwealth land east of the Greensborough Highway and the western part of the site is within the study area. While not currently included in the Commonwealth Heritage List (CHL) or the National Heritage List (NHL) under the *Environment Protection and Biodiversity Conservation Act 1999 (Cwlth)* (‘EPBC Act’), Simpson Barracks has been assessed in a draft study for the Department of Defence as of Commonwealth Heritage value for Criterion A (historical significance).

Northern portal to southern portal

Heritage places in the northern portal to southern portal section of the historical heritage study area are mixed in terms of place types and historical origins.

By the late 19th century, the area from Rosanna through to Heidelberg and Bulleen was predominantly occupied by large estates and utilised for farming. Early rural occupation of the area is demonstrated by heritage places such as the Victorian Heritage Register (VHR)-listed Banyule, set high on an escarpment looking over the river at Heidelberg, as well as the archaeological site, Arthur Hagues House, Viewbank.

The Heide Museum of Modern Art located on Templestowe Road, north of Bridge Street also has historical value. The museum includes an early timber farmhouse dating from the 1870s – Heide I – as well as a modernist house built in 1967 – Heide II – built by art patrons John and Sunday Reed and set in expansive gardens running to the edge of the Yarra River. Both properties are listed on the VHR.

An interwar bungalow, Journeys End, is close by, on the north side of Bridge Street and this includes remnant mature trees within the property and on the north side of Bridge Street. An early pipe bridge of local significance but with no heritage controls crosses the river on the north side of the Manningham Road West/Banksia Street bridge.

South of Manningham Road at Bridge Street, there is a single River Red Gum of great age and with historical, aesthetic, scientific and potential social heritage value, as well as two early residences (Clarendon Eyre and Ben Nevis) and a post-WWII social club building of architectural and potential social/historical significance (Veneto Club).

There are also identified sites on both sides of the Yarra River (Bolin Swamp, referenced in this report as Bolin Bolin Billabong, Yarra Flats and the former Bulleen Drive-in) where there are known Aboriginal cultural heritage values (refer to Technical report L – Aboriginal cultural heritage) and archaeological potential but where the historical heritage values are not in all cases confirmed. These sites all form part of the broader Yarra River and environs landscape.

Eastern Freeway

The Eastern Freeway section of the historical heritage study area was highly disturbed by the freeway's construction in stages from the 1970s, but otherwise reflects the diverse origins of the areas it passes through. Land to the east of Merri Creek and in the Yarra River environs (Yarra Bend Park) was developed for a series of institutional uses in the 19th century and is now parkland. Remnants of these earlier uses are generally historical and archaeological in nature, with relatively few buildings or complexes remaining. Further east, heritage places are outside the Eastern Freeway and generally separate from it. Pre-historical land uses are addressed in Technical report L – Aboriginal cultural heritage.

While not currently subject to heritage controls, the first stage of the Eastern Freeway – Hoddle Street to Bulleen Road (Stage 1) was identified in an earlier study as of heritage value. This study has confirmed its aesthetic and historical heritage values, as related to its early integrated urban and landscape design treatments and bridge design and as a focus for major community protests in the 1970s. A level of technical (engineering) significance has also been ascribed to the bridges.

Key findings

This impact assessment has found that most impacts on historical heritage could be avoided because a substantial portion of North East Link comprises tunnels, including through the sensitive areas of the Yarra River and its environs. There are relatively few locations within the project boundary where North East Link would intersect or impact on historical heritage places or values.

Importantly, no adverse impacts were identified for VHR places. Banyule is located close to tunnelling works but no direct or indirect impacts are expected. Heide I and II are also close to works and in the case of Heide II, the proposed tunnels would extend below part of the site. No adverse impacts were identified for either of these registered places.

Key potential and actual impacts identified in the historical heritage study are:

River Red Gum, Bridge Street

The removal of this River Red Gum is required to construct the reference project as well as the alternative design of the Manningham Road interchange. The works would result in the loss of the tree and all associated heritage values.

The tree has been variously assessed (by local councils and the National Trust) as of local and regional heritage significance and is a local landmark. From a heritage perspective, its retention and protection are preferred.

The tree should be recorded in accordance with EPR HH4 (Archival photographic records). In addition to the standard recording, a more tailored response to recording the history and cultural associations and meanings of the River Red Gum over time is being developed. This will consider the identified values of the tree, including its status as a local landmark and is likely to include a more detailed written history and the incorporation of oral history sources. This work is to be undertaken by NELP.

Eastern Freeway

The impacts on the original design and presentation of the Hoddle Street to Bulleen Road (Stage 1) section of the Eastern Freeway are relatively minor at the western end and become more significant further east, particularly east of Chandler Highway. A notable impact would be from the proposed viaduct structures crossing the freeway at the Chandler Highway and Bulleen Road interchanges, which would interrupt the sequence of bespoke designed bridges when travelling along the freeway.

Accepting there would be changes to presentation, many of the key attributes of the original design of the Eastern Freeway would be retained, including its distinctive bridge structures, the embankments and much of the landscaping. There would be some impact on intactness and aesthetic qualities, but subject to detailed design, it is considered the North East Link construction works to the Hoddle Street to Bulleen Road (Stage 1) section of the Eastern Freeway could largely maintain its key attributes and features and the legibility of its design origins.

The Urban Design Strategy (UDS) (EES Attachment II) developed for North East Link would guide the approach to freeway infrastructure design. Efforts should be made to retain and conserve the fabric and aesthetic qualities of the Hoddle Street to Bulleen Road (Stage 1) section of the Eastern Freeway consistent with its original design, as far as practical. Within the constraints of functional requirements, new freeway infrastructure such as lighting, safety and crash barriers and noise walls should be designed with regard for the original design qualities. Landscape works should seek to reinstate the vegetated character of the Eastern Freeway, which was an important aspect of its design.

Relevant EPRs are HH1 (Design and construct to minimise impacts on heritage), HH4 (Undertake archival photographic recording), AR1 (Develop and implement a Tree Removal Plan) and AR3 (Implement a Tree Canopy Replacement Plan). As noted, the UDS would provide guidance in relation to the design response.

Historical archaeology

There are known and potential sites with archaeological values that may be disturbed by construction works for North East Link and these are identified in the historical heritage assessment. Both are afforded statutory protection under the *Heritage Act 2017* (Vic) (Heritage Act).

Where North East Link would impact on archaeological sites, their research value could be realised through appropriate archaeological techniques in accordance with EPR HH2 and the requirements of the Heritage Act. This is the case for the proposed shared use path north of the Eastern Freeway which would result in some subsurface disturbance on both the VHR-registered former Fairlea Women's Prison (registered with both historical and archaeological values) and the VHI site H7922-0412 Yarra Bend Lunatic Asylum. In both cases archaeological investigations would be undertaken in accordance with EPR HH2 and to Heritage Victoria's satisfaction.

EPR HH2 (Implement an Archaeological Management Plan to avoid and minimise impacts on historic archaeological sites and values) sets out the requirements for known sites and sites that may be discovered during construction.

Ground movement and vibration

Informed by the findings of the relevant North East Link EES technical reports, consideration has been given to the potential for unintended impacts from tunnelling and other works associated with ground movement or vibration to cause damage to heritage buildings or structures.

Based on modelling, the risk to heritage buildings and structures from tunnelling vibration has been assessed as low. The findings are that the risk to heritage buildings and structures from ground movement is also low.

No impact for surface works vibration is expected to heritage buildings but the relevant technical report notes that these need to be considered on a case-by-case basis before construction of North East Link is started. Where a building or structure is deemed to be sensitive to vibration, the vibration criteria should be reduced. Further investigation would be undertaken during detailed design of North East Link for the development of specific construction, noise and vibration management plans.

Relevant EPRs are NV3, NV4, NV9, GM1, GM2, GM3, GM4, HH3.

Groundwater drawdown

Technical report N – Groundwater details the assessment of potential groundwater drawdown as a consequence of the project works. Groundwater changes have been modelled for during the construction and operation of North East Link.

Groundwater drawdown may occur in three locations:

- Northern tunnel portal and trench/cut-and-cover tunnel
- Tunnel section from Lower Plenty Road to Buckingham Drive
- Manningham Road interchange, cut and cover and mined tunnels and southern tunnel portal.

Consideration has been given to the potential for groundwater drawdown to have an impact on heritage places and areas with significant trees and landscapes.

There are a number of heritage places with significant trees and landscape which fall within the area south of Manningham Road where changes in groundwater conditions have been modelled.

Technical report G – Arboriculture anticipates no impacts to cultivated trees from groundwater drawdown effects.

Technical report Q – Ecology identifies limited impacts to indigenous vegetation within the river environs, except for an area at the eastern end of Bolin Bolin Billabong where the potential lowering of water levels was considered. Significant impacts to aquatic and terrestrial ecosystems at the billabong are not anticipated. Nevertheless, a groundwater dependent ecosystem monitoring and mitigation plan would be implemented for the project. Measures such as periodical filling and or topping can mitigate this impact. Melbourne Water are actively managing the hydrological regime of the billabong. It is noted that negotiation with Melbourne Water (and Southern Rural Water, if groundwater is involved) would be required to install or establish suitable mitigation measures.

Where groundwater drawdown impacts on ecological vegetation have been identified or subsequently arise, Technical report Q – Ecology identifies the following EPRs: GW2, GW5, SW4, CL2, FF2, FF4, FF6.

Yarra River and environs

The North East Link reference project avoids significant impacts on the Yarra River and its environs with tunnels beneath the riverine environment.

Issues that may arise associated with construction of the tunnels are:

- Ground movement (subsidence over tunnels within the Yarra River environs)
- Changes to groundwater conditions and possible impacts on significant trees and other vegetation
- Ground improvement works north of Bridge Street if required

In relation to subsidence, the findings in Technical report M – Ground movement predict that ground movement from construction of the tunnels and trenched excavations is unlikely to impact on heritage values.

The issue of changes to groundwater conditions is as noted above. Groundwater changes during the construction and operation of North East Link have been modelled in parts of the river environs south of Manningham Road.

As noted above, Technical report Q – Ecology identifies limited impacts to indigenous vegetation within the river environs, except for an area at the eastern end of Bolin Bolin Billabong where the potential lowering of water levels was considered. Significant impacts to aquatic and terrestrial ecosystems at the billabong are not anticipated, but a monitoring and mitigation plan would be implemented for the project and mitigation measures such as periodical filling and or topping of the billabong could be employed. Melbourne Water are actively managing the hydrological regime of the billabong.

Technical report G – Arboriculture concludes that no impacts to cultivated vegetation would be expected from groundwater drawdown.

Other impacts or potential impacts from North East Link's construction and operation on the Yarra River and its environs are:

- Ground improvement works in Banksia Park, and an alternative option to locate the TBM retrieval site within Banksia Park
- Shared use path improvements near the Yarra River generally in the vicinity of Banksia Street
- Potential for disturbance from construction activities on the eastern side of the Yarra River south of Manningham Road
- New infrastructure east of the river south of Manningham Road including in the eastern part of the former Bulleen Drive-in site, and new roads and related structures and a ventilation structure in the parkland areas east of the river and south of the Veneto Club
- Works within the existing Eastern Freeway reserve and close to the Yarra River.

The potential impacts from ground improvement works within Banksia Park required for the reference project as well as the alternative design of the Manningham Road interchange were considered (HH03). These works would occur immediately to the south and south-west of Heide II and a zone for these works has been identified for the reference project and the alternative design. The zone of ground improvement works in Banksia Park would not extend to the edge of the Yarra River and the immediate riverine environment would be unaffected. The broader Banksia Park has a more open character and has evolved over time. It is preferred that any ground improvement works in Banksia Park are designed to limit the affected area and any associated tree loss, and allow for landscape remediation works.

An alternative design option is also considered, in which the TBM retrieval site would be located north of Bridge Street within the area of Banksia Park proposed for ground improvement works. In this case, there would be an awareness of the works and activities in Banksia Park from within the riverine environment but there would be no direct impact. No additional impacts to historical heritage values are identified with respect to this alternative.

The other more direct impacts of North East Link construction areas and new infrastructure on the east side of the river south of Manningham Road are not considered to pose a significant adverse impact on the valued qualities of the river environs nor its heritage values. Much of river environs would be in a no-go zone for North East Link, including the sensitive Bolin Bolin Billabong (HO30, Manningham). Works are proposed in the largely cleared area of the former Bulleen Drive-in and sporting fields south of the Veneto Club, and vegetation on the edge of the Yarra River would be retained and protected. No significant adverse visual impact on the Yarra River environs has been identified.

As noted at Section 8.2.3, the potential for groundwater drawdown to cause localised impacts to ecological vegetation at the eastern end of the Bolin Bolin Billabong wetland has been identified in Technical report Q – Ecology. If required, mitigation could include measures such as periodical filling and or topping of the billabong. Melbourne Water are actively managing the hydrological regime of the billabong. Assuming effective

mitigation controls would be in place here, the overall impact on the heritage values of the Yarra River and environs is considered negligible.

Interpretation of heritage themes

It is recommended that an approach to the interpretation of heritage themes is developed for North East Link. This work could potentially reference Aboriginal as well as historical heritage themes, including historical heritage places along the proposed North East Link alignment. These could be explored where bicycle and pedestrian paths or other locations accessible to the public are proposed. An audit of existing heritage interpretation should be included in this work. New interpretation should be compatible with existing materials and themes and should be developed and implemented in consultation with key stakeholders, including the WWCHAC, and relevant local councils. Interpretation could include (but would not necessarily be limited to) signage, artworks or online sources.

Consistent with this recommendation, the Urban Design Strategy (UDS) includes a requirement to *Recognise Past, Contemporary & Shared Indigenous & Historic Cultural Values* (Key Direction 3). This sets out a range of requirements to reference, explore and respond to both Aboriginal and historical cultural heritage through the project and provides an appropriate basis for the development of place and project-based interpretation.



Abbreviations

AILA	Australian Institute of Landscape Architects
Bolin Bolin Billabong	Bolin Swamp
CHL	Commonwealth Heritage List
CEMP	Construction Environmental Management Plan
CHMP	Cultural Heritage Management Plan
CMP	Conservation Management Plan
CNVMP	Construction Noise and Vibration Management Plan
CRB	Country Roads Board
DELWP	Department of Environment, Land, Water and Planning
EES	Environment Effects Statement
EPR	Environmental Performance Requirement
ESO	Environmental Significance Overlay
GIS	Geographical information system
GHS	Greensborough Historical Society
HERCON	National Heritage Convention
HO	Heritage Overlay
LGA	Local Government Authority
LPPF	Local Planning Policy Framework
MMBW	Melbourne Metropolitan Board of Works
MTIA	Major Transport Infrastructure Authority
NELP	North East Link Project
NHL	National Heritage List
NTAV	National Trust of Australia (Victoria)
OEMP	Operations Environmental Management Plan
PD	Project Description
RAIA	Royal Australian Institute of Architects
SLO	Significant Landscape Overlay
SPPF	State Planning Policy Framework
SUP	Shared use path
VACL	Victorian Aboriginal Corporation for Languages
VAHR	Victorian Aboriginal Heritage Register
VAS	Victorian Archaeological Survey
VHD	Victorian Heritage Database
VHI	Victorian Heritage Inventory
VHR	Victorian Heritage Register
VPO	Vegetation Protection Overlay
VWHI	Victorian War Heritage Inventory
WSUD	Water Sensitive Urban Design features
WWCHAC	Wurundjeri Woi-wurrung Cultural Heritage Aboriginal Corporation
WWII	World War II

Glossary of key terms

<i>Historical heritage</i>	The term ‘historical cultural heritage’ or ‘historical heritage’ (the two are used interchangeably) is understood in this report to mean places and objects that are of aesthetic, archaeological, architectural, cultural, scientific or social significance. It does not include places or objects that are of significance only on the grounds of their association with Aboriginal tradition. Accepting this, it is noted that the term ‘historical heritage’ should not be interpreted as excluding Aboriginal cultural heritage values and there are many historical heritage places which have Aboriginal cultural heritage values in addition to non-Aboriginal cultural values (shared values). This is consistent with the definitions and exclusions in the Heritage Act 2017.
<i>Heritage place</i>	In an historical heritage context, the term ‘place’ is wide ranging. An industry standard which is most frequently referenced as a guide to best practice management of cultural heritage places in Australia is the Australia ICOMOS Burra Charter, 2013 (Burra Charter). Consistent with the Burra Charter, a ‘place’ is a geographically defined area. It may include elements, objects, spaces and views. Places may have tangible and intangible dimensions (Australia ICOMOS: 2013, refer Article 1). Heritage places can encompass a range of place types, including buildings, gardens, trees, shipwrecks, archaeological sites, precincts, sites and associated land. Monuments and memorials can also be considered, whether as heritage places (or as part of a heritage place) or as objects.
<i>Historical archaeology</i>	As defined in the Heritage Act 2017, historical archaeological sites are those heritage places that contain archaeological artefacts, deposits or features which are more than 75 years old, and that provide information of past activity in the State and require archaeological methods to reveal information about the settlement, development or use of the place, and are not associated only with Aboriginal occupation of the place. Sites which contain artefacts, deposits or features less than 75 years in age can be approved by the Heritage Council as approved sites of archaeological value.
<i>Department of Transport</i>	The Victorian Department of Transport is responsible for delivering the government’s transport infrastructure agenda. It was formed on 1 January 2019 when the former Victorian Department of Economic Development, Jobs, Transport and Resources transitioned into the Department of Transport and the Department of Jobs, Precincts and Regions.
<i>Major Transport Infrastructure Authority</i>	The Major Transport Infrastructure Authority is the proponent for North East Link. The MTIA is an administrative office within the Victorian Department of Transport with responsibility for overseeing major transport projects.
<i>North East Link Project</i>	North East Link Project is an organisation within MTIA that is responsible for developing and delivering North East Link. NELP was formerly known as the North East Link Authority prior to 1 January 2019. NELP is responsible for developing the reference project and coordinating development of the technical reports, engaging and informing stakeholders and the wider community, obtaining key planning and environmental approvals and coordinating procurement for construction and operation.

1. INTRODUCTION

1.1 Purpose of this report

North East Link ('the project') is a proposed new freeway-standard road connection that would complete the missing link in Melbourne's ring road, giving the city a fully completed orbital connection for the first time. North East Link would connect the M80 Ring Road (otherwise known as the Metropolitan Ring Road) to the Eastern Freeway, and include works along the Eastern Freeway from near Hoddle Street to Springvale Road.

The Major Transport Infrastructure Authority (MTIA) is the proponent for North East Link. The MTIA is an administrative office within the Victorian Department of Transport with responsibility for overseeing major transport projects.

North East Link Project (NELP) is an organisation within MTIA that is responsible for developing and delivering North East Link. NELP is responsible for developing the reference project and coordinating development of the technical reports, engaging and informing stakeholders and the wider community, obtaining key planning and environmental approvals and coordinating procurement for construction and operation.

On 2 February 2018, the Minister declared the works proposed for North East Link as Public Works and issued a decision confirming that an Environment Effects Statement (EES) is required for the project due to the potential for significant environmental effects.

Similarly, the project was referred to the Australian Government's Department of the Environment and Energy on 17 January 2018. On 13 April 2018 the project was declared a 'controlled action', requiring assessment and approval under the *Environment Protection and Biodiversity Conservation Act 1999 (Cwlth)* ('EPBC Act'). Separate to this EES, a Public Environment Report (PER) is required to be prepared to satisfy the EPBC Act requirements, and assess the impacts of the project on Commonwealth land and matters of national environmental significance (MNES).

The purpose of this report is to assess the potential historical heritage impacts associated with North East Link to inform the preparation of the EES required for the project.

1.2 Why understanding historical heritage is important

Places and objects of historical cultural heritage value are highly valued by the community and contribute to a sense of history and identity. Construction activities and permanent infrastructure for North East Link have the potential to have physical and/or visual impacts on the fabric, setting or character of heritage places and objects and could have an adverse impact on their heritage values. It is important to describe and understand the heritage assets and values in the vicinity of North East Link and to assess the nature and severity of any impact the project may have on these.

2. EES SCOPING REQUIREMENTS

2.1 EES evaluation objectives

The scoping requirements issued by the Minister for Planning set out the specific environmental matters to be investigated and documented in the project's EES, which informs the scope of the EES technical studies. The scoping requirements include a set of evaluation objectives. These objectives identify the desired outcomes to be achieved in managing the potential impacts of constructing and operating the project.

The following evaluation objective is relevant to the historical heritage assessment:

- To avoid or minimise adverse effects on Aboriginal and historical cultural heritage values.

Note regarding Aboriginal cultural heritage

Aboriginal cultural heritage is not the primary focus of this report; it is assessed in Technical report L – Aboriginal cultural heritage. However, a number of places addressed in this historical heritage assessment have multiple values, including Aboriginal cultural heritage values. These include but are not limited to:

- Yarra River and environs, including:
 - Bolin Bolin Billabong
 - Yarra Flats
 - Warringal Parklands and Banyule Flats
 - Heide I and II
- Yarra River Protectorate Station site and Yarra Bend Park.

It is also noted that some of these places have important ongoing attachments for Aboriginal people, even where areas may have been previously impacted by development (such as the Protectorate Station site).

For these places and locations, it is necessary to review this technical report and Technical report L – Aboriginal cultural heritage. A Cultural Heritage Management Plan (CHMP) No 15576 is also being prepared under the *Aboriginal Heritage Act 2006* (Vic) to manage Aboriginal heritage values.

It is also noted NELP has commenced a cultural values mapping exercise with WWCHAC, running parallel to the CHMP. It is expected the consultation and fieldwork for the CHMP will provide for a greater appreciation of Aboriginal cultural heritage values, including on places with shared values.

2.2 EES scoping requirements

The aspects from the scoping requirements relevant to the historical heritage evaluation objective are shown in Table 2.1, as well as the location where these items have been addressed in this report.

Table 2.1 Scoping requirements relevant to historical heritage

Aspect	Scoping requirement	Section addressed
Key issues	<ul style="list-style-type: none"> Potential adverse effects on historical cultural heritage values, especially buildings, properties, trees, archaeological sites and precincts identified through statutory instruments. 	Section 6: Existing conditions Section 8: Impact assessment
Priorities for characterising the existing environment	<ul style="list-style-type: none"> Review land use history, Aboriginal traditional knowledge, previous studies and relevant registers to identify areas with the potential for Aboriginal and historical cultural heritage values. Identify potentially affected sites or precincts on the Victorian Heritage Register, or Heritage Inventory, within Heritage Overlays in relevant planning schemes or otherwise documented as being of heritage significance. Investigate the condition and cultural heritage sensitivity of identified sites and heritage precincts. 	Section 6: Existing conditions Appendix C: Land use history Technical report L – Aboriginal cultural heritage
Design and mitigation measures	<ul style="list-style-type: none"> Describe design, management (harm avoidance and/or minimisation strategies) circumvent or mitigate potential adverse effects on known or potential Aboriginal cultural heritage or historical cultural heritage values. 	Section 8: Impact assessment Section 10: Environmental Performance Requirements
Assessment of likely effects	<ul style="list-style-type: none"> Assess residual effects of the project on identified or potential sites or places of Aboriginal cultural heritage and sites of historical cultural heritage, considering possible impact pathways and significance of any effects. 	Section 8: Impact assessment
Approach to manage performance	<ul style="list-style-type: none"> Describe the environmental performance requirements to set Aboriginal cultural heritage or historical heritage outcomes that the project must achieve including ensuring the implementation of the conditions outlined in the Cultural Heritage Management Plan (CHMP). 	Section 8: Impact assessment Section 10: Environmental Performance Requirements

2.3 Linkages to other reports

This report relies on or informs the technical assessments as indicated in Table 2.2.

Table 2.2 Linkages to other technical reports

Specialist report	Relevance to this impact assessment
Technical report M – Ground movement	Provides an assessment of likely ground movement as a result of North East Link works and any potential impacts on heritage buildings and places. Provides details on ground improvement works.
Technical report N – Groundwater	Provides modelling and analysis of potential changes to groundwater levels and quality as a result of North East Link works. Informs impact assessments provided in Technical report G – Arboriculture, Technical report M – Ground movement and Technical report Q – Ecology.
Technical report G – Arboriculture	Provides an assessment of potential impacts on trees including some trees within heritage places.
Technical report Q – Ecology	Provides an assessment of potential impacts on trees and other vegetation including within heritage places.
Technical report D – Tunnel vibration	Provides an assessment of potential impacts on existing buildings and structures (including heritage places) as a result of vibration from North East Link tunnelling works.
Technical report C – Surface noise and vibration	Provides an assessment of potential impacts on existing buildings and structures (including heritage places) as a result of surface vibration from North East Link construction works.
Technical report H – Landscape and visual impact	Provides an assessment of potential visual impacts of North East Link at indicative locations across the study area.
Technical report L – Aboriginal cultural heritage	Provides an assessment of potential impacts to pre- and post-contact Aboriginal cultural heritage as a result of North East Link construction works. In some cases, sites of Aboriginal cultural heritage have a shared history and overlapping statutory controls with historical heritage places that are identified and assessed in this Technical report.
Technical report E – Land use planning	Provides an assessment of potential impacts associated with temporary and permanent changes in land use character as a result of land acquisitions required for North East Link.

3. PROJECT DESCRIPTION

3.1 Overview

The North East Link alignment and its key elements assessed in the Environment Effects Statement (EES) include:

- **M80 Ring Road to the northern portal** – from the M80 Ring Road at Plenty Road, and the Greensborough Bypass at Plenty River Drive, North East Link would extend to the northern portal near Blamey Road utilising a mixture of above, below and at surface road sections. This would include new road interchanges at the M80 Ring Road and Grimshaw Street.
- **Northern portal to southern portal** – from the northern portal the road would transition into twin tunnels that would connect to Lower Plenty Road via a new interchange, before travelling under residential areas, Banyule Flats and the Yarra River to a new interchange at Manningham Road. The tunnels would then continue to the southern portal located south of the Veneto Club.
- **Eastern Freeway** – from around Hoddle Street in the west through to Springvale Road in the east, modifications to the Eastern Freeway would include widening to accommodate future traffic volumes and new dedicated bus lanes for the Doncaster Busway. There would also be a new interchange at Bulleen Road to connect North East Link to the Eastern Freeway.

These elements are illustrated in Figure 3.1.

The project would also improve existing bus services from Doncaster Road to Hoddle Street through the Doncaster Busway as well as pedestrian connections and the bicycle network with connected shared use paths from the M80 Ring Road to the Eastern Freeway.

For a detailed description of the project, refer to EES Chapter 8 – Project description.

3.2 Construction

Key construction activities for North East Link would include:

- General earthworks including topsoil removal, clearing and grubbing vegetation
- Relocation, adjustment or installation of new utility services
- Construction of retaining walls and diaphragm walls including piling
- Ground treatment to stabilise soils
- Tunnel portal and drive shaft construction
- Storage and removal of spoil
- Construction of cross passages, ventilation structures and access shafts
- Installation of drainage and water quality treatment facilities
- Installation of a Freeway Management System
- Tunnel construction using tunnel boring machines (TBMs), mining and cut and cover techniques
- Installation of noise barriers
- Restoration of surface areas.

3.3 Operation

Following construction of North East Link, key operation phase would include:

- Operation and maintenance of new road infrastructure
- Operation and maintenance of Freeway Management System
- Operation of North East Link motorway control centre

- Operation and maintenance of the tunnel ventilation system
- Operation and maintenance of water treatment facilities
- Operation and maintenance of the motorways power supply (substations)
- Maintenance of landscaping and Water Sensitive Urban Design (WSUD) features.

3.4 Activities and design considerations relevant to historical heritage

Three aspects of the design of particular relevance to historical heritage are:

- Tunnelling, including a conditional no-go zone area through the sensitive Yarra River and environs north of Manningham Road and south of Lower Plenty Road
- The identification of a conditional no-go zone area for the VHR-listed Heide Museum of Modern Art site, with only tunnelling at depth proposed under the site
- The identification of a no-go zone area for the HO-listed Bolin Bolin Billabong.

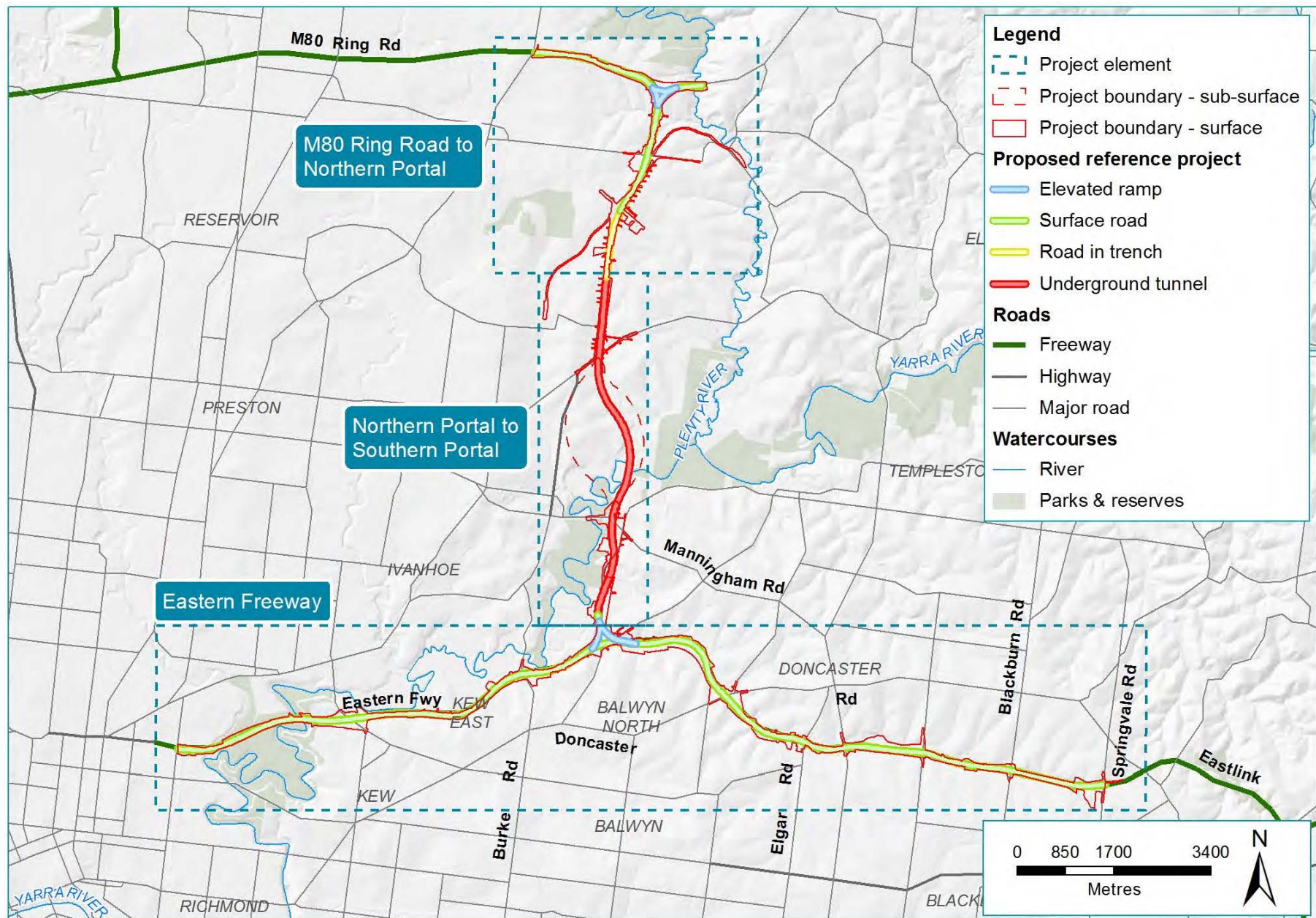


Figure 3.1 Overview of North East Link

4. LEGISLATION, POLICY, GUIDELINES AND CRITERIA

4.1 Historical heritage criteria

4.1.1 Construction criteria

A values-based approach was adopted to assess the potential impacts of North East Link on historical heritage. Most of the historical heritage impact study and assessment related to the construction of the project.

For all heritage places or values, consideration was given to the heritage values expressed in relevant documentation or identified in the historical heritage study, and the potential impacts of North East Link on those values.

The level of significance of each place or component part of the place was also considered – its national, state or local significance as reflected in relevant statutory controls or listings.

The historical heritage study was not limited to the consideration of just heritage places with statutory controls. Some additional heritage places have been identified and assessed.

4.1.2 Operational criteria

Consideration has also been given to the potential for North East Link to impact on historical heritage once it was operating. These impacts could arise from ongoing or delayed indirect physical impacts such as ground movement or groundwater drawdown.

A values-based approach was also adopted to assess the potential impacts of North East Link on historical heritage once it was operating.

4.2 Legislation, policy and guidelines

Numerous legislative, policy and guidance documents were found to be relevant to this historical heritage impact assessment and are discussed further in this report. The key legislation, policy and guidelines that apply to the historical heritage impact assessment for the project are summarised in Table 4.1. More detailed information on these is provided at Appendix B.

Table 4.1 Key legislation, policy and guidelines

Legislation/policy/guideline	Relevance to this impact assessment
<i>Environment Protection and Biodiversity Conservation Act 1999 (Commonwealth)</i> ('EPBC Act')	<p>The EPBC Act is administered by the Australian Government Department of Environment and Energy.</p> <p>At a Commonwealth level, the EPBC Act focuses on the protection of the environment, with emphasis on matters of national environmental significance. Matters of national environmental significance include world heritage properties and national heritage places. The EPBC Act establishes lists of places of cultural heritage significance and sets management requirements that apply to these places. The EPBC Act applies to actions that have a significant impact on the environment where the actions affect, or are taken on Commonwealth land or are carried out by a Commonwealth agency.</p> <p>North East Link has been determined as a 'controlled action' that requires assessment and approval under the EPBC Act (EPBC 2018/8142).</p>

Legislation/policy/guideline	Relevance to this impact assessment
<ul style="list-style-type: none"> National Heritage List Commonwealth Heritage List 	<p>The EPBC Act also establishes the National Heritage List (NHL) and Commonwealth Heritage List (CHL) and sets out the requirements for the management of heritage places on these registers.</p> <p>The NHL is Australia's list of natural, historic and Aboriginal places of outstanding significance to the nation.</p> <p>The CHL is a list of Aboriginal, historic and natural places owned or controlled by the Australian Government. The threshold for inclusion in the CHL is local significance.</p> <p>There are no historical heritage places listed on the NHL in the study area. The closest NHL-listed place is the Abbotsford Convent, located approximately 600 metres south of the study area.</p> <p>North East Link would intersect with Commonwealth land at the Simpson Barracks site, east of Greensborough Road. While not included in the CHL, the barracks site has been identified in the draft and unpublished Heritage Assessment for Simpson Barracks (Biosis & ERM, 2017) for the Department of Defence as meeting one or more Commonwealth heritage criteria.</p>
<ul style="list-style-type: none"> EPBC Act policy statements and guidelines 	<p>The Australian Government's Department of the Environment and Energy publishes policies and guidelines which provide practical advice on the EPBC Act. Of particular importance for heritage are the significant impact guidelines for matters of national environmental significance (2013), for actions on or impacting on Commonwealth land and actions by Australian Government agencies (2006).</p>
Heritage Act 2017 (Vic) ('Heritage Act')	<p>The main purpose of the Heritage Act is to provide for the protection and conservation of places and objects of cultural heritage significance. The Heritage Act is administered by Heritage Victoria, within the Department of Environment, Land, Water and Planning (DELWP). The Heritage Council of Victoria is an independent statutory authority and decision-making body established under the Heritage Act.</p> <p>The Heritage Act establishes two registers: the Victorian Heritage Register (VHR) and the Victorian Heritage Inventory (VHI). The Heritage Act is relevant to North East Link as there are places within the study area which are included on the VHR or the VHI. Sites on the VHR and VHI are uniquely numbered. The Heritage Act is also relevant as it contains requirements for historical archaeology in Victoria.</p>
<ul style="list-style-type: none"> Victorian Heritage Register Victorian Heritage Inventory 	<p>The VHR includes heritage places and heritage objects that are significant to the state of Victoria. Heritage places can include buildings, trees, parks and gardens, streetscapes, archaeological sites, precincts, sites, land associated with any of these things, and shipwrecks. Heritage objects are generally moveable and could include furniture, signs, shipwreck relics, archaeological artefacts, equipment, vehicles and many other features. The VHR includes a legal extent of registration for any registered place or object. For most registered places and objects, supporting documentation includes a statement of cultural heritage significance which typically explains what is significant about a heritage place or object, why it is significant and how it is significant. This information can be found in the online Victorian Heritage Database (VHD) at http://vhd.heritagecouncil.vic.gov.au/.</p> <p>The VHI includes archaeological sites other than those determined by the Executive Director, Heritage Victoria, to be of low archaeological value (as defined in the Heritage Act), all approved sites of archaeological value and all sites previously listed in the VHI under the Heritage Act. Limited information about VHI sites is also found in the VHD.</p> <p>Note that even if not listed in the VHI, all archaeological sites are automatically protected under the Heritage Act providing they</p> <ul style="list-style-type: none"> Are 75 or more years old Provide evidence of past activity Require archaeological methods to reveal information and Are not associated only with Aboriginal occupation of a place.
<ul style="list-style-type: none"> Heritage Council of Victoria and Heritage Victoria guidelines and policies (various) 	<p>Relevant to particular processes under the Heritage Act including VHR registration and permit processes and the protection and management of archaeological sites.</p>

Legislation/policy/guideline	Relevance to this impact assessment
Planning and Environment Act 1987 (Vic) ('Planning and Environment Act')	The Planning and Environment Act establishes a framework for planning the use, development and protection of land in Victoria. It sets out the process for obtaining permits under schemes, settling disputes, enforcing compliance with planning schemes and permits, and other administrative procedures. Relevant aspects of the Planning and Environment Act to the historical heritage assessment of North East Link are identified below.
<ul style="list-style-type: none"> Victorian planning schemes 	<p>Planning schemes of relevance to North East Link are:</p> <ul style="list-style-type: none"> Banyule Planning Scheme Boroondara Planning Scheme Manningham Planning Scheme Nillumbik Planning Scheme Whitehorse Planning Scheme Whittlesea Planning Scheme Yarra Planning Scheme.

Legislation/policy/guideline	Relevance to this impact assessment
<ul style="list-style-type: none"> Zoning and overlays 	<p>The overlays in planning schemes are relevant to the historical heritage assessment because they list and provide protection for heritage places in a municipality.</p> <p>This is principally through the application of a Heritage Overlay (HO), which is at clause 43.01 of all planning schemes.</p> <p>The key purpose of the HO is to conserve and enhance places of natural or cultural significance and to ensure development does not adversely affect their significance. Places in the HO are included in a schedule that contains essential information about each listed place, including specific permit triggers. They are also mapped in the planning scheme.</p> <p>There are numerous HO places within the study area for historical heritage.</p> <p>Other overlays in the planning schemes can also refer to historical heritage. A wide range of planning controls apply within the study area that have environmental and landscape protection objectives. These include vegetation protection, significant landscape and environmental significance overlays. Many of these apply within areas that may also be of historical heritage value and may have HO or other controls, including the Yarra River and Merri Creek environs. Some overlays also apply to trees and landscapes within heritage places or otherwise of heritage significance. These overlays have all been reviewed, but only those which include heritage as a relevant consideration have been documented in this Technical report K.</p> <p>While not their primary focus, overlays of relevance to this impact assessment because they contain some reference to heritage are:</p> <p>Banyule City Council:</p> <ul style="list-style-type: none"> Environmental Significance Overlay Schedule 4 (Banyule) – Significant Trees and Areas of Vegetation (ESO4) Vegetation Protection Overlay Schedule 5 (Banyule) (VPO5) Significant Landscape Overlay (SLO) Schedule 1 (Banyule) – Yarra (Birrarung) River Corridor Environs. <p>Boroondara City Council:</p> <ul style="list-style-type: none"> Significant Landscape Overlay (SLO) Schedule 1 (Boroondara) – Yarra (Birrarung) River Corridor Environs. <p>Yarra City Council:</p> <ul style="list-style-type: none"> Environmental Significance Overlay Schedule 2 (Yarra) – Merri Creek and Environs (ESO2) Significant Landscape Overlay (SLO) Schedule 1 (Yarra) – Yarra (Birrarung) River Corridor Environs. <p>Manningham City Council:</p> <ul style="list-style-type: none"> Significant Landscape Overlay (SLO) Schedule 2 (Manningham) – Yarra (Birrarung) River Corridor Environs Significant Landscape Overlay Schedule 5 (Manningham) – Watercourse Areas (SLO5). <p>Whitehorse City Council:</p> <ul style="list-style-type: none"> Vegetation Protection Overlay (VPO) Schedules 1, 3 and 5 (Whitehorse) – Significant Exotic, Native and Indigenous Trees.
<ul style="list-style-type: none"> State Planning Policy Framework Local Planning Policy Framework Planning scheme policies 	<p>General objectives for heritage are found in the State Planning Policy Framework.</p> <p>More specific policies tailored to each planning scheme are found in the Local Planning Policy Framework (including the Municipal Strategic Statement and more detailed policies).</p> <p>These policies are relevant because they often reflect the specific nature of heritage in each municipality and may identify different priorities for and approaches to the identification and management of heritage.</p> <p>Relevant planning scheme policies are set out in detail in Appendix B.</p>

Legislation/policy/guideline	Relevance to this impact assessment
<ul style="list-style-type: none"> Incorporated documents and reference documents 	<p>Incorporated documents form part of the planning scheme and can set out particular requirements for individual heritage places.</p> <p>Reference documents for heritage typically include municipal heritage studies containing supporting documentation for identified heritage places. These studies include citations which identify the heritage values or 'significance' of individual heritage places, often in a 'what is significant?', 'how it is significant?' and 'why it is significant?' format.</p> <p>These documents were a key resource for this historical heritage assessment, particularly in characterising heritage values and in considering potential impacts.</p> <p>Relevant reference and incorporated documents are set out at Appendix B.</p>
<p>Aboriginal Heritage Act 2006 (Vic) ('Aboriginal Heritage Act')</p>	<p>The purposes of the Aboriginal Heritage Act are to provide for the protection of Aboriginal cultural heritage and Aboriginal intangible heritage in Victoria and related purposes. While not directly relevant to the historical heritage study, the Act applies to historical places considered in this study that also have Aboriginal cultural heritage values (shared values). It is important to acknowledge the requirements of the Aboriginal Heritage Act for these places. Refer to Technical report L – Aboriginal cultural heritage. Note that a Cultural Heritage Management Plan is also being prepared for North East Link.</p>
<p>Yarra River Protection (Wilip-gin Birrarung murrn) Act 2017 (Vic) ('Yarra River Protection (Wilip-gin Birrarung murrn) Act')</p>	<p>The Yarra River Protection (Wilip-gin Birrarung murrn) Act provides an overarching policy and planning framework to coordinate and harmonise planning for the use, development and protection of the Yarra River, its parklands and other land in its vicinity. A purpose of the Act is to protect the Yarra River and the surrounding parcels of public land as one living and integrated natural entity. The Act also recognises the importance of the Yarra River and its parklands and associated public places to the economic prosperity, vitality and liveability of Melbourne and the Yarra Valley.</p> <p>The Act provides for the preparation of a Yarra Strategic Plan in accordance with Yarra Protection Principles to guide future use and development, and areas for protection within the Yarra corridor. An exemption from the provisions of the Act applies for projects declared under the <i>Major Transport Projects Facilitation Act 2009 (Vic)</i> (including North East Link). However, NELP has considered the long-term community vision within the Yarra Strategic Plan, and has had regard to the Yarra Protection Principles set out in the Act.</p> <p>The Yarra River Protection (Wilip-gin Birrarung murrn) Act is relevant to historical heritage. As well as acknowledging Aboriginal cultural values, heritage and knowledge of Yarra River land and the importance of the role of traditional owners, the cultural principles set down in the Act (Part 2, section 12) include the following:</p> <p><i>The cultural diversity and heritage of post-European settlement communities should be recognised and protected as a valued contribution to the identity, amenity and use of Yarra River land.</i></p> <p>The Yarra Strategic Plan being developed by Melbourne Water under the Act is required to have regard to the Yarra protection principles, including as related to heritage (see https://www.melbournewater.com.au/about-us/our-customers/yarra-strategic-plan).</p> <p>The Yarra Strategic Plan must include a land use framework plan which creates the spatial structure for future use and development and identifies areas for protection. The Yarra Strategic Plan is also required to 'recognise and protect Aboriginal tangible and intangible cultural values and other cultural and heritage values (clause 21(d)).</p> <p>In addition, Victoria's Department of Environment, Land Water and Planning (DELWP) is preparing a Yarra River – Bulleen Precinct Land Use Framework Plan, which addresses the area along the Yarra River Corridor between Bulleen Park and the Banyule Flats. This structure plan is being prepared on the basis that the study area has the potential to become an internationally significant cultural precinct centred on the relationship between the arts, nature and Aboriginal heritage.</p>

Legislation/policy/guideline	Relevance to this impact assessment
<p>Australia ICOMOS Burra Charter, 2013 ('Burra Charter')</p> <ul style="list-style-type: none"> Includes practice notes 	<p>The Burra Charter is an industry standard frequently referenced as a guide to best practice management of cultural heritage places in Australia. It is recognised by the Heritage Council and the Executive Director, Heritage Victoria and is also sometimes referenced by planning authorities. The Burra Charter provides definitions for terms and processes associated with conservation of places of cultural significance and establishes a series of conservation principles, conservation processes and guidelines for conservation practice. It also defines the values that contribute to cultural heritage significance: aesthetic, historic, scientific, social or spiritual values.</p> <p>The Burra Charter is relevant in providing a philosophical and methodological framework within which heritage can be considered.</p>
<p>Conservation Management Plans and other heritage assessments</p>	<p>Conservation Management Plans (CMPs) are typically prepared for places included in the VHR and for some places of local significance. CMPs follow a standard format as endorsed by Heritage Victoria and most other heritage bodies.</p> <p>The principal purpose of a CMP is to establish the nature and extent of heritage significance and provide guidance on future works and development. A CMP is a relatively standard document for heritage properties and is often a requirement of heritage permits. CMPs are usually a key reference tool in making decisions on applications for heritage places. CMPs or heritage assessments were identified for a number of heritage places within the study area, including Heide I and II (Lovell Chen, 2014).</p>

5. METHOD

5.1 Overview of method

This section describes the method that was used to assess the potential impacts of North East Link. A risk-based approach was applied to prioritise the key issues for assessment and inform measures to avoid, minimise and offset potential effects. Figure 5.1 shows an overview of the assessment method.

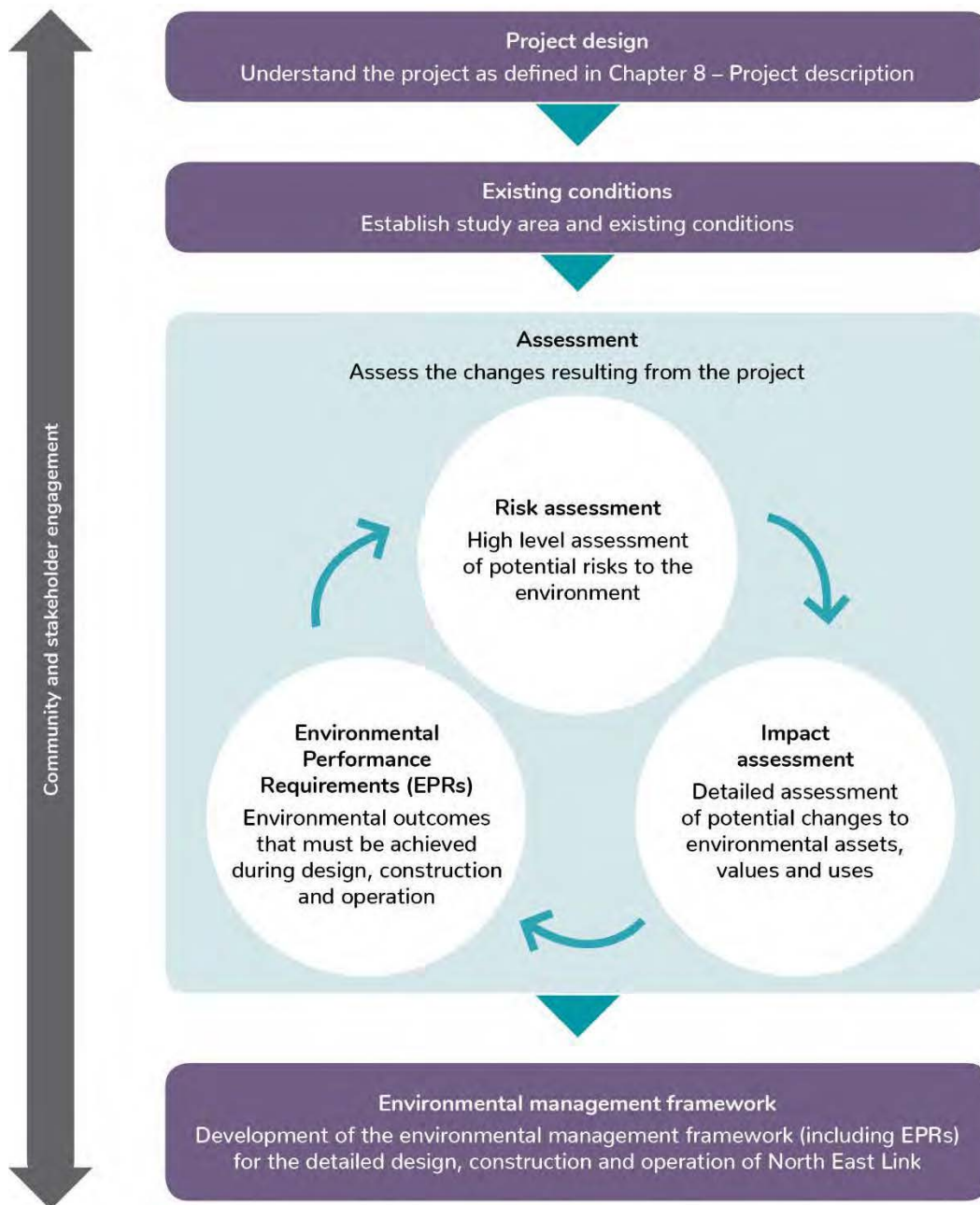


Figure 5.1 Overview of assessment method

The following sections outline the methodology for the historical heritage impact assessment.

5.2 Study area

The study area for the historical heritage assessment equated to an area approximately 300 metres either side of the reference project, with some variations. This study area was considered large enough to include all heritage places where North East Link would have the potential to produce impacts – including direct or indirect physical impacts (as a consequence of ground settlement or other effects related to construction) or from the visual impacts of permanent infrastructure.

This report documents places within the study area that have statutory heritage controls or listings, as well as places identified for heritage protection, and places identified as being of potential heritage significance or interest in heritage studies.

It is noted that a much broader geographical area was considered for the land use history prepared for this assessment. The purpose of the land use history is to establish a heritage context for the areas which North East Link would pass through, and a wider area is required to consider patterns of land use and development. The land use history is provided at APPENDIX C.

The study area for the historical heritage assessment is shown in Figure 5.2.

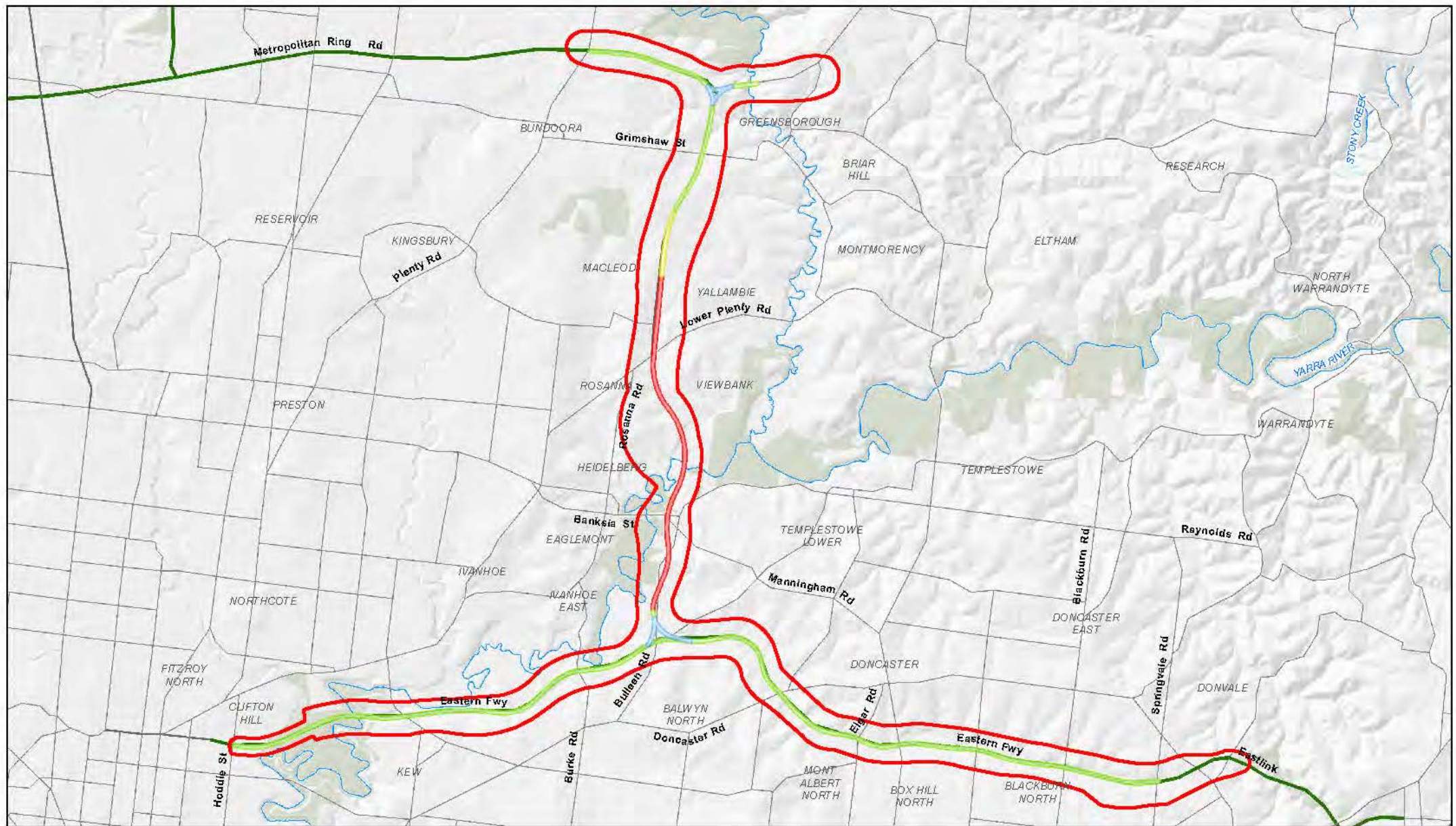


Figure 5-2

5.3 Existing conditions

The assessment of the existing historical heritage conditions comprised desktop research and field work. Consistent with the scoping requirements, the focus of the existing conditions assessment was to identify existing and potential heritage places.

5.3.1 Desktop research

The desktop research comprised a review of the existing heritage documentation and historical research of the study area and specific sites.

This included the current statutory listings and controls, as established under the following Acts:

- *Environment Protection and Biodiversity Conservation Act 1999 (Cwlth)* ('EPBC Act'): National Heritage List (NHL) and Commonwealth Heritage List (CHL)
- *Heritage Act 2017 (Vic)*: Victorian Heritage Register (VHR) and Victorian Heritage Inventory (VHI)
- *Planning and Environment Act 1987 (Vic)*: Heritage Overlay (HO), Significant Landscape Overlay (SLO), Vegetation Protection Overlay (VPO) and Environmental Significance Overlay (ESO) – as defined in municipal planning schemes.

A brief overview of the form and application of each statutory control is discussed in greater detail in Section 4.1 above. Further information is provided in Appendix B.

A list of relevant municipal, area, thematic, environmental and typological studies was compiled to assist in determining data gaps for the study area for this assessment, and to inform an understanding of the heritage places and values within the study area. These studies provided information on heritage places with existing controls, as well as places identified as being of potential heritage significance, but with no controls applied. A list of places previously nominated to the VHR was also provided by Heritage Victoria.

A number of Conservation Management Plans (CMPs) and other detailed heritage reports were also made available for this historical heritage assessment.

The following sources were also consulted for the desktop research:

- National Trust of Australia (Victoria) Register – The National Trust is a community organisation which works towards preserving and protecting heritage places. The identification and classification of heritage places by the National Trust does not constitute legal recognition of their significance, or statutory protection. Although the National Trust plays an important role in advocating heritage protection, it is not responsible for issuing heritage or planning permits. The desktop research found that places within the study area that are included in the National Trust Register are generally also subject to statutory controls under the Heritage Act and/or the Planning and Environment Act.
- Victorian Heritage Database – An online database containing information about local and state-listed heritage places. The database incorporates the Victorian War Heritage Inventory (a non-statutory database of sites relating to Victoria's war history).

5.3.2 Land use history

A land use history of the study area has been prepared to consider the broad patterns of land use and occupation and to inform identification and an understanding of the significance of heritage places within the study area. The land use history is provided at Appendix C.

The land use history was informed by existing heritage studies, as well as published histories and primary resources including reports, historical photographs and maps. This research will also inform future predictive archaeological assessments.

5.3.3 Additional historical research

Additional historical research was undertaken for selected heritage places or potential heritage places where this was considered necessary to confirm significance or to inform the historical heritage impact assessment. In some cases, this was because there was relatively little information in existing heritage study citations, or because citations do not exist. Additional historical research was tailored to the particular place and included a variety of sources.

One outcome of the research for some heritage places or potential heritage places was the identification of the potential for contemporary social value to be relevant to a consideration of historical heritage. These include the memorials and assembly points at Simpson Barracks, Macleod, the River Red Gum at Bridge Street, Bulleen, and the Veneto Club, Bulleen. While these places were not identified as of social value in previous studies, the impact assessment for North East Link has considered the potential for these places to have social values.

5.3.4 Fieldwork

Targeted fieldwork was undertaken between March and June 2018, including places with existing statutory controls and places identified in the desktop study as having potential heritage value. Fieldwork was undertaken along the proposed North East Link alignment. This included inspecting public land as well as private properties.

Many heritage places were viewed from the street or public land. Others were the subject of more detailed inspections with site access granted by owners or land managers. These heritage places were:

- Commonwealth land at Simpson Barracks, Macleod
- Banyule Homestead, Heidelberg
- Heide I and II, Bulleen
- Journeys End, Bulleen
- Clarendon Eyre, Bulleen
- Veneto Club, Bulleen
- Former Willsmere Hospital, Kew.

The majority of heritage places were inspected externally. Limited inspection was undertaken of the interior of Banyule Homestead.

While extensive, the fieldwork was tailored to the requirements of the existing conditions and impact assessment for North East Link. It did not comprise a detailed inspection of all identified heritage places within the study area. Rather, the focus was on those places and areas where it was considered there is a potential for North East Link to have an impact.

For one site (the former Bulleen Drive-in), access was requested but did not become available until 26 February 2019 and the results of this fieldwork could not be incorporated into the report. This and other limitations of the study are described in Section 5.7.

5.4 Risk assessment

An environmental risk assessment has been completed to identify environmental risks associated with construction and operation of North East Link. The risk-based approach is integral to the EES as required by section 3.1 of the Scoping Requirements and the *Ministerial guidelines for assessment of the environmental effects under the Environment Effects Act 1978*.

Specifically, the EES risk assessment aimed to:

- Systematically identify the interactions between project elements and activities and assets, values and uses
- Focus the impact assessment and enable differentiation of significant and high risks and impacts from lower risks and impacts

- Inform development of the reference project to avoid, mitigate and manage environmental impacts
- Inform development of EPRs that set the minimum outcomes necessary to avoid, mitigate or manage environmental impacts and reduce environmental risks during delivery of the project.

This section presents an overview of the EES risk assessment process. EES Attachment III Environmental risk report describes each step in the risk assessment process in more detail and contains a consolidated risk register.

This technical report describes the risks associated with the project on historical heritage. Wherever risks relating to this study are referred to, the terminology 'risk XX01' is used. Wherever EPRs relating to this study are referred to, the terminology 'EPR XX01' is used. The risk assessment completed for this study is provided in Appendix A.

5.4.1 Risk assessment process

The risk assessment process adopted for North East Link is consistent with AS/NZS ISO 31000:2009 Risk Management Process. The following tasks were undertaken to identify, analyse and evaluate risks:

- Use existing conditions and identify applicable legislation and policy to establish the context for the risk assessment
- Develop likelihood and consequence criteria and a risk matrix
- Consider construction and operational activities in the context of existing conditions to determine risk pathways
- Identify standard controls and requirements (Environmental Performance Requirements (EPRs)) to mitigate identified risks
- Assign likelihood and consequence ratings for each risk to determine risk ratings considering design, proposed activities and standard EPRs.

While there are clear steps in the risk process, it does not follow a linear progression and requires multiple iterations of risk ratings, pathways and EPRs as the technical assessments progress. Demonstrating this evolution, a set of initial and residual risk ratings and EPRs are produced for all technical reports. Figure 5.3 shows this process.

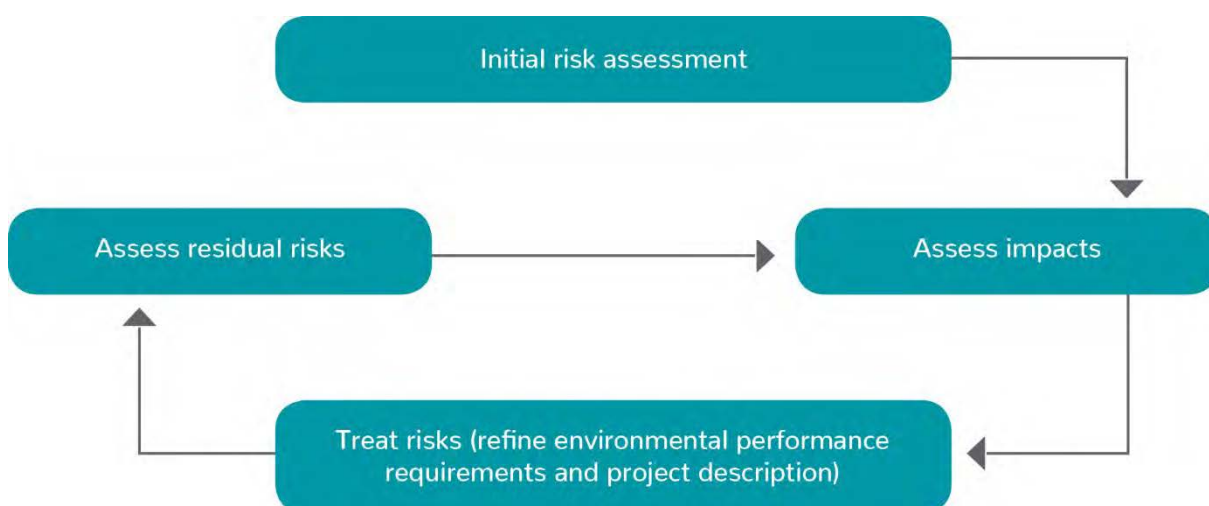


Figure 5.3 Risk-based analysis process

Rating risk

Risk ratings were assessed by considering the consequence and likelihood of an event occurring. In assessing the consequence, the extent, severity and duration of the risks were considered. These are discussed below:

Assigning the consequences of risks

‘Consequence’ refers to the maximum credible outcome of an event affecting an asset, value or use. Consequence criteria as presented in Chapter 4 – EES assessment framework, were developed for the North East Link EES to enable a consistent assessment of consequence across the range of potential environmental effects. Consequence criteria were assigned based on the maximum credible consequence of the risk pathway occurring. Where there was uncertainty or incomplete information, a conservative assessment was made on the basis of the maximum credible consequence.

Consequence criteria have been developed to consider the following characteristics:

- Extent of impact
- Severity of impact
- Duration of threat.

Severity has been assigned a greater weighting than extent and duration as this is considered the most important characteristic.

Each risk pathway was assigned a value for each of the three characteristics, which were added together to provide an overall consequence rating.

Further detail on the consequence criteria are provided in Chapter 4 – EES assessment framework.

Assigning the likelihood of risks

‘Likelihood’ refers to the chance of an event happening and the maximum credible consequence occurring from that event. The likelihood criteria are presented in Table 5.1.

Table 5.1 Likelihood of an event occurring

Planned	The event is certain to occur
Almost certain	The event is almost certain to occur one or more times a year
Likely	The event is likely to occur several times within a five-year timeframe
Possible	The event may occur once within a five-year timeframe
Unlikely	The event may occur under unusual circumstances but is not expected (ie once within a 20-year timeframe)
Rare	The event is very unlikely to occur but may occur in exceptional circumstances (ie once within a 100-year timeframe)

Risk matrix and risk rating

Risk levels were assessed using the matrix presented in Table 5.2.

Table 5.2 Risk matrix

Likelihood	Consequence				
	Negligible	Minor	Moderate	Major	Severe
Rare	Very low	Very low	Low	Medium	Medium
Unlikely	Very low	Low	Low	Medium	High
Possible	Low	Low	Medium	High	High
Likely	Low	Medium	Medium	High	Very high
Almost certain	Low	Medium	High	Very high	Very high
Planned	Planned (negligible consequence)	Planned (minor consequence)	Planned (moderate consequence)	Planned (major consequence)	Planned (severe consequence)

Planned events

North East Link would result in some planned events, being events with outcomes that are certain to occur (ie planned impacts such as land acquisition), as distinct from risk events where the chance of the event occurring and its consequence is uncertain. Although planned events are not risks, these were still documented in the risk register as part of Attachment III – Risk report for completeness and assigned a consequence level in order to enable issues requiring further assessment or treatment to be prioritised.

These planned events were assessed further through the impact assessment process.

Risk evaluation and treatment

The risk assessment process was used as a screening tool to prioritise potential impacts and the subsequent level of assessment undertaken as part of the impact assessment. For example, an issue that was given a risk level of medium or above, or was identified as a planned event with a consequence of minor or above, would go through a more thorough impact assessment process than a low risk.

Where initial risk ratings were found to be ‘medium’ or higher, or were planned events with a consequence of ‘minor’ or higher, options for additional or modified EPRs or design changes were considered where practicable. It should be noted that the consequence ratings presented in the risk register are solely based on the consequence criteria presented in Attachment III – Risk report. Further analysis and evaluation of the impacts potentially arising from both risks and planned events and information on how these would be managed is provided in Section 8.

5.5 Impact assessment

5.5.1 Construction assessment method

This study has assessed the potential impacts of North East Link on the historical heritage assets and values to be protected. The assessment considers the potential impacts of constructing the permanent North East Link infrastructure and the temporary associated construction impacts, such as laydown areas, launch facilities and the indicative construction footprint.

The impact assessment included:

- Review of the reference project
- Identifying impacts on heritage places and associated heritage values
- Identifying the environmental outcomes to be achieved during design, construction and operation of North East Link.

An impact assessment was undertaken for all places where it was considered there was potential for an adverse impact from North East Link, including:

- Non-archaeological heritage places, where there would be a direct physical impact from construction works
- Heritage places where it was considered there could be an adverse visual impact from the proximity or design of new infrastructure.

Where a place is not included in the impact assessment, a reason has been provided. This information is provided in the tables in Section 6.

Archaeological sites are included in the impact assessment where there is the potential for the sites to be disturbed. Sites near the construction works that would not be impacted physically were not assessed, on the basis that archaeological values are only impacted with physical disturbance.

The potential for damage to heritage buildings and structures from vibration or ground settlement was considered. Consideration has also been given to the potential for groundwater changes to have an adverse impact on heritage places. In some cases, the potential for visual impacts from permanent North East Link infrastructure has also been assessed. These issues are considered based on the relevant specialist technical reports.

5.5.2 *Operation assessment method*

There may be potential for damage to heritage buildings and structures once North East Link is operating as a result of vibration associated with the road system or ground movement. Consideration has also been given to the potential for ongoing changes to groundwater to have an adverse impact on heritage places. These issues are considered in Technical report C – Surface noise and vibration, Technical report D – Tunnel vibration, and Technical report N – Groundwater.

5.6 **Rationale**

This study has been undertaken in accordance with the scoping requirements and is focused on identifying potential adverse impacts on historical heritage values from North East Link.

Consistent with the scoping requirements, the focus of research and fieldwork for existing conditions was identifying and reviewing places of recognised or potential heritage value that are ‘potentially affected’. The majority of heritage places identified in this report have been previously acknowledged in municipal, typological and thematic studies. The study was less focused on places and potential places in the study area unlikely to be affected by North East Link.

While the study assessed heritage values, this assessment is not a municipal or area-based heritage study for the purposes of applying statutory heritage controls. Councils have strategies for the identification and protection of heritage places within their municipalities and may undertake further heritage assessment to augment existing statutory controls.

5.7 **Limitations, uncertainties and assumptions**

The following limitations apply to information in this report:

5.7.1 *Fieldwork*

The majority of heritage places and buildings were inspected from surrounding roads or public land or are themselves on public land. Access was granted to a small number of places.

For one site (the former Bulleen Drive-in), access was requested but did not become available until 26 February 2019 and the results of this fieldwork could not be incorporated into the report.

The assessment for these places has been undertaken based on publicly available information including heritage documentation, aerial photography and Google Streetview.

5.7.2 *Information gaps*

None identified.

5.8 Stakeholder engagement

Stakeholders and the community were consulted to support the preparation of the North East Link EES and to inform the development of the project and understanding of its potential impacts.

Table 5.3 lists specific engagement activities that have occurred in relation to historical heritage, with more general engagement activities occurring at all stages of the project. Feedback received during community consultation sessions is summarised in Section 5.9.

Table 5.3 Stakeholder engagement undertaken for historical heritage

Activity	When	Matters discussed	Outcome
Meeting with Heritage Victoria	29 March 2018	A range of issues were discussed, including information about existing VHR and VHI places, earlier archaeological investigations and places that are under assessment or had been subject to previous nominations.	Heritage Victoria provided site cards for VHI sites and spatial data for nominated places.
Meeting with Heidelberg Historical Society	29 March 2018	Potential sites of interest broadly in study area, and relevant sources held by HHS.	Some discussion of specific sites, including River Gum Walk.
Meeting with Manningham City Council and subsequent communications	6 April 2018	Heritage study documentation, Council plans for future strategic work.	Council officers provided additional documentation and information about previous planning scheme amendments. No additional strategic work planned.
Meeting with Banyule City Council and subsequent communications	6 April 2018	Heritage study future strategic work, documentation of potential additional heritage places.	Council officers provided additional information including significant tree spatial and values information, information on Banyule's Banyule Heritage Review 2018 project including a Draft Thematic Environmental History; ecological and cultural heritage assessments of Warringal Parklands and Banyule Flats and Sparks Reserve, information on significant tree nominations; and assessments and nomination of Aldermaston (at Simpson Barracks) to the CHL.
Meeting with Whitehorse City Council and subsequent communications	12 April 2018	Heritage study future strategic work, documentation of potential additional heritage places.	Council officers provided additional studies that Lovell Chen had been unable to access on-line or in other repositories.
Meeting with Boroondara City Council	31 July 2018	Heritage study current and future strategic work.	Details of current heritage projects which may be subject of future planning scheme amendments provided (including list of additional places of heritage significance for inclusion in the report), additional heritage policy document provided.
Meeting with Melbourne Water	3 July 2018	Yarra Strategic Plan update	Melbourne Water provided preliminary material for background reference.
Phone conversation with Nillumbik Shire Council	30 July 2018, 31 July 2018	Heritage study material, potential additional heritage places.	Provision of heritage study material previously not accessed, advice that no additional places were within the study area for historical heritage.

Activity	When	Matters discussed	Outcome
Meeting with Box Hill Historical Society	17 April 2018	Relevant sources held by Box Hill Historical Society.	Research of non-digitised sources related to Koonung Creek area.
Email and phone call correspondence with Collingwood Historical Society	17 April 2018	Relevant sources held by Collingwood Historical Society.	Collingwood Historical Society does not have its own collection. Recommended speaking with City of Yarra.
Meeting with Yarra City Council	23 April 2018	Council plans for future strategic work, and whether there is current strategic work underway.	Council officers advised that there is no future strategic work underway; suggested a review of heritage walks for information on other sites.
Meeting with Greensborough Historical Society	26 April 2018	Relevant sources held by Greensborough Historical Society and history of area.	Discussion with three historical society members on history of Greensborough Road environs, Greensborough, Grace Park (Watsonia), and sources available as part of GHS collection. Additional information on War Service Homes area of Watsonia, and early agricultural land use/development.
Meeting with Nillumbik Historical Society	13 May 2018	Relevant sources held by Nillumbik Historical Society and history of area.	Discussion with Nillumbik Historical Society president Jean Verso on area's history and viewing of photographic collection of historical society. Copies were given of a small number of historical photographs with permission to use in report.
Phone call with Doncaster and Templestowe Historical Society	24 May 2018	Potential for relevant sources held by historical society.	Glenys McIntyre to follow up with historical society's archivists.
Meeting with Whitehorse Historical Society	15 August 2018	Relevant sources held by the historical society and history of area.	A number of additional historic plans and directions for further post-war research were identified.
National Trust of Australia (Victoria)	28 August 2018	Potential for the National Trust to hold other classification files relevant to the historic heritage assessment; other areas of interest to the Trust.	National Trust reviewed their own archives and provided a list of classification files for significant landscapes and significant trees in the suburbs in which the project would be constructed. These lists were reviewed by the study team and, where required, the National Trust's landscape classification files were also reviewed. One additional potential place (a tree in a residential setback) was identified within the study area.
Wurundjeri Woi-wurrung Cultural Heritage Aboriginal Corporation (WWCHAC)	July 2018-	Commencement of cultural values mapping exercise.	In progress
Base Manager, Simpson Barracks	8–9 November 2018	Social/historical values and current use and potential impacts of works on three memorials at Simpson Barracks.	Email responses provided to a series of questions.

5.9 Community feedback

In addition to consultation undertaken with specific stakeholders, consultation has been ongoing with the community throughout the design development and the EES process. Feedback relevant to the historic heritage assessment is summarised in Table 5.4, along with where and how those topics are addressed in this report.

Table 5.4 Community consultation feedback addressed by historic heritage

Issue raised during community consultation	How it's been addressed
Concerns about potential impacts during construction to Heide Museum of Modern Art and grounds from tunnelling; requests for cultural heritage to be preserved	<p>Addressed in this report in Section 8.1.2.</p> <p>The historical heritage assessment considers the potential for physical and visual impacts on Heide Museum of Modern Art and grounds, as outlined in Section 8.1.2.</p> <p>Two heritage registrations (VHR H0687 and VHR H1494) apply to and form the Heide Museum of Modern Art and surrounds, referred to as Heide I and Heide II. There would be no works within the extent of registration for Heide I. The proposed tunnels would extend below registered land associated with Heide II.</p> <p>Consideration was given to the potential for adverse visual impacts to Heide I and Heide II from ground improvement works within Banksia Park. The assessment found there would be no impact on the presentation of the registered buildings and structures across the site, nor would there be an impact on an appreciation of its significant landscape qualities or its connection to the river. The heritage values of Heide I and Heide II would be unaffected.</p> <p>In addition, impacts from groundwater drawdown are not anticipated in this location, and there is a low risk of vibration and ground movement.</p>
Concerns about impacts to the heritage tree at the Caltex service station on Manningham Road and requests for it to be preserved.	<p>Addressed in this report in Section 8.2.2</p> <p>The River Red Gum on the corner of Bridge Street and Manningham Road, Bulleen is recognised as a fine example of remnant indigenous vegetation. The tree has been variously assessed (by local councils and the National Trust) as of local and regional heritage significance and is a local landmark. The removal of the tree is required to construct the Manningham Road interchange and this would result in the loss of associated heritage values.</p> <p>EPR HH4 requires archival photographic records to be taken before construction of North East Link is started.</p> <p>In addition to the standard recording, a more tailored response to recording the history and cultural associations and meanings of the River Red Gum over time is being developed. This will consider the identified values of the tree, including its status as a local landmark and is likely to include a more detailed written history and the incorporation of oral history sources. This work is to be undertaken by NELP.</p> <p>This would not mitigate the loss of the tree but would provide appropriate recognition of its significance.</p>

6. EXISTING CONDITIONS

The existing conditions that were identified for the historical heritage study are generally within the boundary of the study area shown in Figure 5.2 above. For a discussion of the broader historical context of North East Link, refer to the land use history at Appendix C.

The discussion of the existing conditions for the study area is separated into four sections.

- The first section focuses on the Yarra River and its environs, discussed in Section 6.1.

This recognises that a significant portion of the historical heritage study area for North East Link extends through or skirts the Yarra River valley.

The other three sections where existing conditions were assessed correspond to the three key elements of North East Link:

- M80 Ring Road to northern portal, discussed in Section 6.2
- Northern portal to southern portal, discussed in Section 6.3
- Eastern Freeway, discussed in Section 6.4.

A range of statutory controls apply to heritage places within these four sections, including VHR and VHI places and local Heritage Overlays (HOs), as well as other controls related to environmental and landscape protection. This latter category includes vegetation protection, significant landscape and environmental significance overlays; these were reviewed but only those which include heritage as a relevant consideration are documented in this report.

6.1 Yarra River and environs

The Yarra River is a large-scale geographical feature with significant cultural values. It has not been formally identified or recognised as a single heritage place, but it does have heritage values and was an important consideration for the historical heritage study.

The Yarra River and its environs is recognised as a landscape of special significance within metropolitan Melbourne. The importance of its cultural, social, environmental and amenity values is identified in section 5a of the *Yarra River Protection (Wilip-gin Birrarung murrnong) Act 2017* (Vic). Section 3(1) of the Act defines *amenity* as including the features ‘that engage community connection with nature, culture and heritage and enhance community health and wellbeing, whether through tangible or intangible means’. The Act recognises the significance of the Yarra River landscape within the cultural values and heritage of Aboriginal and non-Aboriginal communities.

This importance has also been recognised through municipal planning schemes, where the Yarra River and its environs have been designated variously through Significant Landscape Overlays (SLOs) and other environmental overlays. While a number of these overlays apply specifically to the biological significance and hydrology of the river corridor, SLOs applied to the Yarra River throughout the study area also acknowledge and provide built form and vegetation removal controls to protect characteristics of the historical landscape heritage of the river, including indigenous and exotic trees.

The cultural heritage values of the Yarra River and its environs have also been recognised more explicitly with State and local heritage controls over particular sites and areas, including places in the VHR and VHI under the Heritage Act and HOs in municipal planning schemes. These listed places are discussed in Section 6.2 and 6.3. They include areas of the Yarra River environs associated with early residences and farms, institutional sites such as hospitals and prisons, historical sites of importance to Aboriginal communities, and a range of other historical uses and occupations of the river corridor. These listed heritage places vary in terms of intactness and legibility to earlier forms; some survive relatively intact, while in other cases their fabric and character has been transformed through their redevelopment as recreational landscapes and through evolving land management practices, including active revegetation of many parts of the Yarra Valley which were previously cleared for grazing or agriculture. Other places have archaeological potential and have been listed on this basis.

The historical values and related documentation for listed heritage places within the Yarra River environs varies significantly, and in some cases the values are not well-defined. The application and arrangement of heritage controls do not necessarily reflect the broader shared cultural heritage values of the river environs. The identification of significant features and the application of statutory controls has varied substantially between parts of the Yarra Valley with similar land use histories, landscape characteristics and remnant features. Areas with a related or shared history, visual character and integrity may have heritage controls applied at one location along the river, and not at other locations. This may point to the challenges presented by remnant features of the landscape such as exotic trees, paddock boundaries and natural topography and vegetation features which contribute to the historical character of the Yarra River and its environs as a whole, but which individually may be evaluated as common, of low integrity or of uncertain or recent provenance.

While not formally listed, the Warringal Parklands and Banyule Flats area has been subject to detailed heritage assessment by the Banyule City Council (Context, 2014) and was also recommended for local heritage controls by the Heritage Council of Victoria. Council subsequently resolved to consider the benefits of local heritage listing as part of a future heritage review (Council resolution, 21 September 2015).

In addition to the listed places, the Yarra River environs also includes a variety of other places, landscape features and characteristics which may be of significance individually, or which contribute to the character and experience of the river landscape as a whole but which are not currently subject to statutory controls for historical heritage reasons.

These include:

- Remnants of the pre-contact landscape which were retained and became defining visual features of the agricultural and pastoral landscape of the Yarra River during historical times, namely scattered mature indigenous trees (River Red Gums) as well as the indigenous vegetation that survived along the riparian edge of the river and of major billabongs
- Remnants of agricultural and pastoral land uses, and the residential and ornamental landscapes which accompanied them. These are best represented in remnant and descendant stands of exotic vegetation such as Oaks, Poplars and other deciduous trees
- Remnants of early efforts to control or harness the flow of the Yarra River, to drain or irrigate the floodplain, and to store water for residential and livestock purposes
- Places associated with early recreational use of the river environs, or with other historical activities and organisations.
- Archaeological sites or artefacts associated with historical land uses.

While referencing earlier activities and land uses, many of these features and characteristics may not be considered to be of heritage significance in their own right. Taken together, however, they also contribute to the broader cultural landscape of the river environs.

It is noted that a number of investigations are underway or planned that would explore cultural heritage values of the Yarra River and its environs. These include the work underway as part of Melbourne Water's Yarra Strategic Plan project. To achieve greater consistency in statutory controls, background reports as part of the Yarra Strategic Plan have identified existing heritage protections along the river and set out a thematic framework for investigation of cultural heritage significance for future statutory controls.

In regard to the suburban reach, background reports to the Yarra Strategic Plan have documented that numerous sites of significance, protected under the HO, exist in this location. Several of these places, such as the Heide cultural precinct (Heide I and II) and Banyule are listed on the VHR. In addition, the background reports also show the location of areas of Aboriginal Cultural Sensitivity, defined under the Aboriginal Heritage Act. The Yarra Strategic Plan acknowledges gaps in existing knowledge for both Aboriginal cultural heritage and post-contact places and identifies the need to conduct further investigation.

Another ongoing investigation is being undertaken by Victoria's Department of Environment, Land, Water and Planning (DELWP) for the Yarra River – Bulleen Precinct Land Use Framework Plan. As noted earlier, NELP has also commenced work on a cultural values mapping exercise with WWCHAC and it is anticipated this will inform an understanding of the shared values of the Yarra River and its environs.

Conclusion

The historical heritage assessment recognises and has considered the potential in the future for the Yarra River environs as a whole to be recognised as a cultural landscape with significant heritage values. These values are not defined in detail in this study and a detailed analysis of the river environs and its cultural heritage values is beyond the scope of this assessment.

Relevant areas and values of the Yarra River and its environs are also discussed in the existing conditions assessment for the northern portal to southern portal section (Section 6.3), including heritage places that have potential heritage values but which do not currently have controls. The Yarra River is also part of the consideration of existing conditions in the Eastern Freeway section (Section 6.4).

6.2 M80 Ring Road to northern portal

6.2.1 Statutory controls

All places within the M80 Ring Road to northern portal section of the historical heritage study area that are subject to statutory heritage controls are shown in Figure 6.1. Places subject to vegetation controls are shown in Figure 6.2.

Places on the VHR or VHI or covered by a HO are listed below the figures, in Table 6.1, Table 6.2 and Table 6.3 respectively.

The tables indicate whether listed places have been assessed for this study. In general, places have been considered where they would intersect with or be near North East Link construction works and where it is considered there is potential for the project to impact on them. Where listed places are not included in the impact assessment, a reason is provided in the tables.

All the places are also identified in the mapping in Appendix D.

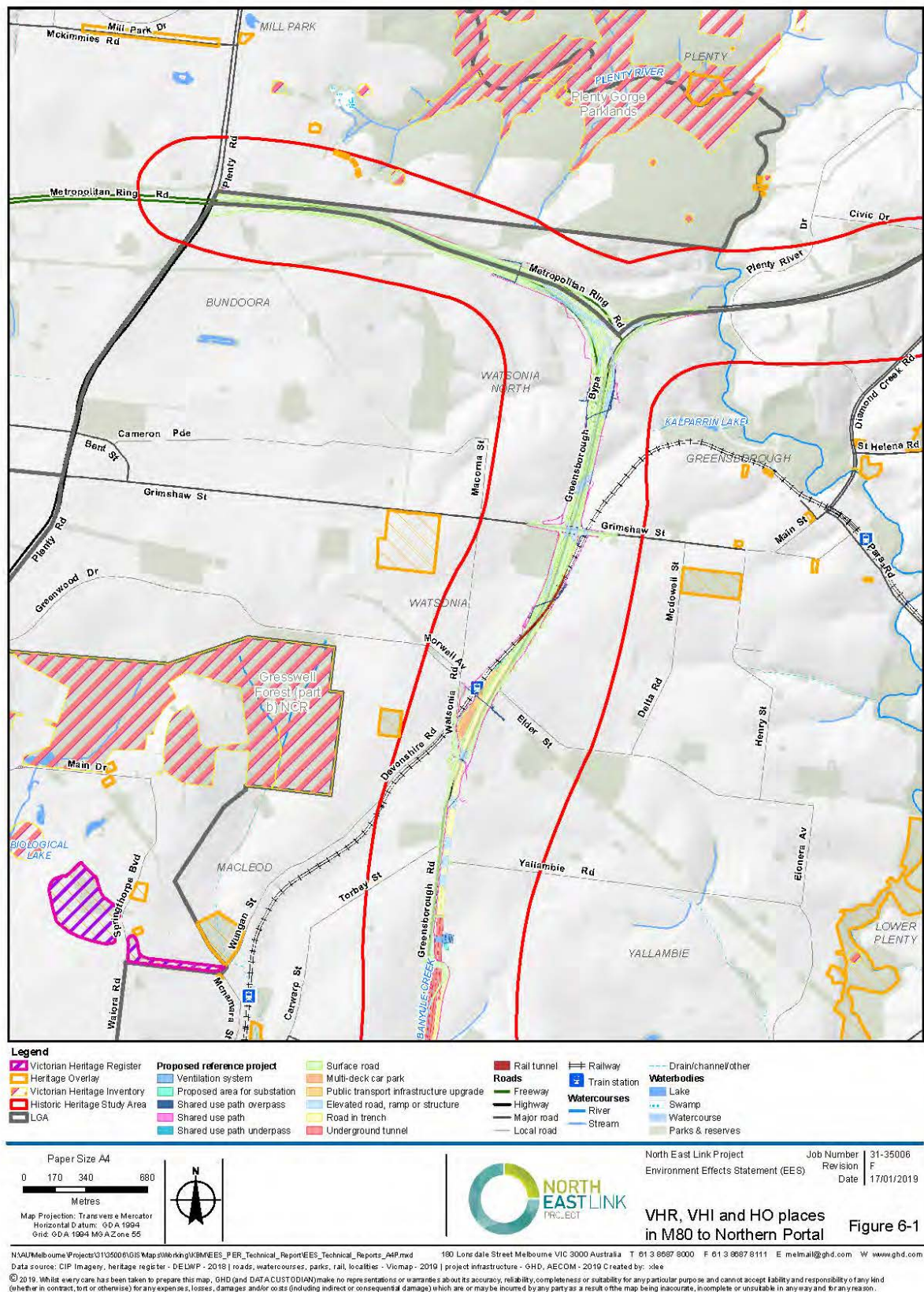


Figure 6.1 VHR, VHI and HO places in M80 Ring Road to northern portal

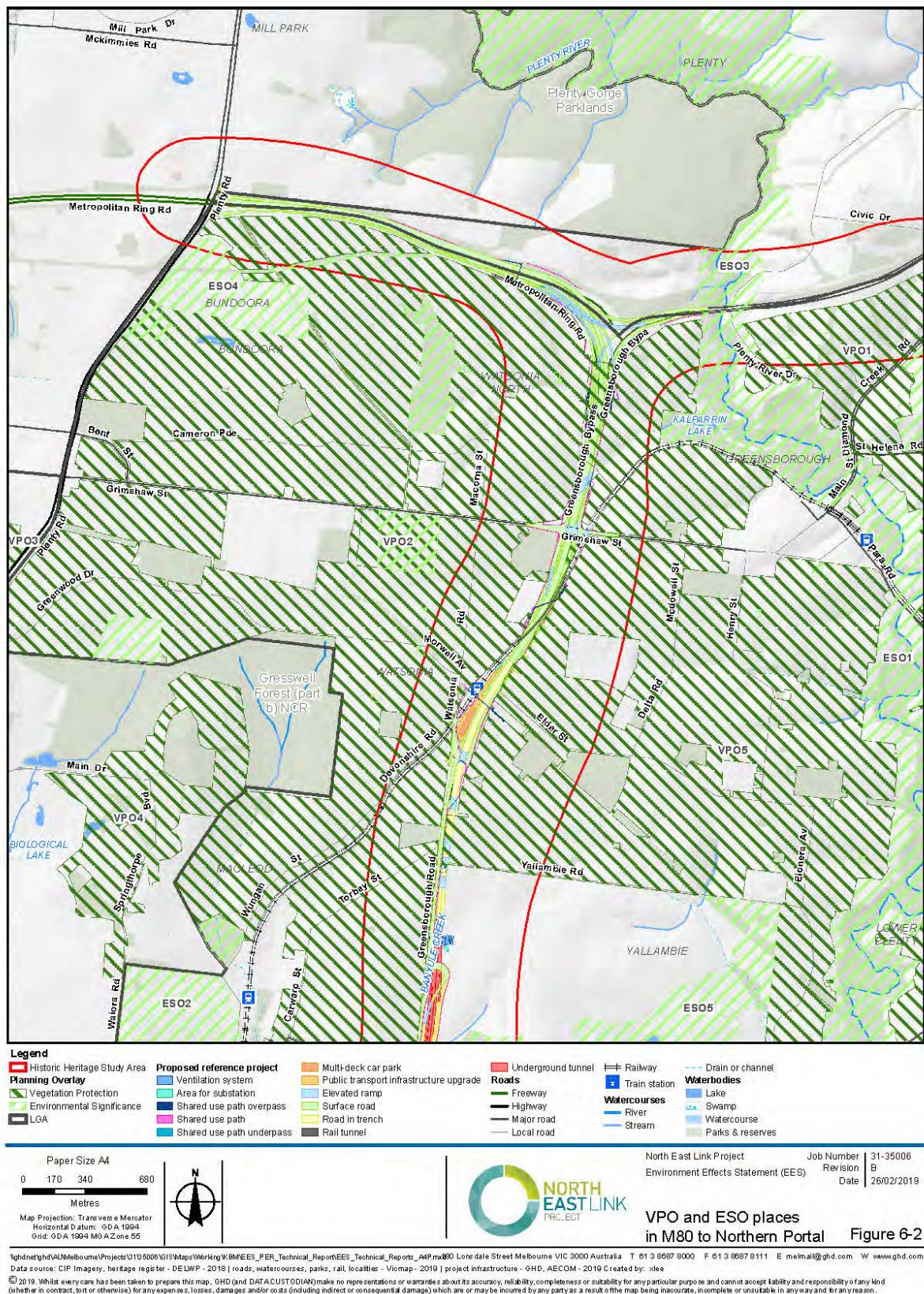


Figure 6.2 VPO and ESO places in M80 Ring Road to northern portal

Heritage Act

There is one VHR-registered place in the M80 Ring Road to northern portal section of the study area; Bundoora Primary School in Plenty Road, just to the north of the Metropolitan Ring Road.

Table 6.1 VHR places in M80 Ring Road to northern portal

Name	Address	Municipality	VHR/VHI number	Considered in impact assessment?
Bundoora Primary School No. 1915	222 Plenty Road, Bundoora	Whittlesea	VHR H1344 HO62	No, while close to project works, there would be no direct physical impact, nor is it considered that there would be an adverse visual impact from the permanent infrastructure in proximity

There is a single archaeological place listed in the VHI in the M80 Ring Road to northern portal section of the study area.

Table 6.2 VHI sites in M80 Ring Road to northern portal

Name	Address	Municipality	VHR/VHI number	Considered in impact assessment?
Janefield 12	14W Mammalia Drive, Bundoora	Whittlesea	VHI H7922-0118	No, there would be no subsurface disturbance within this archaeological site.

Planning and Environment Act

Heritage Overlay (HO) controls

There are five places with HOs in the M80 Ring Road to northern portal section of the study area; four in the City of Whittlesea and one in the City of Banyule.

Table 6.3 HO places in M80 Ring Road to northern portal

Name	Address	Municipality	Heritage Control	Considered in impact assessment?
Brick Administration Building, Brick Ward Building (Building F2-c1939, Brick Ward Building (Building F3-c1951), Brick Ward Building (Building F4-c1952), Janefield Training Centre	80 Enterprise Drive, Bundoora	Whittlesea	HO56, HO57, HO58, HO59	No, these buildings are located at some distance from works to the M80, and there would be no physical or adverse visual impact.
Strathalan	2-34 Erskine Road, Macleod	Banyule	HO164	No, the heritage building and trees are set away from project works. The heritage elements of the place are 140-150 m west of works to Greensborough Road, upslope and separated from the works by several blocks of new housing. Refer to assessment of potential impacts associated with groundwater changes (Sections 8.6 and 8.7).

6.2.2 Overview of heritage places

A number of heritage places are located in the M80 Ring Road to northern portal section of the study area.

Locally significant heritage places in the most northerly section of the study area include four surviving buildings from the former Janefield Training Centre (HO56, HO57, HO58 and HO59, Whittlesea), as shown in Figure 6.3. These buildings are historically and architecturally significant at a local level. Historically, the buildings were part of larger complexes and set in expansive grounds, although the surviving four buildings on Linacre Crescent are now part of a larger suburban development and are sited on much-reduced grounds.



Figure 6.3 Buildings at the former Janefield Training Centre site; HO58 at right and HO57 at left of image

The VHR-listed Bundoora Primary School (VHR H1344) at 222 Plenty Road, Bundoora, assessed as historically and architecturally significant at a state level, is a single-storey brick building with a steeply pitched hipped roof. The school was constructed in c. 1877. The former school and associated trees now form part of a recently constructed child care centre complex.

The former Strathalan residence and associated trees are located in Erskine Road, Macleod (HO164, Banyule). Strathalan is a locally historically and aesthetically significant Federation-era brick building with remnant mature pine trees at the entrance and red gum. The building and trees now form part of a larger aged care facility, Bapcare Strathalan, and survive in a much-altered setting. It is noted that the Strathalan site was inspected from the public domain only.

6.2.3 Historical archaeology

To the north of the intersection of the M80 Ring Road and the Greensborough Highway there exists a dispersed complex of VHI-listed places associated with the historical Janefield gold mining area. The locations of some of these places are relatively securely known and one place, Janefield 12 (VHI 7922-0118) which forms part of the complex is located in the historical heritage study area. The balance of places are outside the study area to the north. Currently recorded places included a flour mill, evidence of mining, a cobbled road alignment, sand, gravel and basalt quarries (Weaver, 1991; Ellender, 1992; Vines, 2004) all located outside the study area.

6.2.4 *Banyule ESO4: Significant Trees and Areas of Vegetation*

Schedule 4 of the Banyule Planning Scheme's Environmental Significant Overlay (ESO) applies statutory controls to trees and areas of vegetation included in the Banyule City Council Significant Trees Register. The ESO applies controls to indigenous and exotic trees and other vegetation 'which are of landscape, habitat, horticultural or genetic value, are rare or of localised distribution, are outstanding examples of their species or are of cultural or historical significance'.

Based on a review of the list of trees attached to Banyule ESO4, as well as geographical information system (GIS) layers supplied by Banyule City Council, trees within the study area were identified and reviewed for their potential to have historical heritage associations or significance. However, for this M80 Ring Road to northern portal section of the study area, all trees on the Significant Tree Register have been included for other values, principally ecological.

In addition, Banyule City Council supplied a small number of additional citations describing trees which have been nominated for inclusion to Banyule ESO4 but for which an amendment to the planning scheme has not yet occurred. Three nominated trees within the M80 Ring Road to northern portal section of the study area were reviewed, and one tree—an English Elm (*Ulmus procera*) nominated for historical reasons—is referenced below in Section 6.2.6. The other two trees were not nominated for historical reasons.

6.2.5 *Vegetation Protection Overlay*

Schedule 5 of the Banyule Planning Scheme's Vegetation Protection Overlay (VPO) has been applied to areas throughout much of the study area. The overlay applies to large indigenous, native and exotic trees (Substantial Trees) which contribute to neighbourhood character, local ecology and environmental conditions, and to the prominence of ridgelines in Banyule's natural topography. VPO5 has been applied to private properties and residential streets, but excludes major arterial roads, public park reserves and some larger institutional sites. Banyule VPO5 applies equally to exotic and native vegetation and includes among its objectives the management of the long-term viability of significant avenue plantings and heritage trees.

6.2.6 *Unlisted places of potential heritage significance*

A small number of potential heritage places were identified in the M80 Ring Road to northern portal section of the study area.

Table 6.4 Unlisted potential heritage places in M80 Ring Road to northern portal

Name	Address	Municipality	Heritage control	Considered in impact assessment?
Maroondah Aqueduct; remnant planting/tree row	Collendina Crescent, Greensborough	Nillumbik	No	No, not of heritage significance, of minor historical interest only.
Plenty River Bridge	Greensborough Bypass, over Plenty River and Plenty River Drive, Greensborough	Banyule	No	No, while close to project works, there would be no direct physical impact on the bridge deck or pier structure.
Simpson Barracks (includes Aldermaston)	Greensborough Road, Macleod	Banyule	No	Yes
Highcroft	48 Fairlie Avenue, Macleod	Banyule	No	No, this building has been extensively altered and is not considered to be of heritage significance.
Watsonia Cenotaph	Morwell Avenue, Watsonia	Banyule	No	No, while close to the project works, it would be clear of all direct or indirect impacts.
English Elm (<i>Ulmus procera</i>)	286 Grimshaw Street, Watsonia North	Banyule	No (nominated to Banyule ESO4)	No, while close to the project works, there would be no direct physical impact.

Maroondah water supply system

The Maroondah water supply system extends from the Maroondah Reservoir in the south-western area of the Yarra Ranges to the Preston Reservoir in the northern suburbs of Melbourne. The supply system includes broader catchment areas, reservoirs, aqueducts, pipe bridges and associated infrastructure along the North East Link alignment, roughly divided into three sections: upper, central and lower. Remnants of the lower section are evident within the study area. This part of the system was decommissioned in 1978 and very little evidence survives, with the exception of the pipe bridge over the Plenty River, Greensborough, and the junction basin in Preston (both outside the study area).

The Maroondah water supply system as a whole was recently considered for inclusion on the VHR under the Heritage Act. The Executive Director of Heritage Victoria recommended the upper and central sections be included in the VHR but not the lower section (Recommendation of the Executive Director, 22 September 2017); that recommendation was adopted by the Heritage Council of Victoria in December 2017. The lower section was excluded as little to no fabric survives and it could not be identified or mapped. Significantly, no recommendation was made for local listing of the lower section.

Within the historical heritage study area, limited evidence of the former route of the aqueduct survives in the form of an open landscape area bordered by remnant mature plantings of Monterey Pine (*Pinus radiata*) and Cypress, parallel with the M80 Ring Road to its south and then reorientating to a north-easterly alignment further to the east, as shown in Figure 6.4. These remnants are considered to be of very minor historical interest and are not considered further in this impact assessment.



Figure 6.4 Remnant planting along the decommissioned alignment of the Maroondah aqueduct, looking east near Waterford Place; the M80 Ring Road is to the right of the photo.

Metal road bridge, Greensborough Bypass

Plenty River Bridge was constructed in c. 1986 for the Roads Construction Authority and is a three-lane steel and concrete road bridge with steel plate girders and slim concrete piers. The bridge was identified as being of scientific (technical), historic and aesthetic significance at a local level in the National Trust of Australia Victoria's Metal Road Bridges study (National Trust, 2005). The bridge is described as a 'welded steel plate girder bridge of five spans on reinforced concrete' with the steel plate girders spanning 35.7 metres ('Plenty River Bridge', National Trust, 2005). The bridge is in the section of the Greensborough Bypass between the intersection with the M80 Ring Road and Diamond Creek Road and spans the Plenty River, as shown in Figure 6.5. The bridge was duplicated in 2004-05 with a concrete bridge constructed to its north.

There would be no significant works on this bridge for North East Link and so the bridge is not considered further in this impact assessment.



Figure 6.5 Plenty River Bridge, over Plenty River Drive and the Plenty River, Greensborough, looking west

Simpson Barracks

Simpson Barracks, formerly Watsonia Army Barracks, was established as a training facility in c. 1943 on an initial 40.5-hectares. In 1951, an additional 59.5-hectares was purchased and incorporated into the facility, which grew to include additional headquarters and support facilities.

Buildings and structures from the WWII period were removed and replaced in major construction programs in the 1950s and 1960s as well as more recently. A portion of the original land was separated for residential development in 1996 and is now the Streeton Views Estate. Most buildings on the site are located in the centre and northern parts, within a bushland setting.

The current Simpson Barracks site includes a former residential building, Aldermaston (former Ainslie Meares House) constructed in 1936 and incorporated into the barracks in c. 1951. Aldermaston is located in the southern part of the site, adjacent to the present-day residential area of Streeton Views Estate.

The historical heritage study area includes an extensive area close to the western boundary of Simpson Barracks, which was not developed as part of the barracks use of the site. Since grazing access to these lands was discontinued in the c. 1940s, this land has been subject to natural regeneration as well as planned revegetation. It has been reported that a portion of this area also served as a nine-hole golf course until the late 1980s. This area comprises mainly recent vegetation with scattered older gum trees and a small number of large remnant trees that may date from the pre-contact period. Some of these remnant trees are visible along the Greensborough Road edge and others are located within the regenerating stands to the east.

It is relevant to note that the Simpson Barracks site has undergone phases of change over its history, having accommodated the construction of new buildings and facilities as well as the adaptation and reuse of existing structures. A variety of military units and functions over the decades has resulted in frequent change, as units and responsibilities are rotated and reorganised within the site and to other defence facilities.

The advent and growth of the surrounding suburban areas of Macleod, Watsonia, Yallambie and Rosanna has also principally occurred after the initial development of Simpson Barracks, as has the expansion of Greensborough Highway on the perimeter of the barracks. These changes transformed the context of the barracks from a rural pastoral setting during World War II to a dense suburban setting. This has included some of the land being sold for the residential Streeton Views Estate.

In terms of heritage values, the barracks as a whole has been assessed in a draft heritage assessment for the Department of Defence (Biosis & ERM, 2017) and various elements on the site have variously been identified as of heritage value or interest in heritage studies and data sources.

The Biosis & ERM draft assessment for the Department of Defence identified a local level of historical significance applying to the place as a whole. It also identified two individual significant buildings of the site; the residence Aldermaston (referenced earlier), and the former communications facility, Building 147. Both buildings are outside the historical heritage study area for North East Link. None of the other buildings on the Simpson Barracks site were assessed as of significance and none of the landscape was assessed as of historical heritage significance. This includes the landscape along the western edge of the site within the historical heritage study area, where not specific historical heritage associations or values were identified by Biosis and ERM.

The summary findings of the Biosis & ERM report are:

Simpson Barracks as a whole; and Aldermaston and Building 147 at an individual level, meet the CHL threshold at a local level under criterion (a). However much of the heritage significance associated with the associational, technical and rarity aspects of Aldermaston and Building 147 does not apply to the majority of other built assets or Simpson Barracks as a whole. Any HMP [Heritage Management Plan under the EPBC Act] prepared for the site should focus on the management of Aldermaston and Building 147 (Biosis & ERM, 2017: 2).

Other heritage studies and data sources also reference the barracks. The Victorian War Heritage Inventory (VHWI) is a non-statutory register that includes reference to the Simpson Barracks as a whole, as well as to two elements within the site; the residence Aldermaston and the Watsonia Simpson Barracks Memorial, Watsonia (referenced below). The former residence, Aldermaston, was identified as of significance in the Banyule Heritage Review (Context, 2012: 36) and was recommended for the Commonwealth Heritage List (CHL). The house was nominated to the CHL (Place ID 106255) but has not yet been assessed or included. Simpson Barracks as a whole was identified in the same heritage study (Context, 2012: 3, 40) as a place for further research and work.

In the course of the desktop review and fieldwork for this study, three additional elements on the site and within the historical heritage study area were identified as having heritage value.

- Watsonia Simpson Barracks Memorial, north of Blamey Road
- Assembly Place and Lone Pine Commemorative Plantings south of Blamey Road
- 138 Signal Squadron (formerly Army Headquarters Signal Regiment) Flag Station and Memorial, north of Blamey Road.

These three elements form part of a larger collection of flag stations, memorials and other commemorative elements found across the broader Barracks site, and which relate to the range of defence functions and organisational units based at the Barracks. While these features were not identified in the unpublished Biosis/ERM draft heritage assessment, it is considered that they contribute to the historical values of the place as a whole and may have contemporary social significance to personnel at Simpson Barracks.

As a whole, based on the Biosis & ERM report, Simpson Barracks is considered to be of local significance.

Aldermaston

Aldermaston was designed by architect Les Forsyth and built by HG White in 1936 as a residence for the family of Dr Ainslie Meares (1910-1986), a pioneering Australian psychiatrist. It is constructed in the Old English style, with decorative panels of clinker brick, steep slate-clad gabled roofs, multi-paned windows and a variety of embellishments. Aspects of the original residential landscape remain, including the tree-lined front drive and turning circle, stone terraced rear garden and remnants of the former orchard. The residence is presently used by the Defence School of Music.

Aldermaston has been the subject of several heritage assessments for the Department of Defence and the former Heidelberg City Council and subsequently (following Council amalgamations) the Banyule City Council. Aldermaston was assessed in 1985 (G Butler, Heidelberg Conservation Study for the City of Heidelberg) as of state significance, and in 1999 as of local significance (Banyule Heritage Places Study Allom Lovell & Associates, 1999, vol. 2, part 2, 225-7). The Banyule Heritage Review, (Context, 2012: 36) recommended the place for the Commonwealth Heritage List (CHL). Most recently, the Biosis & ERM assessment identified Aldermaston as significant at a local level against Commonwealth heritage criteria for historical (a), aesthetic (e) and associational (g and h) values.

As noted by Biosis & ERM (Biosis & ERM, 2017: 2), Aldermaston has been nominated to the CHL (Place ID 106255) but has yet to be assessed or included in the CHL. Aldermaston is also included in the VHWI, a non-statutory register.

Aldermaston is located approximately 500 metres east of the project boundary, on higher ground with some limited views north-east towards the project. At its closest point, North East Link would be separated from Aldermaston by a portion of the Streeton Views Estate, as well as by the retained bushland.

Aldermaston was constructed on a local high point and would originally have enjoyed substantial views over the surrounding area. The development of the Simpson Barracks and more recent residential development to the south and west has changed the broader context of the Aldermaston site.

The majority of assessments have concluded that Aldermaston is of local significance, but one assessment (Butler, 1985) assessed it as of state significance.

Watsonia Simpson Barracks Memorial

The Watsonia Simpson Barracks Memorial has been included in the Victorian War Heritage Inventory (VWHI). This is understood to be the memorial located immediately west of the Blamey Road Gatehouse and shown in Figure 6.6 and Figure 6.7, which was installed c. 1965.

The Watsonia Simpson Barracks Memorial consists of a maturing Lone Pine tree planted at the head of a small parterre. The parterre consists of a cross-shaped, concrete-walled planter raised above a bed of gravel, with the Lone Pine planted above the cross. The cross-shaped planter has been planted with rosemary. The gravel bed is edged with a flush concrete kerb, with a low post-and-chain enclosure. All concrete is white washed, as is the chain and posts. A short flagpole is positioned just to the west of the parterre, adjacent to the footpath.

At the head of the cross-shaped planter, a small plaque is presented on a wedge-shaped plinth. The plaque is of a standard, diamond-shaped design, with the following inscription:

ALEPPO PINE
(PINUS BRUTIA)
FROM THE
ORIGINAL LONE PINE
ON GALLIPOLI
GROWN IN THE JUBILEE YEAR 1965
PLANTED IN MEMORY OF
DEPARTED COMRADES
LEST WE FORGET

The plaque bears a red and white diamond insignia, as well as the torch insignia of the Legacy Clubs. The plaque conflates Aleppo Pine (*Pinus halepensis*) with Turkish Pine (*Pinus brutia*). Lone Pine plantings have traditionally been cultivated as descendants from the *Pinus halepensis* growing at the Australian War Memorial.

The memorial is understood to have been a focus of ANZAC day services at Simpson Barracks until they became too large for the space. These services are now held elsewhere within the barracks.

The Watsonia Simpson Barracks Memorial is considered to be of significance as a contributing element to the local historical values of the Simpson Barracks. It may also have contemporary social value at the local level.

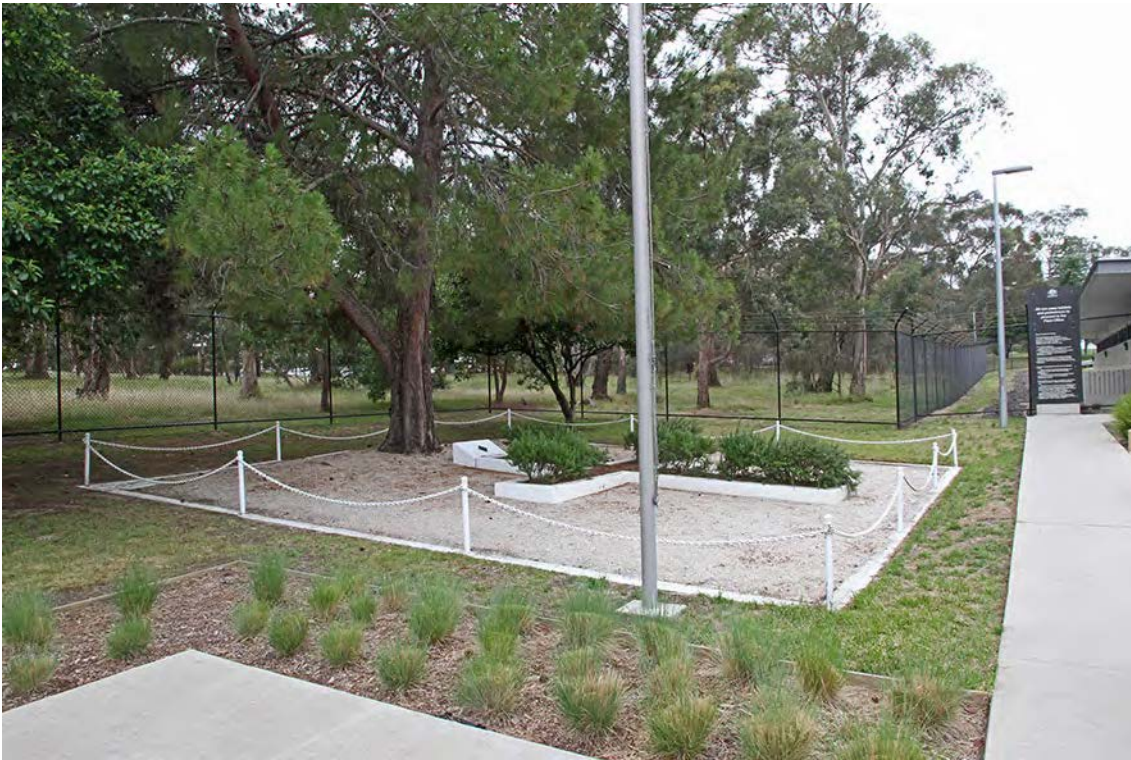


Figure 6.6 Watsonia Simpson Barracks Memorial, located to the west of the gatehouse on Blamey Road



Figure 6.7 Another view of the memorial west of the gatehouse

Assembly Place and Lone Pine Commemorative Plantings

An informal assembly place is located south of the Blamey Road entrance to Simpson Barracks. A public ANZAC Day Dawn service was held at this location until 2016, when public services were discontinued at Simpson Barracks and the Barracks' internal service was relocated to another location within the site. The feature is understood to no longer have an official purpose.

The Assembly Place consists of a sloping lawn terminating at a small constructed mound, shown in Figure 6.8. A flagpole is located atop the mound, which is framed by two Aleppo Pine (*Pinus halepensis*) trees planted in 2005 as shown in Figure 6.9. Each pine has an engraved steel plaque at its base mounted to a rough-hewn slab of bluestone. The text of the two plaques is:

This Gallipoli Pine (Pinus Halepensis)
Was planted
By Brigadier Steven N. Aird
26 JUL 05
to commemorate
the 90th Anniversary of the 4th Brigade

This Gallipoli Pine (Pinus Halepensis)
Was planted
By Brigadier Steven N. Aird
26 JUL 05
to commemorate
the 90th Anniversary of the 2nd Brigade

Having been planted just 13 years ago, the trees are relatively young, as shown in Figure 6.9. The mound, flagpole and trees are located approximately 95 metres from the Greensborough Road perimeter fence.



Figure 6.8 View to the Assembly Place and Lone Pine Commemorative Plantings Simpson Barracks, south of Blamey Road, view from the east



Figure 6.9 Closer view of one of the two Lone Pine commemorative plantings south of Blamey Road at Simpson Barracks

The Assembly Place and Lone Pine Commemorative Plantings are considered to be of significance as a contributing element to the local historical values of Simpson Barracks as a whole and as an individual element of potential social value to those associated with the barracks. This value would also be at the local level.

138 Signal Squadron (formerly Army Headquarters Signal Regiment) Flag Station and Memorial

This monument appears to date from the c. 1950s, when facilities for the Army Headquarters Signal Regiment were established at Simpson Barracks (Biosis & ERM, 2017: 28). It is used as a flag station and a memorial by the current 138 Signal Squadron. It comprises a raised mound with random rockwork sides, with a tiled insignia set into the walling; the flagstaff sits forward of this. Two large boulders are located at the entry to the monument and these have a series of plaques commemorating servicemen or women who have died, as shown in Figure 6.10.

The flag station and memorial are understood to be in active use.

The flag station and memorial are considered to be of significance as a contributing element to the local historical values of Simpson Barracks as a whole and as an element of potential social value to those associated with the barracks and in particular the units affiliated with the feature.



Figure 6.10 Signal Squadron Flag Station and Memorial

Highcroft, 48 Fairlie Avenue, Macleod

The interwar residence Highcroft in Macleod features cover strapping applied over sheet cladding in the Tudor style, a steeply pitched, gable-ended roof and prominent chimneys, as shown in Figure 6.11. The house was first identified in the Heidelberg Conservation Study (Butler, 1985) and subsequently was assessed in the Banyule Heritage Places Study (Allom Lovell & Associates, 1999b: 115-116) with the latter study determining the place as being of local interest (C graded) and not recommending the application of a Heritage Overlay (HO) control. In both cases, trees on the site were referenced as a notable landscape feature.

Since these assessments, the building has been significantly altered including the removal of the distinctive diamond patterned roof cladding and overpainting (including of the previously stained strapping) and the site has been redeveloped including the removal of the cypress rows identified in earlier citations. The changes have compromised the presentation of the place; while the design and interwar origins of the house are evident, as a consequence of the extent of change and compromised setting it has limited interest from a heritage perspective and would not warrant the application of HO controls. It is not further considered in this impact assessment.



Figure 6.11 Highcroft, 48 Fairlie Avenue, Macleod

Watsonia Cenotaph, Morwell Avenue, Watsonia

The Watsonia cenotaph was erected on Anzac Day at the shallow garden forecourt of the Watsonia RSL in 1981 (VWHI, Watsonia cenotaph). Comprising a central monument raised on a stone plinth, flanked by paired guns and flagpoles, the cenotaph is likely to be of local historical and social significance.

Located at some distance from North East Link, this place is not considered further in this impact assessment.

English Elm (Ulmus procera), 286 Grimshaw Street, Watsonia North

This English Elm is located in the front setback of a residence and has been nominated to the City of Banyule's Significant Tree Register (ESO4) for reasons of age and historical significance. According to Banyule City Council's citation, the tree is said to have been planted in 1858, and is apparently known as the 'Toll Gate Elm'. As the citation notes, the tree has been heavily lopped.

Located at some distance from where North East Link works would occur, this place is not considered further in this impact assessment.

6.3 Northern portal to southern portal

6.3.1 Statutory controls

All places within the northern portal to southern portal section of the historical heritage study area that are subject to statutory heritage controls are shown in Figure 6.12. Places with vegetation controls are shown in Figure 6.13.

Places on the VHR or VHI or covered by a HO are listed in Table 6.5, Table 6.6 and Table 6.7 respectively. Places with vegetation controls are listed in Table 6.8 and Table 6.9.

The tables indicate whether listed places have been assessed for this study. In general, places have been considered where they would intersect with or be near North East Link construction works and where it is considered there is potential for the project to impact on them. Where listed places are not included in the impact assessment, a reason is provided in the tables.

All the places are also identified in the mapping in Appendix D.

Heritage Act

There are three VHR-registered places in the northern portal to southern portal section of the study area: Banyule, Heidelberg and Heide I and Heide II and their associated land, located to the north of Manningham Road and Bridge Street, Bulleen.

Table 6.5 VHR places in the northern portal to the southern portal

Name	Address	Municipality	Heritage control	Considered in impact assessment?
Banyule [Homestead]	60 Buckingham Drive, Heidelberg	Banyule	VHR H0926 HO13	Yes
Heide I	5 Templestowe Road, Bulleen	Manningham	VHR H0687 HO160	Yes
Heide II	7 Templestowe Road, Bulleen	Manningham	VHR H1494 HO161	Yes

Two places in the northern portal to southern portal section of the study area are subject to VHI controls.

Table 6.6 VHI places in northern portal to the southern portal

Name	Address	Municipality	Heritage control	Considered in impact assessment?
Arthur Hogues House	36-38 Somerset Drive, Viewbank	Banyule	VHI H7922-0492	No, the site is located over the tunnels but the archaeological site would not be disturbed by works.
Banksia Street Bridge		Banyule/ Manningham	VHI H7922-0210	No, the archaeological site would not be disturbed by works.

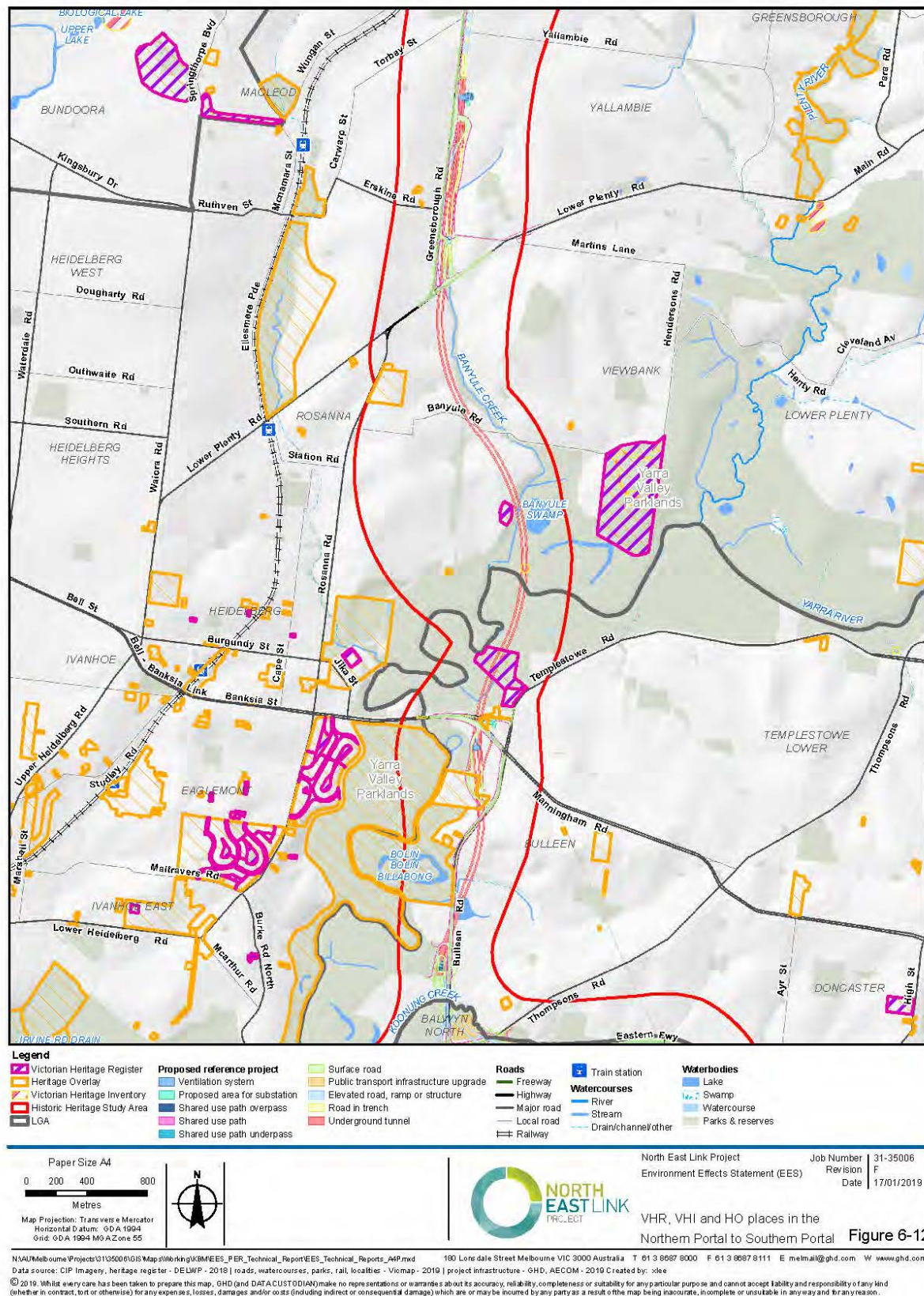


Figure 6.12 VHR, VHI and HO places in the northern portal to southern portal

Planning and Environment Act

There are several locally significant heritage places in the northern portal to southern portal section of the study area.

Table 6.7 HO places in northern portal to southern portal

Name	Address	Municipality	Heritage control	Considered in impact assessment?
Former Novitiate of the Sisters of Mercy	206-230 Rosanna Road, Rosanna	Banyule	HO53	Refer to assessment of potential impacts associated with groundwater changes (Sections 8.6 and 8.7).
House	206-230 Rosanna Road, Rosanna	Banyule	HO54	No, the place is approximately 500 m from the tunnel and does not have significant landscape or trees so the potential impacts of groundwater changes were not assessed.
House	234 Rosanna Road, Rosanna	Banyule	HO55	No, the place is more than 350 m from the tunnels and does not have significant landscape or trees so the potential impacts of groundwater changes were not assessed.
Former Shire Offices and Library	60 Beverly Road, Heidelberg	Banyule	HO171	No, the place is more than 400 m from project works, project is in tunnels where closest.
Journeys End	22-40 Bridge Street, Bulleen	Manningham	HO26	Yes
Bridge Street Pine & Cypress Plantings	Bridge Street, Bulleen	Manningham	HO25	Yes
Yarra Flats	340-680 The Boulevard, Eaglemont	Banyule	HO134	Yes
River Red Gum	Bridge Street cnr. Manningham Road, Bulleen	Manningham	HO24	Yes
Archaeological site Bulleen Drive-In (fmr)	49 Greenaway Street, Bulleen	Manningham	HO72	Yes
Bolin Swamp [Bolin Bolin Billabong]	Bulleen Road, Bulleen	Manningham	HO30	Yes
Moreton Bay Fig	1 Robb Close, Bulleen	Manningham	HO146	Refer to assessment of potential impacts associated with groundwater changes (Sections 8.6 and 8.7).
‘Clarendon Eyre’ orig. ‘Springbank’	6 Robb Close, Bulleen	Manningham	HO147	Refer to assessment of potential impacts associated with groundwater changes (Sections 8.6 and 8.7). The residence is separated from the works and there would be no adverse visual impacts.
Ben Nevis	21-25 Ben Nevis Grove, Bulleen	Manningham	HO13	No, the residence is set approximately 200 metres from new ramp structures, there was not considered to be any potential for adverse visual impact in this case.

6.3.2 Overview of heritage places

Heritage places within the northern portal to southern portal section of the historical heritage study area generally relate to two key themes: cultural landscapes/parklands and 19th century residential occupation/agriculture. Refer to Appendix C for more detail on the history of this area.

Locally significant places in Rosanna include the Novitiate of the Sisters of Mercy, Banyule shown in Figure 6.14 (HO53, Banyule), the residence to the south-west corner of the novitiate site and the neighbouring residence to the north-west. The novitiate is a three-storey, Gothic Revival style building (Allom Lovell & Associates, 1999b: 360-361). The novitiate is located in the centre of the large site, with buildings relating to the current use of the place for aged care located directly to the north. The landscape to the western frontage of the novitiate site has been substantially altered, with the removal of vegetation. The novitiate is of local architectural and historical significance.

Now part of the novitiate site, the house shown in Figure 6.15 (HO54, Banyule) at the south-western corner of the site was designed in c. 1903 by architects Oakden & Ballantyne (Banyule Heritage Places Study, Allom Lovell & Associates, 1999: 363-364) in the Queen Anne style. The single-storey weatherboard building features a prominent corner turret and expansive roof clad in Marseille terracotta tiles. Timber fretwork, including a large circular feature, trim the return verandah. The building is of local architectural significance. It is noted the building is no longer set in a mature garden.



Figure 6.14 Novitiate of the Sisters of Mercy, Rosanna (HO53, Banyule) viewed from the west



Figure 6.15 House, (HO54, Banyule) part of the Novitiate of the Sisters of Mercy (HO53, Banyule) property viewed from the north-west

North of the novitiate site at 234 Rosanna Road (HO55, Banyule) is the Harold Desbrowe Annear-designed residence dating to c. 1910 (Allom Lovell & Associates, 1999b: 365-366). Designed in the Arts and Crafts mode, the residence displays a picturesque composition utilising external treatments such as half-timbering, roughcast render and prominent roof slopes. The residence is of architectural significance at a local level.

None of these listed heritage places would be affected by North East Link and so are not further considered in this impact assessment.

Early rural occupation of the area is demonstrated by heritage places such as Banyule Homestead, Heidelberg, shown in Figure 6.16 to Figure 6.17. Banyule Homestead (VHR H0926) is a prominent two-storied residence broadly designed in the Gothic style, though displaying detailing typical to Tudor and Elizabethan styles (Allom Lovell & Associates, 1989: 42-43) and located on the escarpment above what is now the Banyule Flats parkland. Banyule was established in c. 1843, with the first part of the residence in place by c. 1847 and expanded in the early 20th century. At its peak, the landholding associated with Banyule Homestead was in the order of 657 acres, though this was steadily diminished into the mid-20th century with the area largely occupied by residential subdivision. Banyule Homestead is historically significant for its association with Joseph Hawdon, Port Phillip pioneer. Its architectural significance reflects its pre-gold rush development, its association with prominent colonial architect John Gill, and its rare use of the Elizabethan style in Victoria.



Figure 6.16 Banyule Homestead (VHR H0926) viewed from the south-west



Figure 6.17 Banyule Homestead (VHR H0926) viewed from the south-east



Figure 6.18 Banyule Homestead (VHR H0926) on the escarpment viewed from the east within Banyule Flats

Located in the parklands on the Yarra River is the former Heidelberg Shire offices and library shown in Figure 6.19 (HO171, Banyule). At completion in c. 1908-1909, the building formed part of a new civic complex adjoining the Austin Hospital. The building was relocated to the current site in the Warringal Parklands in 2004 (Former Shire Offices and Library, Context, 2012). The Shire offices and library building is a single-storey weatherboard clad structure that presents as an amalgam of two main structures. The former Heidelberg Shire offices and library is of local historic, aesthetic and social significance.



Figure 6.19 Former Heidelberg shire offices and library (HO171) viewed from the west

Further south and also on the Yarra River at Templestowe Road near Bridge Street, Bulleen is the Heide Museum of Modern Art, comprising Heide I and Heide II (VHR H0687, VHR H1494). This site was originally part of a larger property subdivided as part of F W Unwin's Special Survey in 1841. Subsequently subdivided, land along the Yarra River was occupied for farming until the early 20th century, with 11 acres purchased by art patrons and collectors, John and Sunday Reed, in c. 1934. The single-story weatherboard residence constructed on the site in the 1870s, now Heide I, was occupied and renovated by the Reeds. The modern, limestone c. 1967 Heide II was designed by architects McGlashan & Everist and is sited in a parkland setting above the Yarra River flats north of the residence (Figure 6.20). The Heide landscape is integral to both places and represents the input of the Reeds and their collaborators over the lengthy period of occupation (Figure 6.21).

Heide I and II are combined to form one integrated complex for the Heide Museum of Modern Art. While the places have different histories and are entered as separate registrations on the VHR, the two Heide properties operate as a single entity, reflecting their evolution and occupation as a 'cradle of modern art' in Victoria, led by the Reeds, and their subsequent history as an art museum and garden. The 2014 CMP for the complex (Lovell Chen, 2014) found the combined Heide I and II to be of *historical, aesthetic, architectural, scientific (research), social and spiritual significance* to Victoria.



Figure 6.20 North elevation of Heide II (VHR H1494)



Figure 6.21 Grounds of Heide II north of the residence, (VHR H1494)

The residential property Journeys End (HO26, Manningham) shown in Figure 6.22 is located at 22-40 Bridge Street, Bulleen. Constructed by c. 1933, the residence is a double-storey Craftsmen-style bungalow located on land that was previously a dairy farm. The house site was subdivided from the farm allotment which also included the sites of Heide I and Heide II. It has been assessed as of historical significance as the '...Bulleen residence of a Northcote flour manufacturer on a site that was once part of an early subdivision of the area into farm allotments' (Kellaway, 1994: 46) and subsequently (Context, 2006: 9) for its architectural style, unusual in the municipality. The residence is an attic-style bungalow, with the first floor accommodated within the expansive terracotta tiled roof. Journeys End is arranged at ground level with wings projecting to the south and east sides and a deep verandah to the west. The building is clad in horizontal weatherboards with shingle infills to the gable end to the projecting front wing, bay window to the west, projecting bays to the west and north at ground and first floors. Very few cypress trees remain along the once densely planted driveway, with the remaining specimens heavily pruned, and the garden and landscaping to the site is largely modern as shown in Figure 6.23. Gate pillars remain in their original location, though the gates have been removed and are located within the garden adjacent to the driveway.

The boundary planting to the frontage of Journeys End shown in Figure 6.24 is recognised with a separate heritage control. The Bridge Street Pine and Cypress plantings (HO25, Manningham) was identified in the Manningham Heritage Study Review (Context, 2006: 8) as of local significance as a landscape feature, and as a 'local landmark and accidental gateway composition with the Red Gum' opposite. The trees appear to be remnants from an earlier former boundary planting (they pre-date Journeys End) which once continued further

east along Bridge Street and returned to the north along Templestowe Road. It is noted that the Heritage Overlay (HO) extent is limited to the remnant trees on Bridge Street.



Figure 6.22 Journeys End viewed from the south



Figure 6.23 Driveway to Journeys End, looking toward the residence; note the remnant driveway plantings; the Bridge Street Pine & Cypress Plantings (HO25, Manningham) are at right



Figure 6.24 Bridge Street Pine and Cypress plantings (HO25, Manningham)

The Yarra Flats shown in Figure 6.25 (HO134, Banyule) is an extensive parkland bounded to the east and south by the Yarra River and the west by The Boulevard, Heidelberg and Ivanhoe. This HO covers approximately 85 hectares and consists of riparian and wetland habitats, grassy woodland and pasture. The parkland retains evidence of early occupation (Aboriginal and post-contact agrarian) and this is seen in a canoe scar tree and exotic plantings of oaks and boundary plantings of hawthorn. The Yarra Flats also includes two billabongs, and these can be seen to connect to the wider network of billabongs to the south. The Yarra Flats is of local level historical, Aboriginal, aesthetic and social value, the latter relating to the connection of community groups dedicated to the revegetation of the parkland.

Refer also to the discussion of the Yarra River and environs in Section 6.1.

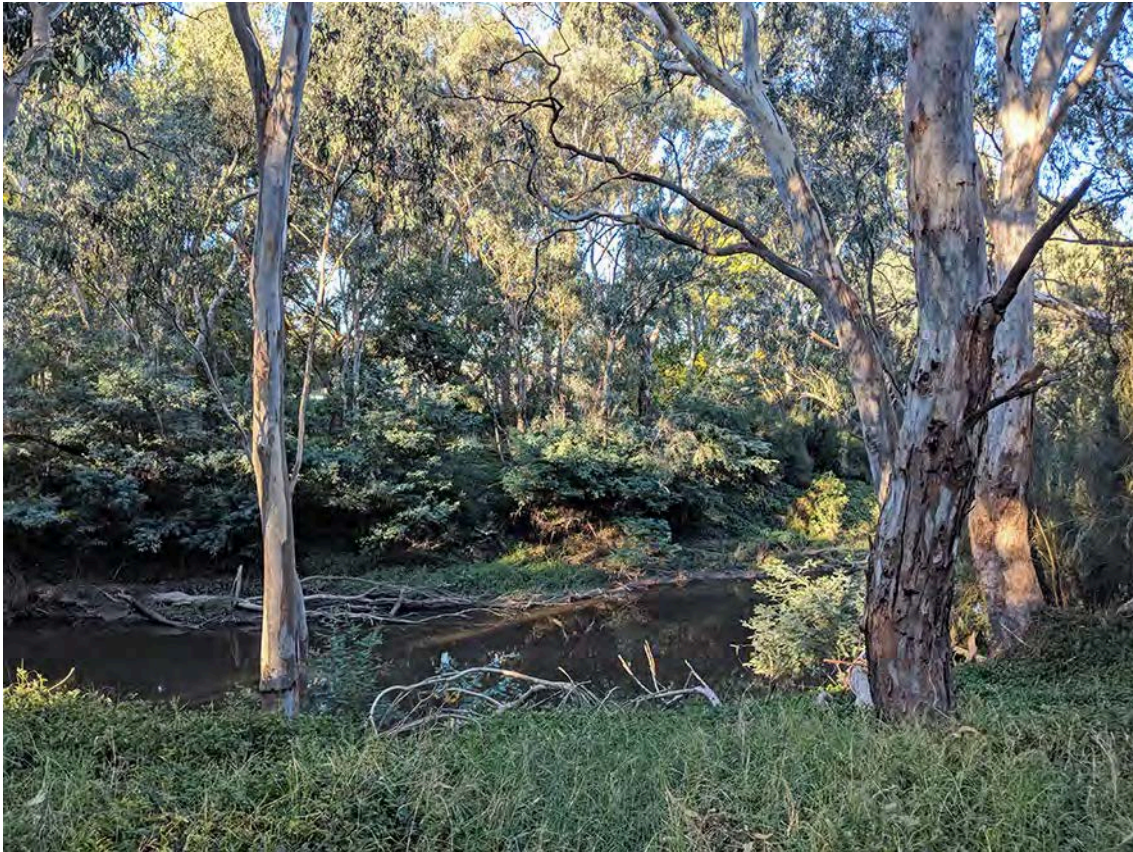


Figure 6.25 Riparian edge to the Yarra River (HO134, Yarra Flats)

The mature and very large River Red Gum (*Eucalyptus camaldulensis*) specimen shown in Figure 6.26 (HO24, Manningham) stands at the edge of Manningham Road, to the south-west of the property at 39 Bridge Street. The River Red Gum has been assessed as significant at a local level for historic and scientific (botanical) reasons, specifically related to its age and evidence of pre-European settlement of the area (Context, 2012). An earlier assessment (John Patrick Pty Ltd, 2006) assessed the tree as of regional significance for its age, size and overall aesthetic value to the surrounding landscape. The tree is also considered likely to have community and social values.

The potential for the tree to have Aboriginal cultural significance was considered in Technical report L – Aboriginal cultural heritage. The tree was subject to an assessment as part of the preparation of the CHMP and the cultural values mapping exercise undertaken with Elders from the Wurundjeri. There was broad agreement between the Elders present that while this tree represents an important remnant landscape element there was nothing inherently culturally significant about the tree.



Figure 6.26 River Red Gum (HO24, Manningham) viewed from the north

The site of the now-demolished Hoyts Bulleen Drive-in, which opened in 1966 and operated until 1984 (Hoyts Bulleen (Doncaster), Australian Drive-ins, accessed 8 May 2018) is included to the Heritage Overlay (HO72, Manningham) as an 'archaeological site'. While access to the site has not been possible, aerial imagery indicates that only the concrete slab of the former kiosk structure remains. The site is bordered to the west by the Yarra River and is south-west of a light industrial area and north of the Bolin Swamp (HO30, Manningham, referenced in this report as Bolin Bolin Billabong). The basis for inclusion of the former Drive-In on the HO is understood to most likely reflect the Aboriginal archaeological potential of the site, and no citation has been located to confirm historical heritage values associated with this place. There is exotic planting along the northern site boundary, though the age and historical heritage value of this is unknown. This may be confirmed following fieldwork.

Bolin Bolin Billabong (HO30, Manningham), located to the east of the Yarra River, is a site that is somewhat contiguous with the riverine parklands to the west of the Yarra River, containing a large billabong and landscape that in some areas pre-dates European settlement. It has been identified as being of state-level significance for its natural and cultural values, including the Wurundjeri's historical association with the place (Context, 2012). It should be noted that Wurundjeri associations with Bolin Bolin Billabong are not limited to the historical or post-contact period but also involve pre-contact associations. Other historical heritage values of the site are unclear, however it forms a part of the broader layered Yarra River and environs cultural landscape. It is noted that a recently constructed stormwater retarding basin is located in the south-east part of the heritage place adjacent to Bulleen Road. Refer also to the discussion of the Yarra River and environs in Section 6.1.

The Clarendon Eyre residence (formerly Springbank) (HO147, Manningham) and the associated Moreton Bay Fig shown in Figure 6.27 (HO146, Manningham), and another residence, Ben Nevis (HO13, Manningham), all relate to the theme of 19th century residential development in the area.

Clarendon Eyre and the Moreton Bay Fig are located to the north of Bolin Bolin Billabong, now in a residential enclave developed by the subdivision of the early farm property. Clarendon Eyre was constructed on the escarpment above Bolin Bolin Billabong and the property included a section of the Yarra River to the west and extended to the east.

The residence is likely to have been constructed in two phases, with a single-storey section to the north and the more-resolved Italianate two-storied section to the south. The residence is unusual in that its double-height verandah-ed elevation is oriented to the south, away from the river.

The property retains a small number of mature plantings, and while the citation for the place identifies elms and a date palm on Bulleen Road related to the property, these are no longer extant (Context, 2006: 19-20).

The historical heritage values of Clarendon Eyre are identified as being 'architecturally of State significance with unusual massing and details'. Once part of the property, the Moreton Bay Fig is now separated from it and is a separate HO to the north-east of Clarendon Eyre.

The Ben Nevis property (HO13, Manningham) shown in Figure 6.28 is a substantial two-storey late-19th century residence constructed in brick with a slate roof. The residence is sited on a much-reduced allotment. Ben Nevis is locally historically significant.



Figure 6.27 Moreton Bay Fig (HO146, Manningham) in Robb Close, Bulleen, formerly associated with Clarendon Eyre (HO147, Manningham)



Figure 6.28 Ben Nevis (HO13, Manningham) viewed from the south-west

6.3.3 *Historical archaeology*

Two historical archaeological places are located within the northern portal to southern portal section of the historical heritage study area, south of Lower Plenty Road: Banksia Street Bridge (VHI H7922-0210) and Arthur Hogues House (VHI H7922-0492).

The Banksia Street Bridge is situated directly underneath the extant bridge over the Yarra River at Banksia Street. The site comprises three courses of bluestone masonry situated just above the waterline on the east bank of the river, representing the remains of an abutment of what was possibly the earliest bridge crossing of the river at this location.

Arthur Hogues House at 36-38 Somerset Drive, Viewbank comprises a small clearing close to the northern bank of the Yarra River and contains an earth mound and a scattering of bricks. Mature, exotic plantings surround the site. Historical records indicate the likely presence of a homestead south-west of the Banyule Billabong described in 1838. Later records indicate the persistence of this establishment as well as the planting of exotic trees. The site is likely the house of Arthur Hogue who appears to have purchased the property in the late 1830s to early 1840s.

The former Bulleen Drive-in site is also identified in the HO as an archaeological site, however this appears likely to be a reference to Aboriginal archaeological potential. No documentation suggesting the presence of historical archaeological values has been located to date, and the site is assumed to have been disturbed in works associated with the drive-in, but there may be some potential for historical archaeology. There clearly is evidence on site of the drive-in complex itself (as visible on aerial photographs).

6.3.4 Environmental Significance Overlay places

Banyule ESO4: Significant Trees and Areas of Vegetation

Schedule 4 of the Banyule Planning Scheme ESO applies statutory controls to trees and areas of vegetation which have been included in the Banyule City Council Significant Tree Register based on their special significance. The overlay applies controls to native and exotic trees and other vegetation 'which are of landscape, habitat, horticultural or genetic value, are rare or of localised distribution, are outstanding examples of their species or are of cultural or historical significance'.

Based on a review of the list of trees attached to Banyule ESO4, as well as geographic information system (GIS) layers supplied by Banyule City Council, trees within the study area were identified and reviewed for their potential to have historical heritage associations or significance. While many of the ESO4 trees are included in the Significant Tree Register solely for their ecological and visual character value as substantial indigenous trees, and do not pose historical heritage ramifications for North East Link, a subset of exotic and native/indigenous trees are associated with listed or potential heritage places. These are listed in Table 6.8.

Table 6.8 ESO4 places in northern portal to southern portal

Name	Address	Municipality	Planning Control	Considered in impact assessment?
Monterey Cypress <i>Cupressus macrocarpa</i> cv.; Canary Date Palm <i>Phoenix canariensis</i> ; Pin Oak <i>Quercus palustris</i> and Canary Date Palm <i>Phoenix canariensis</i>	206-230 Rosanna Road, Rosanna (Novitiate of the Sisters of Mercy)	Banyule	ESO4 – #40, #42, #43, and #358	Refer to assessment of potential impacts associated with groundwater changes in Sections 8.6 and 8.7.
River Red Gum <i>Eucalyptus camaldulensis</i> (x15 individual registrations)	80-90 Banyule Road, Rosanna	Banyule	ESO4 – #275-279 and #369-378	No, not considered to be of heritage significance. Refer to discussion of the 'River Gum Walk' in Section 6.3.7.
River Red Gum <i>Eucalyptus camaldulensis</i>	132 Beverley Road, Rosanna	Banyule	ESO4 – #280	No, not of heritage significance. Refer to discussion of the 'River Gum Walk' in Section 6.3.7.
Bunya Pine <i>Araucaria bidwillii</i> and Deodara Cedar <i>Cedrus deodara</i> 'Glaucous'	60 Buckingham Drive, Heidelberg (Banyule homestead)	Banyule	ESO4 – #281 and #283	Yes, as part of the assessment for Banyule. Refer to Section 8.1.1.
English Oak <i>Quercus robur</i> (x10) and Nettle Tree <i>Celtis australis</i>	Plymouth Street, Heidelberg (proximate address) 136 Banyule Road, Viewbank (address in register) Arthur Hogues House (landscape remnants)	Banyule	ESO4 – #284 and #285	No, project is in tunnels where proximate, no changes to groundwater conditions have been projected for this area.

In addition, Banyule City Council supplied a small number of additional citations describing trees which have been nominated for inclusion to Banyule ESO4 but for which an amendment to the planning scheme has yet to occur. Two nominated trees within this portion of the study area were located, but neither was nominated for historical heritage values.

6.3.5 Significant Landscape Overlay

SLO controls apply to two places in the study area.

Table 6.9 SLO places in northern portal to southern portal

Name	Address	Municipality	Planning control	Considered in impact assessment?
Yarra (Birrarung) River Corridor Environs	Various	Banyule, Boroondara, Manningham	SLO1/SLO2	Yes, in Yarra River and environs.
Koonung Creek (controlled as 'Watercourse Areas')	Various	Manningham	SLO5	No, of limited historical interest, not of heritage significance.

Banyule SLO1/Boroondara SLO1/Manningham SLO2: Yarra (Birrarung) River Corridor Environs

The Banyule, Boroondara and Manningham municipal planning schemes all include SLOs applying to valley lands and slopes along the Yarra River. These SLOs have been recently amended and coordinated via Planning Scheme Amendment GC48. The SLOs apply to the entire Yarra River lands within this section of the study area and are bounded by 'top of slope' roadways. Notably in this section, Bulleen Road acts as an eastern boundary of Manningham SLO2, excluding a large area of former floodplain and billabong east of the road which are now occupied by recreational sports fields operated by Trinity Grammar School and Marcellin College.

As noted in Section 6.3.7, the Yarra (Birrarung) River Corridor Environs SLOs are applied to achieve a variety of environmental, landscape and cultural objectives, as well as improvements to public recreational access and built form. Notably, the SLOs apply to retention of exotic vegetation which is of 'landscape significance' and to the protection and enhancement of the river's riparian edge.

6.3.6 Vegetation Protection Overlay

Schedule 5 of the Banyule Planning Scheme's VPO has been applied to areas throughout much of the study area. The overlay applies to large indigenous, native and exotic trees (Substantial Trees) which contribute to neighbourhood character, to local ecology and environmental conditions, and to the prominence of ridgelines in Banyule's natural topography. VPO5 has been applied to private properties and residential streets, but excludes major arterial roads, public park reserves and some larger institutional sites. Banyule VPO5 applies equally to exotic and native vegetation, and includes as an objective the management of the long-term viability of significant avenue plantings and heritage trees.

6.3.7 Unlisted places of potential heritage significance

Table 6.10 Unlisted places of potential heritage significance in the northern portal to southern portal

Name	Address	Municipality	Heritage control	Considered in impact assessment?
Pine Plantation	Creekbend Reserve, Rosanna	Banyule	No	No, not considered to be of heritage significance.
River Gum Walk	South from Banyule Road to Candlebark Court, Banyule	Banyule	No	No, not considered to be of heritage significance.
Warringal Parklands and Banyule Flats	Heidelberg, Viewbank; Banyule Road, Viewbank	Banyule	No	Yes, as part of Yarra River and environs. No separate assessment provided.
Banksia Park	Templestowe Road, Bulleen	Manningham	No	Yes, as part of Yarra River and environs and related to ground improvement works adjacent to Heide II.
Yarra Valley Country Club two remnant River Red Gum (<i>Eucalyptus camaldulensis</i>)	9-15 Templestowe Rd, Bulleen	Manningham	No	Yes, as part of Yarra River and environs. No separate assessment provided.
Banksia Street Pipe Bridge	Banksia Street, Heidelberg Road and Manningham Road, Bulleen	Banyule, Manningham	No	No, works in Manningham Road would be to the east of the bridge and would not present an impact.
Yarra River and environs	Various	Banyule, Manningham	Not as a whole of place	Yes
Veneto Club	191 Bulleen Road, Bulleen	Manningham	No	Yes
House	228 Bulleen Road, Bulleen	Manningham	No	No, works would occur in proximity but there would be no physical or visual impacts.

Additional significant trees under ESO4 – Banyule

Banyule City Council has advised of additional significant trees to be included in ESO4 (Significant Trees and Areas of Vegetation). None were identified as having historical heritage value.

River Gum Walk and Pine plantation

River Gum Walk in Rosanna is a linear public open space facility developed by Banyule City Council. Shown in Figure 6.29, River Gum Walk comprises a multi-use trail and associated greenspaces and park infrastructure. Although the trail itself runs from north of Simpson Barracks to the south end of Warringal Park (connecting to the Main Yarra Trail), the core linear greenspace associated with it is located between Lower Plenty Road and Candlebark Court.

The northern portion of this green space includes a section of Banyule Creek; just north of Banyule Road, River Gum Walk turns away from the creek and runs south to Candlebark Court in its own right-of-way. The parklands include a mixture of exotic and indigenous trees, including remnant gums, regenerating indigenous vegetation, and exotic trees. Most of the exotic trees are of fairly recent age and are likely to represent self-sown and Council-planted specimens.



Figure 6.29 River Gum Walk, south of Banyule Road, looking south

Two sections of River Gum Walk are associated with groups of trees included in the Banyule Significant Tree Register (ESO4). North of Banyule Road, a mixed River Red Gum (*Eucalyptus camaldulensis*) and Yellow Box (*Eucalyptus melliodora*) community has been included in the Significant Tree Register, taking in an area of River Gum Walk and the adjacent Creekbend Reserve. GIS shape files provided by Banyule City Council designate a V-shaped area of approximately 1.7 hectares. While this area contains a small number of large trees, including one large remnant River Red Gum with a hollow trunk, the bulk of this area consists of recent regeneration and is of ecological interest only.

South of Banyule Road, the Significant Tree Register includes 15 individually-registered River Red Gums within the River Gum Walk reserve, and one additional tree located in the rear of a private lot adjacent to the reserve (132 Beverley Road, Rosanna). The registered trees are substantial trees; some are of a size consistent with being remnant gums while others may have established along fence lines or other features of the pastoral setting during the early historical period. The Significant Tree Register does not identify historical values for the trees, variously referencing other values such as habitat, size and landscape quality and the remnant nature of the trees.

The trees are visible in a 1931 aerial photograph shown in Figure 6.30, a short distance west of Banyule Homestead, with some indication of associated fenceline(s), a number of large trees, and some small trees associated with the apparent fenceline and local unimproved road or farm track. The broader pastoral landscape is similarly dotted with large trees. The trees and track are similarly present in a 1945 aerial photograph not reproduced here.

Subsequently, a corridor of land was reserved associated with the 'F18' surface freeway route identified in the Bolte government's 1969 Transportation Plan. The route was abandoned in 1973 by the next government of Rupert Hamer, and the road reservation was revoked in 1976. Land at either end of the southern part of River Gum Walk (at Banyule Road and Buckingham Road) was later sold as housing. The 1970 aerial photo shown in Figure 6.31 shows the reserved area with development either side.

Some of the remaining trees display a linearity which is consistent with their position along the fence line where they may have been protected from early grazing. Other aspects of the River Gum Walk hint at features of the pastoral landscape present at least as late as 1945, including evidence of an earlier dam (where the alignment of Beverley Road kinks out to the west) and the faint suggestion of a drainage line in the same area.

Figure 6.32 shows a recent aerial view of the River Gum Walk showing additional planting since the 1970s.



Figure 6.30 1931 aerial photograph (1931Heidelberg1.jpg) cropped to present location of the southern part of River Gum Walk. The red arrow identifies the house, *Banyule*. The pale green lines identify the rough boundaries of the part of River Gum Walk south of Banyule Road. Source: Land Victoria



Figure 6.31 1970 aerial photograph showing subdivision and development of land with open space retained (now the River Gum Walk). The location of the pine plantation in the Creekbend Reserve is indicated by the red arrow. Source: Land Victoria



Figure 6.32 Recent aerial view of the River Gum Walk showing additional planting since the 1970s

River Gum Walk and the associated River Red Gum trees south of Banyule Road are of some local historical interest as a remnant of the pastoral landscape character in this area (visible on early 20th century aerals). In this context, however, it is very much a remnant of a broader landscape that has been heavily modified through later planting and other amenity works. The feature reflects the alignment of a road reservation put in place post-WWII and subsequently cancelled. It is a remnant derived from a road reservation rather than a cultural landscape that can reflect meaningfully on the nature of the pastoral land use period.

The retention of the mature indigenous trees within a public reserve may reflect an interest in the retention and conservation of mature indigenous trees within public open spaces in the later 20th century. This is a theme of interest in the local context.

There are clearly aspects of the River Gum Walk that have historical interest and which give the park a distinctive character. Overall, however, the historical interest is not considered to be at a level that would warrant statutory heritage controls. It is an attractive and characterful local open space but is not considered to be of heritage value.

Pine plantation

A large plantation of 80 to 100 pine trees is located north of Banyule Road and adjacent to Banyule Creek in the Creekbend Reserve. The plantation is shown in Figure 6.33.

The provenance of this plantation within the broader Creekbend Reserve has not been determined.

It does not appear on aerial photography from 1945 (Figure 6.34) but is visible, albeit as a more extensive plantation, on the 1970 aerial shown in Figure 6.31. There is evidence of recent replacement planting activity, suggesting active management.

While this is a feature of visual interest within the reserve, it is not considered to be of heritage value.

Neither the Red Gum Walk nor the pine plantation are considered further in this impact assessment.



Figure 6.33 Pine plantation in the Creekbend Reserve

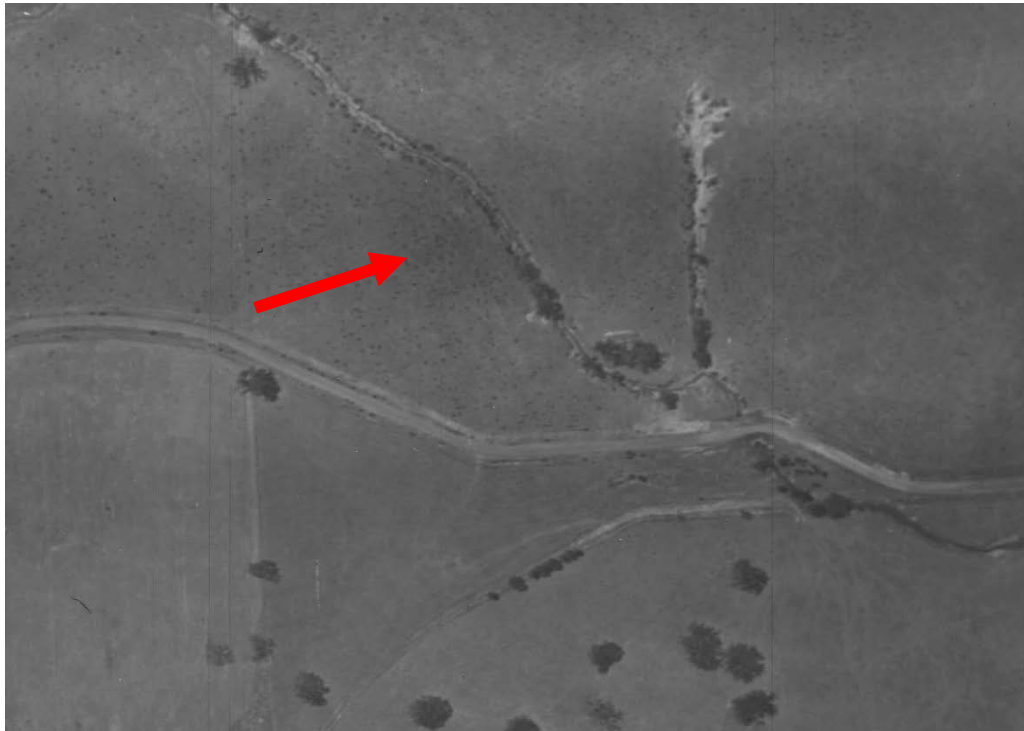


Figure 6.34 1945 aerial photograph showing the crossing of Banyule Road and Banyule Creek. The red arrow denotes the approximate location of the pine plantation present at this location today.
Source: Land Victoria

Warringal Parklands and Banyule Flats

See also the discussion of Yarra River and environs in Section 6.1.

The Warringal Parklands and Banyule Flats encompass an extended stretch of the western floodplain of the Yarra River, from Beverley Road and the mouth of the Salt Creek in the south to Banyule Road in the north. The parklands include two major enclosed bends of the Yarra River, known as Sill's Bend and Fanning's Bend, as well as a sequence of remnant wetlands and billabongs that have been the subject of restoration work since the 1970s. This large area includes several individual places of recognised heritage significance, including the VHI-listed site of Arthur Hagues House (VHI H7922-0492) and the relocated Former Shire Offices and Library (HO171, Banyule) in Heidelberg, as well as a portion of the Warringal Village Precinct (HO6, Banyule). In addition, the part of the area known as Banyule Flats is located adjacent to the VHR-registered Banyule Homestead (VHR H0926) and takes in remnant landscape features and context associated with that heritage place. Much of the area has been redeveloped for recreation since the 1920s, and is now occupied by a series of sports ovals, recreational trails and passive open spaces.

Originally associated with early pastoral leases and the development of substantial farming properties at Banyule and Viewbank, the Warringal Parklands and Banyule Flats were largely cleared of indigenous vegetation from the 1840s and employed in a matrix of agricultural land uses ranging from grazing to short-lived periods of intensive orcharding and market gardening. In the 1960s, subdivision occurred in the parts of the Banyule lands above the floodplain. Grazing continued in parts of the Banyule Flats until 1992 (Context, 2014: 50) but over the course of the 20th century, the lands in the Warringal Parklands and Banyule Flats were progressively brought into public ownership and reworked as recreation fields, passive parklands and revegetated wetlands and woodland areas. As a result of these developments and revegetation efforts, there are today relatively few indications of the area's former agricultural land uses.

The Warringal Parklands and Banyule Flats have previously been identified as forming one part of the larger historical landscape of the middle Yarra River valley which was an inspiration and formative subject for the Heidelberg school of painters in the 1880s and 1890s (Context, 2014). The Heidelberg school has been recognised as a cultural movement of national importance, and several noted works were made of the

landscapes now included within the Warringal Parklands and Banyule Flats. The area has also been identified for its associations with local conservation movements and activism, which gave rise to the Warringal Conservation Society and other related groups.

This history is familiar to many places along the middle Yarra River valley—there is substantial continuity within the patterns of occupancy, land use, and 19th and 20th century cultural associations throughout the middle stretch of the valley and its adjacent tablelands, including neighbouring areas at Yarra Flats, Viewbank, the Heide Museum of Modern Art and Yallambie on the Yarra River’s lower Plenty River tributary, which have been variously recognised as of local or state-level significance. These remnant landscape features and associations are also present in areas of the Yarra floodplain where statutory heritage controls have not been applied, possibly due to fragmentation, reoccupation of the valley by 20th century land uses such as golf courses and dedicated sport field complexes, or remoteness from major associated sites.

Specific areas within the Warringal Parklands and Banyule Flats include:

- Sill’s Bend
- Fanning’s Bend
- Banyule Flats
- Banyule Native Garden.

Sill’s Bend is a narrow finger of land extending east approximately 330 metres from the Warringal Park Oval and is enclosed on three sides by the Yarra River. The eastern half of Sill’s Bend is in the historical heritage study area.

Sill’s Bend is named for an early farming family who purchased the land in the 1850s and used it for dairying, as well as planting fruit trees (Context, 2014: 20). The area is understood to have been used for grazing and, intermittently, for orcharding and market gardening through the 1920s, under recurring threat from flooding.

From 1890, use of a sand beach on the tip of Sill’s Bend by swimmers was captured in paintings by Charles Conder and Arthur Streeton, and the Heidelberg Swimming Club is known to have been active here from the early 1900s, constructing a clubhouse in 1913 (Context, 2014: 26), though this is no longer extant. As a result of changes in the flow regime and sediment load of the river, the character of the beaching at the edge of Sill’s Bend has changed substantially from when it was used as a bathing beach.

Sill’s Bend is typical of many locations along the middle Yarra River, bordered by a regenerating riparian woodland along the river’s edge and containing the remains of various periods of land use. The managed parkland within Sill’s Bend includes a large number of exotic trees, including small groups of old fruit trees and a large number of mature Oak trees of several species (*Q. robur*, *Q. macrocarpa*, *Q. palustris*). The Oaks are shown in Figure 6.35. While the fruit trees may be older specimens and have been fenced off for protection, the Oak trees appear to consist predominantly of post-war plantings. The remnant fruit trees appear to be generally located outside the historical heritage study area to the west.



Figure 6.35 Mature Oak trees at Sill's Bend

Fanning's Bend is a roughly triangular enclosure of the Yarra River located upstream of Sill's Bend and connected to the Warringal Parklands by a narrow isthmus. It is located within the historical heritage study area.

Fanning's Bend is named for Peter Fanning, a tenant farmer from the 1850s on a part of the Banyule Estate. Fanning is reported to have established an extensive orchard, including cherries, pears, plums and apples (Context, 2014: 18) but suffered in the 1861 and 1863 Yarra River floods, which are reported to have destroyed 400 of his trees (Context, 2014: 21).

Farming and grazing activities are likely to have continued on the land within Fanning's Bend into the 1920s, although there is little indication of this present on the site today. In the 1960s, parkland improvements undertaken by the then Heidelberg City Council included the intention to develop a caravan park on the bend (Context, 2014: 28). This development is not believed to have been realised, but a planned 'major planting area' across the neck of Fanning's Bend did apparently occur and comprises an intentional arrangement of two-tone rows of native trees (believed to be White Ironbark and Willow Leaf Peppermint). The bend itself comprises an area of open lawn enclosed by the vegetated riparian edge and the planting noted above. The adjacent parkland on the flats to the west of the bend, described in Context 2014 as the 'Warringal Ornamental Parkland,' comprises an oval, multi-use trail, conifers and other ornamental trees established c. 1960s-1970s, and more recent native tree plantings.

The **Banyule Flats** comprise a floodplain area of billabongs, wetlands, constructed drains and parkland extending north from where Banyule Creek meets the Yarra River. These lands were developed for agriculture from the 1840s in association with the Banyule Homestead, and cattle grazing continued on a portion of the lands until 1992 (Context, 2014: 50). Since then, restoration works undertaken by the local council, Victorian Government agencies and community groups have contributed to the regeneration of native vegetation throughout the wetlands and drainage lines and the regrowth of native trees in the open spaces.

The characteristics of the vegetated riparian edges along the Yarra River as well as the Banyule Billabong are consistent with other parts of the Yarra River valley within the historical heritage study area; smaller drains and the outlet of Banyule Creek display a higher proportion of exotic vegetation, generally consisting of the weedy remnants of previous land use practices at Banyule estate.

The Banyule Flats include an archaeological site, the VHI-listed Arthur Hogues House (VHI H7922-0492), as well as a grouping of trees once associated with the house that have been included in the Banyule Significant Tree Register.

At the south-west corner of the Banyule Flats, near Plymouth Street, a stockyard was reconstructed from elements moved in the 1960s from their original location in the uplands above Banyule Flats following subdivision of the Banyule estate. Much of the physical fabric of fences and sheds appear relatively modern and the product of subsequent repairs and improvements.

Where Banyule Creek enters the Yarra River, there is a large stone weir whose construction may date to the period of occupancy of the Banyule estate. Additional stones formerly used to reinforce the banks of Banyule Creek downstream of the weir have collapsed into the channel.

The **Banyule Native Garden** is an approximately 3-hectare site located on a gentle slope at the northern end of Banyule Flats, adjacent to Banyule Road. An approximately 70-metre-wide section of the Banyule Native Garden east of Banyule Creek is located within the historical heritage study area.

Established in the 1970s by the Heidelberg City Council and the Warringal Conservation Society, the garden was reportedly (Context, 2014: 49) designed by Peter Glass, an Eltham artist who worked in conjunction with the landscape designer and Ellis Stones-associate Gordon Ford to produce native gardens for private residences as well as larger institutional sites such as the Shepparton Civic Centre and Monash University's Clayton Campus (Saniga, 2012: 108-109). The garden consists of a naturalistic sequence of earthen mounds which serve to structure a network of flowing lawns, shown in Figure 6.36. The mounds are planted densely with native trees and shrubs, with rock boulders used in select locations to add depth and topographic interest. The structure of the gardens remains clearly legible, although the scale of the site dilutes the aesthetic intensity and function of this designed landscape.



Figure 6.36 Banyule Native Garden, mounded garden beds are seen at left and to the centre

Significance: In 2014 a cultural heritage assessment for the Warringal Parklands and Banyule Flats was prepared for Banyule City Council (Context, 2014). On the basis of that assessment, the area was nominated for inclusion in the VHR under the *Heritage Act 1995* (Vic). The outcome of that process was a finding by the Heritage Council that the place was not of state significance (decision dated 29 June 2015). However, the Heritage Council also found that the Warringal Parklands and Banyule Flats is of local cultural heritage significance and referred the recommendation and submissions to the Banyule City Council for consideration for amendment of the planning scheme. Council subsequently resolved to consider the benefits of local heritage listing as part of a future heritage review (Council resolution, 21 September 2015).

It is relevant to note that the Heritage Council commented there was a potential case to be made for part of the nominated area—comprising the original grounds and setting of the Banyule Homestead—to be appropriately included in the VHR registration for that place. This recommendation appears to reference the adjacent escarpment slope as well as the local valley setting immediately below Banyule Homestead to the east and south, including remnant exotic trees (many of which are self-seeded) and traces of former paddock systems. With the exception of the trees noted in association with the Arthur Hogues House site, these remnants are generally minor or marginal in character and appear of only limited use in indicating and interpreting the open grazed landscape of the pastoral floodplain that was previously associated with Banyule.

Banksia Park

Banksia Park is a modern regional park developed by the Melbourne and Metropolitan Board of Works (MMBW) on valley land formerly grazed and farmed from approximately the 1840s. The park features a central network of access drives and distributed car parks and picnic facilities.

The 1991 City of Doncaster and Templestowe Heritage Study identified Banksia Park as of local heritage significance (Peterson & Context, 1991: 23) but it has not been further assessed and heritage controls have not been introduced. The 1991 citation notes ‘an old stand of exotic trees adjacent to one memorial including Italian Poplar, Indian Bean Tree, Ash leaf Maple, Common Ash, Alder, Spanish Chestnut and Pussy Willow’. To date, this stand of trees (and a referenced memorial) have not been identified. The citation also suggests that fruit tree plantings (pear and quince) dating to Ricardo’s farming activities were present in Banksia Park at that time; again, these have not been identified.

Review of historical photography confirms that other tree plantings in Banksia Park, including native and exotic trees, generally date to the post-war period, and reflect the park’s initial development by MMBW. Exotic tree species observed in common use in association with the park’s drives and car parks include Oak, Poplar and Plum. All extant roads and paths date to the redevelopment of the land for parkland and do not reflect farm track alignments visible in 1945 aerial photography (Figure 6.37).

Parts of Banksia Park are immediately adjacent to the grounds of Heide I and II, and barrier-free footpaths connect the two places. Along much of the boundary between the two places, post-WWII canopy tree and understorey plantings within the Heide II grounds establish a strong separation between these two areas of open space. Boundary plantings in the garden of Heide I, some of which were established pre-1945, similarly separate that place from the Banksia Park entrance drive.

As with other areas in this part of the Yarra River valley, Banksia Park also includes riparian vegetation along the river edge comprising mature and regenerating indigenous trees, as well as some large River Red Gum trees located in scattered positions in the interior of the park. These trees are primarily of ecological interest, although as documented in the discussion of the Yarra River and environs in Section 6.1, trees of this size and age have a general association with the historical and contemporary cultural values of the Yarra River valley and contribute to the character of this landscape.

There are relatively few indications of the area’s former agricultural uses, which included grazing and market gardening activities extending into the 20th century’s immediate post-war period.

Banksia Park employs an approach to regional parkland development that was commonly applied during the 1960s to 1980s, and which is visible at numerous other parks in the metropolitan area where improvement works were undertaken by the MMBW, Victorian Government agencies or local councils.

Apart from the place's general associations with the landscape character and values of the Yarra River, the Banksia Park layout, architectural and planting design, and aesthetic qualities are not considered to be of note. If they survive, the mature exotic trees reported in the 1991 City of Doncaster and Templestowe Heritage Study would likely reflect on and contribute to the general historical character of the Yarra River and environs in this part of the valley.



Figure 6.37 1945 aerial photograph showing a portion of the area later developed as Banksia Park and Heide II. Source: Land Victoria

Yarra Valley Country Club, 9-15 Templestowe Road, Bulleen, 2 x remnant Eucalyptus camaldulensis

The Manningham Heritage Garden and Significant Tree Study (John Patrick Pty Ltd, 2006: 83-86) identifies two remnant River Red Gum (*Eucalyptus camaldulensis*) trees located within the grounds of the Yarra Valley Country Club. One tree is said to be located between the 6th tee and 5th fairway; the other at the edge of the 9th green. Both trees were assessed in the 2006 Manningham Heritage Garden and Significant Tree Study as being more than 200 years old, and of 'regional significance as the oldest and largest of a group of remnant River Red Gums within the golf course'.

Banksia Street Pipe Bridge

The Banksia Street Pipe Bridge was constructed c. 1891 as part of a network to supply water to the eastern suburbs from the Yan Yean Reservoir in response to the expansion of the suburbs further from Melbourne. The bridge is a Warren truss structure (comprised of triangulated wrought iron components creating a frame in three spans) housing the riveted wrought iron mains pipe suspended within the truss, and the truss spans are supported on paired riveted wrought iron piers, shown in Figure 6.38. Brick and cement ornamented piers support the pipe further up the river bank on the east side, which are shown in Figure 6.39.

The bridge was nominated for inclusion on the VHR in 2017. The Executive Director, Heritage Victoria, recommended against registration, noting the bridge was part of a secondary water supply system and there are other places included on the VHR that better demonstrate the historical processes associated with providing water supply at a state level. The conclusion of the assessment (17 November 2017) was that the bridge may be of local significance as a good and intact example of a 19th century Warren truss bridge conveying a mains pipe across a waterway, and the recommendation could be referred to the Banyule and Manningham councils for consideration for inclusion in the HOs in their planning schemes.



Figure 6.38 View of the Banksia Street Pipe Bridge looking to the west across the Yarra River



Figure 6.39 Banksia Street Pipe Bridge, eastern brick piers and rivetted wrought iron piers

Yarra River and environs

Refer to discussion in Section 6.1.

Veneto Club

The Veneto Club was designed by émigré architect, Ermin Smrekar, and officially opened in late-1973. Figure 6.40 to Figure 6.42 show different aspects of the Veneto Club. Designed in the highly sculptural manner that characterised Smrekar's work, the Veneto Club is planned in a diamond form with extruded bays in lieu of corners to the north, east and south. Externally, the three-storey building is executed in off-form concrete, with a modernist bas-relief pattern to the mid-level horizontal band, and features brick panelling to the oval-shaped recesses to each level.

The Veneto Club has been modified over the years, with formerly open spaces such as balconies infilled and minor additions made to the ground level. Substantial additions have been made to the rear of the building and a new entrance canopy was constructed in 1994. It is set within a largely open landscape, with car parking to the east along Bulleen Road, and a soccer field to the north. The building is largely concealed in views from the east and south by mature vegetation and the modern canopy to the eastern entry, though the modified west elevation is visible across the soccer field. The car park medians feature a mix of eucalyptus species, and the eastern boundary is defined by a modern cement-finished pier and wrought steel panel fence and narrow band of lawn within the site.

The Veneto Club is identified in the Survey of Post-War Built Heritage (Heritage Alliance, 2008) as potentially a state significant place for architectural, aesthetic and social reasons.

Architecturally, the work of Ermin Smrekar (1931-2016) is singular in its expressive and idiosyncratic approach. The Veneto Club design is one of a group of Smrekar's early buildings which are characterised by 'expression of structure, use of raw concrete, rational spatial organisation and abstract patterning of shapes' (Lozanovska, 2012). The building references aspects of Brutalism through the adoption of materials and formal expression

typical to this style, using off-form concrete and textured brickwork with expressed horizontality and a robust character.

When compared with the broader context of the most successful and recognised Brutalist buildings in Victoria included on the VHR such as the Plumbers and Gasfitters Union Building, Carlton (Graeme Gunn, 1969-71; VHR H2307), Total House, Melbourne (Bogle & Banfield, 1964-65; VHR H2329), the Former Clyde Cameron College, Wodonga (Architects Group, 1977; VHR H2192), Former Hoyts Cinema, Melbourne (Peter Muller, 1966-69; VHR H2335) and the Harold Holt Swim Centre, Malvern (Kevin Borland and Daryl Jackson, 1967; VHR H0069), the Veneto Club would unlikely be rated highly. Additionally, recent interventions and additions have somewhat detracted from the presentation of the buildings and diminished the clarity and robustness of its expression.

Equally, subject to a more detailed formal assessment, the Veneto Club may be considered to be of architectural significance at a local level. It is also noted that Smekrar's work is of interest, particularly in the context of work by of émigré architects in Australia in the post-WWII period. Academic and architectural historian, Mirjana Lozanovska, has commented of Smekrar's early works that these 'inspired new references for a modern Australian architectural language' (Lozanovska, 2012).

The Veneto Club has also been noted as reflecting Bulleen's predominantly European population (Context, 2011: 70).

The club is likely to be of high social and historical value to the Italian community as a focus for social, cultural and sporting activities over a long period. Further analysis would be required to establish the nature of these social and historical values.

The additions and alterations are not of any significance. While much of the site layout and landscaping is of long standing, it is not considered significant.



Figure 6.40 The Veneto Club viewed from the north-west; note the more recent arched canopy to the building entry (left) and additions to the rear of the building; the soccer field is at right



Figure 6.41 North-west façade of the Veneto Club; note the non-original enclosed outdoor area at ground level



Figure 6.42 South-west elevation of the Veneto Club

Identified in the Manningham Heritage Study Review (Context, 2005: 14), this small cottage is identified as being of local historical significance for its association with former resident and gardener at the Heide Museum of Modern Art, Jimmy Heffernan, and his association with the Reeds in the 1930s. The building is described as a small timber-clad, gable-ended cottage, though now altered.

The property is to the south of the Heide Museum of Modern Art on Bulleen Road and is located in mixed commercial/light industrial and more recent residential building context.

The house appears to be a relatively early residence, albeit altered, and may be of significance on that basis; conversely, it is noted that the historical association with the Reeds' gardener is not considered to be a strong basis for significance. North East Link construction works would not directly impact the cottage and it is not considered further in this impact assessment.

6.4 Eastern Freeway

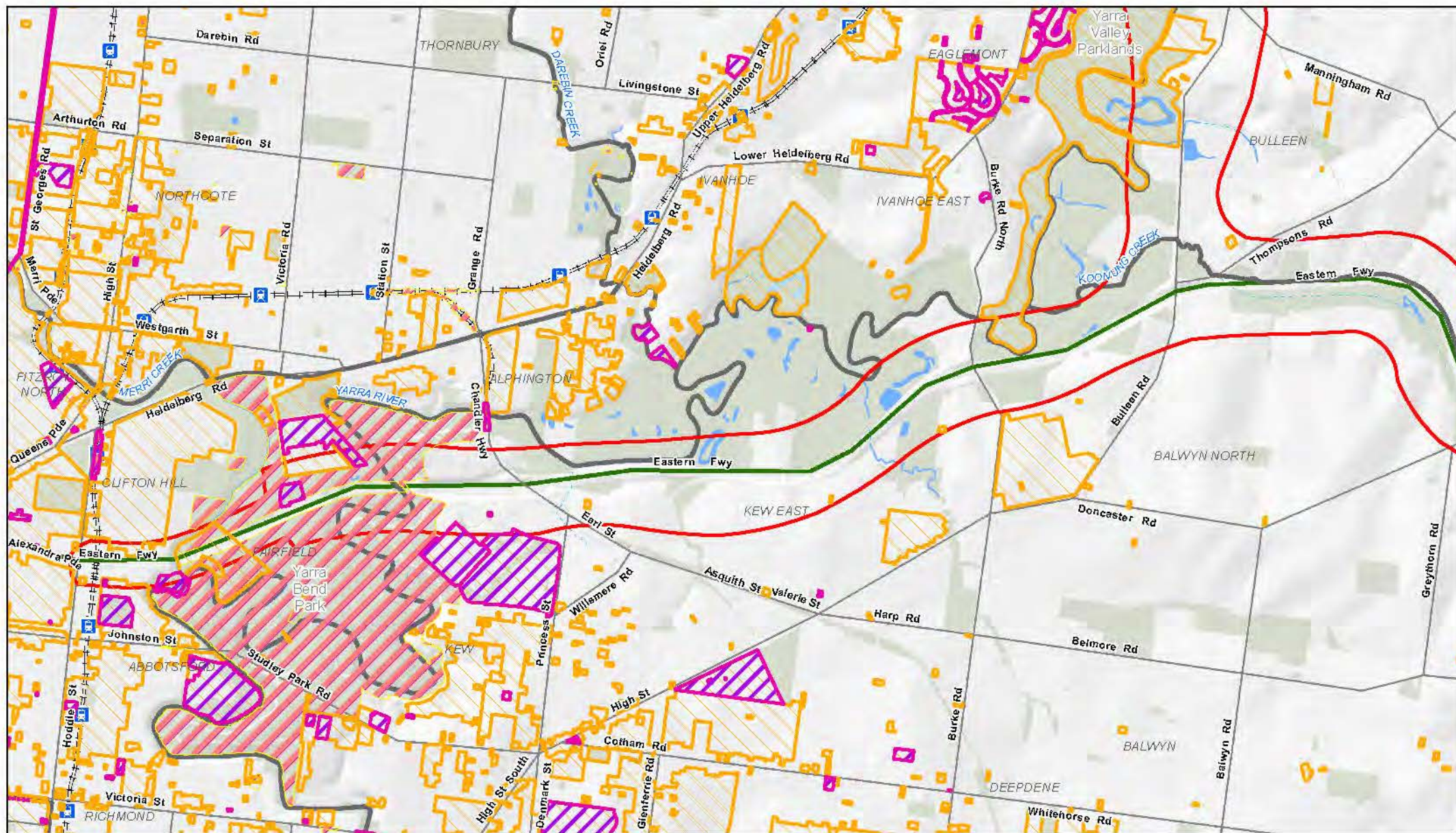
6.4.1 Statutory controls

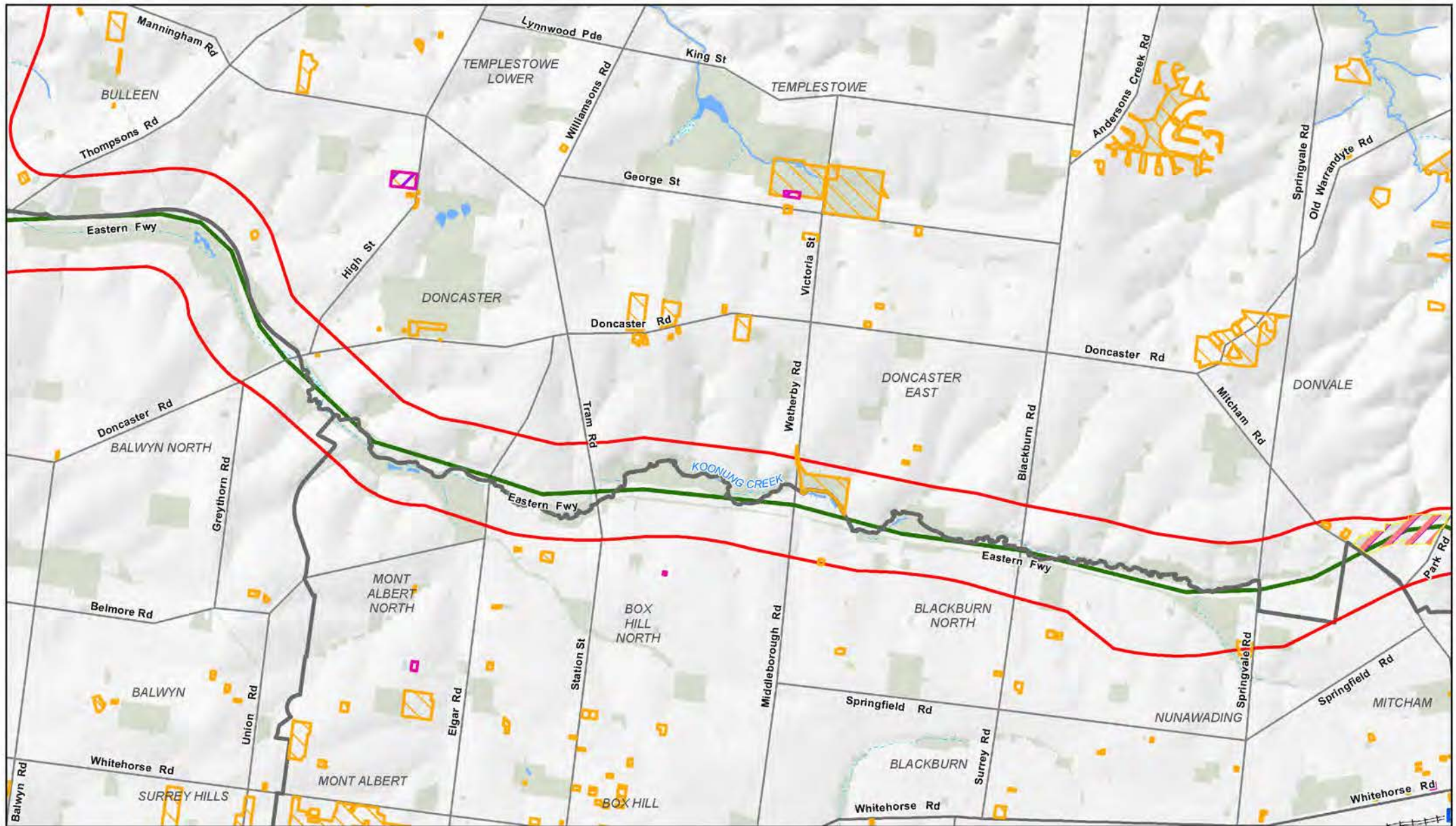
All places within the Eastern Freeway section of the historical heritage study area subject to statutory heritage controls are shown in Figure 6.43 and Figure 6.44. Places with vegetation controls are shown in Figure 6.45 and Figure 6.46.

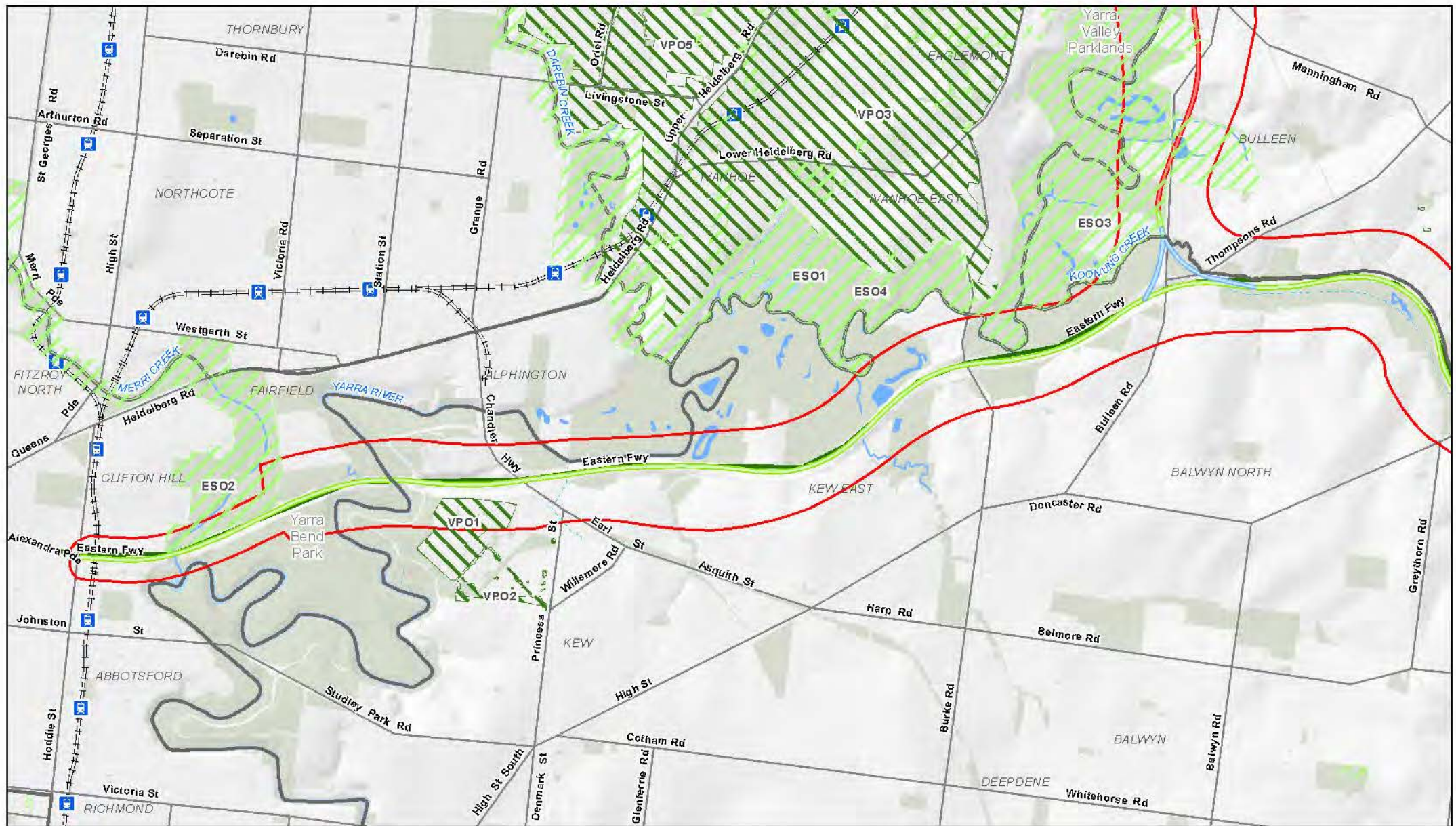
Places on the VHR or VHI or covered by a HO are listed in Table 6.11, Table 6.12 and Table 6.13 respectively. Places with vegetation controls are listed in Table 6.14, Table 6.15 and Table 6.16.

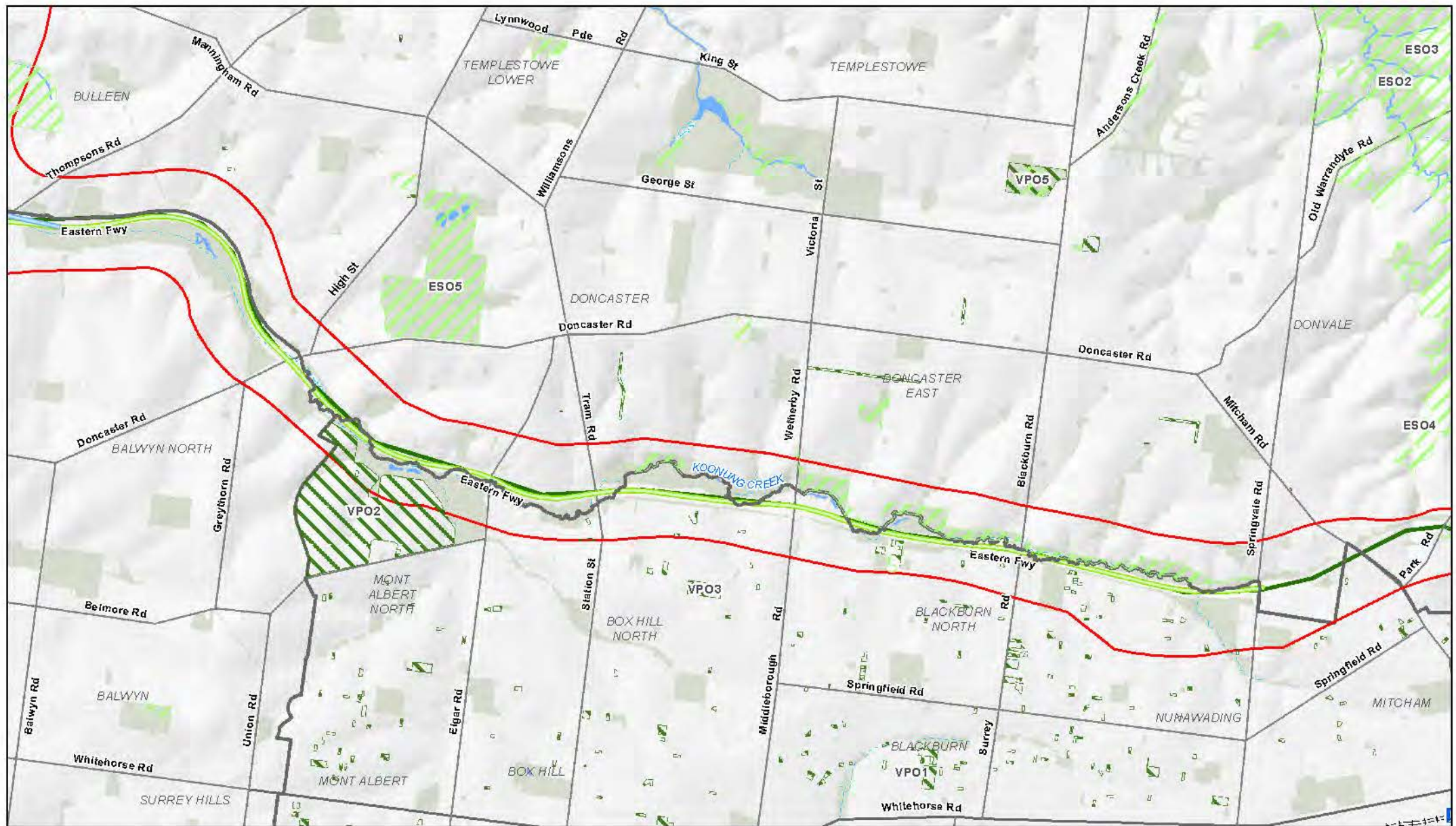
The tables indicate whether listed places have been assessed for this study. In general, places have been considered where they would intersect with or be near North East Link construction works and where it is considered there is potential for the project to impact on them. Where listed places are not included in the impact assessment, a reason is provided in the tables.

All the places are also identified in the mapping in Appendix D.









Paper Size A4
0 237.5 475 950
Metres
Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 55



Legend

- Historic Heritage Study Area
- LGA
- Vegetation Protection
- Environmental Significance

Roads

- Freeway
- Highway
- Major road
- Railway

- Train station
- Stream
- Drain or channel
- Lake
- Swamp

- Watercourse
- Elevated ramp
- Surface road

Proposed reference project



North East Link Project
Environment Effects Statement (EES)

Job Number 31-35006
Revision B
Date 26/02/2019

ESO and SLO places
in the Eastern Freeway

Figure 6-46

Heritage Act

Table 6.11 VHR places in the Eastern Freeway

Name	Address	Municipality	Heritage control	Considered in impact assessment?
Dorothy Terrace (listed as eight separate VHR places)	34-48 Lulie Street, Abbotsford	Yarra	VHR H1034, H1035, H1036, H1037, H1038, H1039, H1040, H1041 HO29, HO30, HO31, HO32, HO33, HO34, HO35, HO36	No, well to the west of project works, which would be confined to the Eastern Freeway and on the eastern side of the Yarra River.
Dights Mill Site	Yarra River, off Trenerry Crescent, Abbotsford	Yarra	VHR H1522 HO48	No, where proximate, works would be within the Eastern Freeway road reserve and would have no direct physical impact nor would they have any adverse visual impacts on the place.
Fairfield Hospital (former)	101 Yarra Bend Road, Fairfield	Yarra	VHR H1878 HO303	No, works for the shared use path north of the Eastern Freeway would be well-separated.
Former Fairlea Women's Prison	Yarra Bend Road, Fairfield	Yarra	VHR H1552 HO301	Yes
Former Willsmere Hospital	1-258 Wiltshire Drive and 21 Vaughan Crescent, Kew	Boroondara	VHR H0861 HO109	No, the place is well-separated from project works and there was not considered to be any potential for an adverse visual impact.
Former Kew Cottages (Kew Residential Services)	Princess Street, Kew	Boroondara	VHR H2073 HO485	No, remaining heritage buildings on this redeveloped site are well-separated from project works and there was not considered to be any potential for an adverse visual impact.

Table 6.12 VHI places in Eastern Freeway

Name	Address	Municipality	Heritage control	Considered in impact assessment?
Robinson Court 1 – Historical Orchard	3 Robinson Court, Donvale	Manningham	VHI H7922-0201	No, this archaeological site would not be disturbed.
Springvale Road well	173 Mitcham Road, Donvale	Manningham	VHI H7922-0366	No, this archaeological site would not be disturbed.
Yarra Bend Park Northcote 1	Yarra Bend Road, Fairfield	Yarra	VHI H7922-0142	Yes

Planning and Environment Act

There are many HO places in the Eastern Freeway section of the historical heritage study area that relate to individual sites and larger precincts within the municipalities of Yarra, Boroondara, Manningham and Whitehorse.

Table 6.13 HO places in Eastern Freeway

Name	Address	Municipality	Heritage control	Considered in impact assessment?
Former Murray & Co Wool Works	457 Hoddle Street, Clifton Hill	Yarra	HO89	No, well to the west of project works, which are confined to the Eastern Freeway and on the eastern side of the Yarra River.
Deep Rock Swimming Club, includes foundation stone and pioneer memorial stones	Yarra Bend Park, Yarra Bend	Yarra	HO302	No, while the site is close to works within the Eastern Freeway road reserve, there is no direct physical impact, nor is there an adverse visual impact.
Yarra River Protectorate Station site	Yarra River, Yarra Bend Park, Yarra Bend	Yarra	HO307	Yes
Clifton Hill Eastern Precinct		Yarra	HO316	No, well to the west of project works, which are confined to the Eastern Freeway and on the eastern side of the Yarra River.
Gold Street Precinct, Collingwood		Yarra	HO321	No, well to the west of project works, which would be confined to the Eastern Freeway and on the eastern side of the Yarra River.
Victoria Park Precinct, Abbotsford		Yarra	HO337	No, well to the west of project works, which would be confined to the Eastern Freeway and on the eastern side of the Yarra River.
Fairfield Hospital Grounds (former)	Yarra Bend Road, Fairfield	Yarra	HO344	No, works for the shared use path north of the Eastern Freeway would be well-separated from project works.
Yarra Flats	340-680 The Boulevard, Eaglemont	Banyule	HO134	Yes
Former 'Spicer Factory', (for a depth of 14.5 metres from the front façade/ Noone Street title boundary).	163 – 167 Noone Street, Clifton Hill	Yarra	HO351	No, well to the west of project works, which would be confined to the Eastern Freeway and on the eastern side of the Yarra River.
Turinville	53 Barnard Grove, Kew	Boroondara	HO10	No, the house is well separated from project works in the Eastern Freeway road reserve, with no direct physical nor adverse visual impacts.

Name	Address	Municipality	Heritage control	Considered in impact assessment?
House	96 Kilby Road, Kew	Boroondara	HO75	No, the house is well separated from project works in the Eastern Freeway road reserve, with no direct physical nor adverse visual impacts.
Lodge House	24 Lister Street, East Kew	Boroondara	HO320	No, well separated from project works in the Eastern Freeway by a large area of public open space.
House 'Glenfern'	10 Amberley Court, Bulleen	Manningham	HO3	No, the house is well separated from project works in the Eastern Freeway road reserve, with no direct physical nor adverse visual impacts.
English Oak	Doncaster Road (near Hender St corner), Doncaster	Manningham	HO42	Yes
Merchant Builders Former Display Houses Heritage Precinct	1, 2 & 3 Exford Place, Donvale	Manningham	HO61	No, located a considerable distance beyond the eastern extent of project works.
House	123 Mitcham Road, Donvale	Manningham	HO118	No, located a considerable distance beyond the eastern edge of project works.
Archaeological site (Ref. VAS 7922/202)	Wetherby Road eastern Cnr Eastern Freeway, Doncaster East	Manningham	HO181	Yes
17 Vivian Street, Blackburn North	17 Vivian Street, Blackburn North	Whitehorse	HO86	No, in excess of 100 metres from project works.
AV Jennings Estate Precinct	Spencer Street/ Springvale Road, Nunawading	Whitehorse	HO280	No, the precinct is located outside the project works area with no direct physical or adverse visual impact.

6.4.2 Overview of heritage places

The western portion of the Eastern Freeway section of the historical heritage study area is predominantly within the City of Yarra, and includes places in Collingwood, Abbotsford, Clifton Hill and Fairfield. Refer to Appendix C for more detail on the history of this area.

Collingwood and Abbotsford were established from the mid-19th century, and heritage places in this immediate area reflect the development period to the late-19th century. The area is a mix of residential and industrial places. VHR places include Dorothy Terrace, Abbotsford (eight individual places VHR H1034 to H1041 inclusive) and the Dights Mill Site (VHR H1522) on the Yarra River in Abbotsford. Dights Mill is of social, historical, archaeological, scientific and technical significance at a state level.

Further east and north of the Eastern Freeway is the Fairfield Hospital (Former) (VHR H1878), which retains numerous buildings related to its original use as the Queen's Memorial Infectious Diseases Hospital. Adjacent to this is the site of the Former Fairlea Women's Prison (VHR H1552). The prison complex was developed on part of the earlier Metropolitan Lunatic Asylum, later Yarra Bend Lunatic Asylum, established in c. 1848. This was a much larger complex, spread over a vast site. The asylum was declared a Public Reserve in c. 1927 and most of the buildings demolished. A small number were re-used for the Fairlea Women's Prison. The prison remained in operation until the mid-1990s when again, demolition removed all above ground structures except

a single bluestone gate pillar, shown in Figure 6.47, now relocated on the west side of Yarra Bend Road. The VHR identifies the significance of the place as historical and archaeological.

Locally significant heritage places in the City of Yarra include extensive residential and some industrial buildings dispersed within the precincts dating to the 19th century.

North of the Yarra River and at its edge are two HO places: the Yarra River Protectorate Station Site (HO307, Yarra) and the Deep Rock Swimming Club (HO302, Yarra), which is shown in Figure 6.48. The remains of the Deep Rock Swimming Club are noted as consisting of a relocated and modified foundation stone from the original club building along with a set of memorial stones. The construction of the Eastern Freeway and the associated diversion of the Yarra River resulted in the destruction of the club site. The values of the place are largely historical, and the citation for the place notes it as regional significance. The Protectorate Station site is noted as the focal point for interaction between Aboriginal people and government officials and settlers at the early establishment of the colony which then led to the application of governmental policies related to Aboriginal people. While included on the local HO, the place is identified as being of state significance and potential national significance. It is a place that remains of high significance for Aboriginal people, even though very little material evidence of Aboriginal use and occupation has been identified.

Within the Eastern Freeway section of the historical heritage study area and south of the Eastern Freeway are two VHR places: the former Willsmere Hospital (VHR H0861) (Figure 6.49) and former Kew Cottages (Kew Residential Services) (VHR H2073). These adjacent places relate to the care of adults and children with intellectual disabilities established in the mid to late-19th century. Both have multiple heritage values. They have undergone extensive redevelopment and adaptation of retained buildings for residential use.

HO sites in Boroondara within the study area include a series of residences of varying ages, such as Turinville (HO10, Boroondara), the House at 96 Kilby Road, Kew (HO75, Boroondara), an early example of brick veneer construction, and Lodge House (HO320, Boroondara), a modernist design by Keith Lodge in c. 1959.

Manningham sites within the study area are all of local significance but of varying ages and place types. They include the residence 'Glenfern' (HO3, Manningham) a c. 1863 farmhouse associated with the former Glenfern farm adjacent to Koonung Creek, the 1972 Merchant Buildings Former Display Houses Heritage Precinct (HO61, Manningham) and the House at 123 Mitcham Road, Donvale (HO118), a c. 1918 residence related to an earlier orchard.

A single specimen of English Oak (HO42, Manningham) (*Quercus robur*) is located in the nature strip on the south side of Doncaster Road, adjacent to the Doncaster Road Park and Ride. This tree, shown in Figure 6.50, has been identified as being of local heritage significance; it was once part of a row of oak trees reportedly planted by John Smedley, a blacksmith who settled in Doncaster c. 1860. Modifications to Doncaster Road and the development of the Doncaster Park and Ride have left this over mature tree poorly supported within its current context.

A large site at Wetherby Road is described as an archaeological site (Ref. VAS 7922/202). This item appears to have been listed due to the presence of a registered Aboriginal place (VAHR 7822-0202) comprising a small number of Aboriginal stone artefacts located to the south and outside the actual curtilage of the item. The listing has no known historical archaeological associations.

Two HO places in the City of Whitehorse are within the Eastern Freeway section of the historical heritage study area: 17 Vivian Street, Blackburn North (HO86), an Edwardian-era residence related to the agricultural development of the area, and an AV Jennings Estate (HO280).



Figure 6.47 Former gate pillar associated with the Former Fairlea Women's Prison (VHR H1552), located to the west side of Yarra Bend Road



Figure 6.48 Relocated and altered memorial for the Deep Rock Swimming Club (HO302)



Figure 6.49 Former Willsmere Hospital (VHR H0861) entry along Wiltshire Drive viewed to the north-east



Figure 6.50 English Oak (HO42, Manningham) on Doncaster Road

6.4.3 Historical archaeology

There are three places in the Eastern Freeway section of the historical heritage study area that have been recognised for their archaeological potential:

- Yarra Bend Park Northcote 1, Yarra Bend Road, Fairfield VHI H7822-0142
- Former Fairlea Women's Prison (VHR H1552)
- Yarra River Protectorate Station site, Yarra River, Yarra Bend Park, Yarra Bend, HO307 (Yarra).

Yarra Bend Park Northcote 1 (VHI H7822-0142) covers a large area incorporating the locations and potential archaeological remains of a number of separate historical activities including those associated with the Metropolitan Lunatic Asylum, later Yarra Bend Lunatic Asylum, and later uses including an infectious diseases hospital, a VD Clinic, and a women's prison. From 1926 the area was proclaimed a park and now forms Yarra Bend Park.

The extent and nature of archaeological remains within Yarra Bend Park Northcote 1 are largely unknown. It is noted that works undertaken for the installation of drainage infrastructure in 1996 exposed in situ bluestone footings and associated artefactual material in the vicinity of these features. (VHI H7922-0188 Site Register Sheet).

The land associated with Yarra Bend Park Northcote 1 includes the VHR-registered Former Fairlea Women's Prison (VHR H1552) – referenced above at 6.4.2 – which has archaeological values related primarily to its earlier use from the mid-19th century as part of the Lunatic Asylum.

The Yarra River Protectorate Station site (H307) also falls within the Yarra Bend Park Northcote 1 but has additional specific values. This site represents a combination of Aboriginal cultural heritage and historical archaeological values and broadly speaking encompasses the locations of the Merri Creek Aboriginal School, Yarra Protectorate, Native Police Corps Headquarters and associated burials of Aboriginal people. The place is covered by a Victorian Aboriginal Heritage Register listing (VAHR 7922-1185) which incorporates a number of previously separately registered items. Much of this place, particularly as it relates to the study area, was significantly modified by works for the construction of the Eastern Freeway and the associated realignment of the Yarra River. Notwithstanding this disturbance, the Yarra River Protectorate Station remains a highly significant Aboriginal place, and its intangible connections and values are maintained.

In addition to these places, there are a number of sites on the VHI in proximity to the study area which may provide an indication of the archaeological potential of some of the areas within Yarra Bend Park Northcote 1 and the Yarra River Protectorate Station site discussed above. Collingwood 4 (VHI 7922-0137) and Collingwood 5 (VHI 7922-0138) comprise two tip sites located on the western side of Merri Creek. In the case of these two sites, former quarries were used as tipping sites and filled with domestic refuse before being converted into public open space such as parklands and playing fields. Similar activities with archaeological potential have not been formally confirmed within Yarra Bend Park Northcote 1 and the Yarra River Protectorate Station site, but cannot be entirely ruled out.

6.4.4 Environmental Significance Overlay Places

Table 6.14 ESO places in Eastern Freeway

Name	Address	Municipality	Planning control	Considered in impact assessment?
Yarra River	Various	Banyule	ESO1	Yes, as part of Yarra River and environs assessment
Merri Creek and Environs	At Eastern Freeway bridge crossing	Yarra	ESO2	Yes, as part of Yarra River Protectorate Station site assessment

Yarra ESO2: Merri Creek and Environs

Schedule 2 of the Yarra Planning Scheme's ESO addresses the environmental, heritage and recreational values of the Merri Creek corridor. The overlay establishes permit requirements to achieve the protection and restoration of natural systems and waterway function, as well as to secure recreational uses and protect the creek's landscape character, areas of sensitivity for Aboriginal heritage, and natural landforms and geological features.

Within the study area, this overlay is relevant to the Eastern Freeway crossing of the Merri Creek.

6.4.5 Significant Landscape Overlay Places

Table 6.15 SLO places in Eastern Freeway

Name	Address	Municipality	Planning control	Considered in impact assessment?
Yarra (Birrarung) River Corridor Environs	Various	Banyule, Boroondara, Manningham, Yarra	SLO1/SLO2	Yes
Koonung Creek (controlled as 'Watercourse Areas')	Various	Manningham	SLO5	No, not assessed as of heritage value

Banyule SLO1, Boroondara SLO1, Manningham SLO2, Yarra SLO1: Yarra (Birrarung) River Corridor Environs

The Banyule, Boroondara, Manningham and Yarra municipal planning schemes all include Significant Landscape Overlays applying to valley lands and slopes along the Yarra River. These overlays have been recently amended and coordinated via Planning Scheme Amendment GC48; they apply to the entirety of the Yarra River lands within this section of the study area, and are bounded by various 'top of slope' roadways and other features. It is notable that between Trenerry Crescent and Bulleen Road, the Eastern Freeway is entirely situated within this SLO.

As noted in Section 6.3.5, the Yarra (Birrarung) River Corridor Environs SLOs are applied to achieve a variety of environmental, landscape and cultural objectives, as well as improvements to public recreational access and built form. Notably, the SLOs apply to retention of exotic vegetation which is of 'landscape significance', and to the protection and enhancement of the river's riparian edge.

Manningham SLO5: Watercourse Areas

Schedule 5 of the Manningham Planning Scheme's SLO applies to the area immediate to the banks and channel of various watercourses within the LGA. The overlay identifies watercourses which are significant within the City of Manningham *because of topography, site layout, vegetation cover, botanical significance, natural character, panoramic views, relief from the 'urban' environment, cultural or heritage significance and the desirability of the character of watercourse areas*. The overlay establishes permit requirements to control buildings and works which may be proposed in watercourse areas.

Within the study area, SLO5 is applied to the channel of Koonung Creek which lies within or on the boundary of the Manningham Planning Scheme, from Doncaster Road to just west of Springvale Road. It is also applied to an additional section from west of Springvale Road east to the Oxford Street Reserve; this appears to represent a former section of the creek which was piped in the 1990s as a consequence of the further extension of the Eastern Freeway beyond Springvale Road as the EastLink.

The Koonung Creek is considered further in Section 6.4.7.

6.4.6 Vegetation Protection Overlay Places

Table 6.16 VPO Places in Eastern Freeway

Name	Address	Municipality	Planning control	Considered in impact assessment?
Significant Exotic, Native and Indigenous Trees	Various	Whitehorse	VPO1, VPO3, VPO5	No, no trees scheduled to the VPO within the study area were cited for historical heritage significance.

Whitehorse VPO1, VPO3 and VPO5: Significant Exotic, Native and Indigenous Trees

Schedules 1, 3 and 5 of the Whitehorse Vegetation Protection Overlay address significant trees within portions of the study area. Historical significance and other characteristics of historical heritage interest were among the criteria considered in the inclusion of trees to the Whitehorse Vegetation Protection Overlay under these schedules. However, none of the trees within the study area were scheduled to the overlay for historical heritage reasons.

6.4.7 Unlisted places of potential heritage significance

Table 6.17 Unlisted places of potential heritage significance

Name	Address	Municipality	Heritage control	Considered in impact assessment?
Eastern Freeway		Yarra, Boroondara, Manningham, Whitehorse	No	Yes, Stage 1
Yarra River and environs	Various	Yarra, Boroondara, Banyule	Not as a whole of place	Yes
Sentinel (sculpture)	Doncaster Road, Doncaster	Manningham	No	No, not assessed as of heritage value.
Orchard (fmr)	Park Road, Donvale	Manningham	No	No, not assessed as of heritage value.
Remnant Monterey Pine Trees	Various	Manningham	No	No, three sites which are included within the project works area but are not assessed as of heritage value.
Remnant Pine Windbreak, Yarradoo Park	Springvale Road, Nunawading	Whitehorse	No	Yes
Mardegan House	5 Fairway Drive, Kew East	Boroondara	No, but identified in draft <i>Kew East and Mont Albert Heritage Gap Study</i> , 2018	No, the house is well separated from project works in the Eastern Freeway road reserve, with no direct physical nor adverse visual impacts.
Residence	22 Elm Grove, Kew East	Boroondara	No, but identified in draft <i>Kew East and Mont Albert Heritage Gap Study</i> , 2018	No, the house is well separated from project works in the Eastern Freeway road reserve, with no direct physical nor adverse visual impacts.
Misso House	104 Kilby Road, Kew East	Boroondara	No, but identified in draft <i>Kew East and Mont Albert Heritage Gap Study</i> , 2018	No, the house is well separated from project works in the Eastern Freeway road reserve, with no direct physical nor adverse visual impacts.

Name	Address	Municipality	Heritage control	Considered in impact assessment?
Boulevard Estate and Environs Precinct	Various	Boroondara	No, but identified in draft <i>Kew East and Mont Albert Heritage Gap Study</i> , 2018	No, the precinct is well separated from project works in the Eastern Freeway road reserve, with no direct physical nor adverse visual impacts.
Windella Avenue and Environs Precinct	Various	Boroondara	No, but identified in draft <i>Kew East and Mont Albert Heritage Gap Study</i> , 2018	No, the precinct is well separated from project works in the Eastern Freeway road reserve, with no direct physical nor adverse visual impacts.
Residence	18 Brendale Avenue, Blackburn North	Whitehorse	No, but identified by Whitehorse City Council as a potential heritage place.	No, the house is well separated from project works in the Eastern Freeway road reserve, with no direct physical nor adverse visual impacts.
Residence	28 Briggs Street, Mont Albert	Whitehorse	No, but identified by Whitehorse City Council as a potential heritage place.	No, the house is well separated from project works in the Eastern Freeway road reserve, with no direct physical nor adverse visual impacts.
Residence	10 Jocelyn Avenue, Balwyn North	Whitehorse	No, but identified by Whitehorse City Council as a potential heritage place.	No, while the house is proximate to project works, those works are confined to the Eastern Freeway corridor and adjacent linear park reserve, with no direct physical nor adverse visual impact.
Buildings	6-16 Joseph Street, Blackburn North	Whitehorse	No, but identified by Whitehorse City Council as a potential heritage place.	No, while the buildings are proximate to project works, those works are confined to the Eastern Freeway corridor and adjacent linear park reserve, with no direct physical nor adverse visual impacts.
Residence	19 Joseph Street, Blackburn North	Whitehorse	No, but identified by Whitehorse City Council as a potential heritage place.	No, the house is well separated from project works in the Eastern Freeway road reserve, with no direct physical nor adverse visual impacts.
Residence	15 Middlefield Drive, Blackburn North	Whitehorse	No, but identified by Whitehorse City Council as a potential heritage place.	No, the house is well separated from project works in the Eastern Freeway road reserve, with no direct physical nor adverse visual impacts.
Residence	14 Slater Avenue, Blackburn North	Whitehorse	No, but identified by Whitehorse City Council as a potential heritage place.	No, the house is well separated from project works in the Eastern Freeway road reserve, with no direct physical nor adverse visual impacts.

Name	Address	Municipality	Heritage control	Considered in impact assessment?
House	24 Orion Street, Balwyn North	Boroondara	No, but identified as a potential heritage place and recommended for inclusion on the Boroondara heritage overlay in the Balwyn & Balwyn North Heritage Study (Built Heritage, 2015).	No, while works may occur in the Orion Street road reserve, these would not intrude on the property at 24 Orion Street and would have no visual impact.
Dawn Redwood (<i>Metasequoia glyptostroboides</i>)	70 Ursa Street, Balwyn North	Boroondara	No, but included in the National Trust of Australia's Significant Tree Register.	No, the tree is well separated from project works in the Eastern Freeway road reserve, with no direct physical nor adverse visual impacts.

Eastern Freeway Stage 1

The Eastern Freeway is a major work of transportation infrastructure planned, designed and constructed under the authority of the Victorian Government in stages from 1971 to 2008.

Initial planning and the design and construction of Stage 1 of the freeway from Hoddle Street to Bulleen Road was undertaken by the MMBW with the authority of the *Eastern Freeway Lands Act 1971* (Vic).

In 1974, constructing authority was transferred from the MMBW to the state's Country Roads Board (CRB), with Stage 1 completed by the CRB in 1977. Stage 2 was constructed soon afterwards from Bulleen Road to Doncaster Road, opening in 1982. In the 1990s, a third stage was undertaken by the CRB's successor, VicRoads, extending the freeway from Doncaster Road to Springvale Road, with the extension opened in December 1997. A fourth stage, originally planned to complete the freeway to Ringwood, was ultimately constructed as part of the much larger EastLink route, which opened in 2008. Additional historical information on the freeway is provided in Appendix C – land use history.

The Hoddle Street to Bulleen Road section (Stage 1) of the Eastern Freeway was designed and constructed with aesthetic considerations as a key component, a first for Victorian freeway design. Such an approach had been previously seen in influential highway projects in New South Wales (Sydney-to-Newcastle Expressway, 1962-67; see Saniga, 2012: 124-126) and Western Australia (Narrows Interchange, 1963-74; see Saniga, 2012: 132-33). The delivery of an integrated, multi-disciplinary infrastructure design which included an expanded role for visual aesthetics and landscape design was new in Victoria and a marked departure from the MMBW's earlier South Eastern Freeway (now the M1 Monash Freeway) and early stages of the Tullamarine Freeway. The 1977 CRB Annual Report noted,

The [Eastern] freeway was designed to provide an aesthetic travelling environment for the motorist. It follows the line of the Yarra River Valley, bordering the Yarra Bend Park and three golf courses. Extensive landscaping was carried out on the freeway reserve. During the past seven years, shrubs and ground cover were planted [and] much of the vegetation is now well established. (CRB, Annual Report, 1978: 7-8).

The early stages of the Eastern Freeway are strongly associated with the work of structural engineer Bruce Day (1927-2015), who led the design of the bridges between the Merri Creek and Bulleen Road. Examples of these bridges are shown in Figure 6.51 and Figure 6.52. The bridges include road and pedestrian-only overpasses as well as the Clifton Hill Railway Bridge. They utilise modern rigid frame and prestressed concrete construction techniques in visually inventive ways that interact with the surrounding topography and the driver's experience of the freeway. A large pedestrian and service vehicle underpass was also constructed with these techniques,

connecting the Yarra River parklands north of the freeway to Kilby Road (National Trust Classification Report, 2009: 8).

The Eastern Freeway was designed with the idea of constructing heavy rail down its median, and engineering provisions for this were made, including the scale of the medians and the design of the bridges where support piers are not landed on the medians (National Trust Classification Report, 2009: 6). The treatment of the median is shown in Figure 6.53 and Figure 6.54.



Figure 6.51 Eastern Freeway bridges over the Merri Creek, viewed from the north-west



Figure 6.52 West side of the Yarra Bend Road bridge viewed from the south-west at Yarra Bend Park



Figure 6.53 Eastern Freeway, looking west from Yarra Bend Road bridge; showing median, light masts and exposed geology to the north side of the freeway



Figure 6.54 Median and light masts central to the Eastern Freeway viewed to the east

A number of the smaller road and pedestrian bridges are situated at cuts where the freeway is trenched below surrounding roadways, neighbourhoods and greenspaces, exposing the local geology of basaltic and sedimentary rocks. In these cases, the Hoddle Street to Bulleen Road (Stage 1) bridge designs reflect an intentional and often playful effort to highlight their dramatic position between the rock cuts and the modern roadway, an approach which achieves its most striking outcome at the Belford Road overpass. The arterial road overpasses within the Yarra River valley at the Chandler Highway, Burke Road and Bulleen Road confront a lessened vertical topography but more horizontally complex alignments; at these locations the crossing arterials are brought across the freeway in low, sweeping curves which are complemented in the design of each bridge's piers and superstructure.

The Hoddle Street to Bulleen Road (Stage 1) bridges are also intentionally designed to be experienced in sequence, with each bridge in turn echoing and elaborating on the style and elements of adjacent bridges in the sequence, reinforcing a rhythm and continuity to the driver experience which prevails despite the range of structural techniques and finishes used along the route (National Trust Classification Report, 2009: 6-7).

While further research would be required to confirm the design brief, the success of the design appears to rest on the development of an overall concept design for the bridges, each of which were then developed by dedicated engineering teams. The three western-most bridges display a different design approach, based around the design for the Clifton Hill Railway Bridge by George Deutsch and a team at Hardcastle and Richards engineers. Although employing different forms from the Day bridges, the technical and stylistic decisions in the railway bridge are similarly echoed in the adjacent Hoddle Street overpass to the west (and were meant to have been carried in the other direction, where the Trenerry Crescent pedestrian overpass was ultimately built to a conventional CRB design).

In addition to their association with many of the most visually significant crossing bridges, the exposed naturalistic treatment of the rock cuts throughout the Hoddle Street to Bulleen Road (Stage 1) component also represents an important aesthetic decision in its own right. Throughout these basalt and sedimentary rock cuttings, visible finishing works were restricted to flush insertions of mortared stonework along limited seams or facings where geological weakness or random incident required intervention during construction. The effect

of this contrasting inlaid stone is to add a subtle dimension of additional visual interest to the cuttings, without creating a competing visual motif.

Other aspects of the Hoddle Street to Bulleen Road (Stage 1) design include the tapered, high mast lighting poles, the establishment of shrubs and ground covers – said to be well-established by 1978 (CRB, Annual Report, 1978: 7-8) – and the employment of borrowed views to adjacent areas of natural vegetation including in the Yarra River environs to supplement the limited use of plantings within the highway corridor itself. Timber noise walls provide sound and visual attenuation in the few areas of the Hoddle Street to Bulleen Road (Stage 1) project where they were required; their design is modest but intentional. The wood panels appear natural and unfinished, an economical solution which blends into the borrowed canopy views that lie beyond them; each vertical unit is also staggered to provide depth, further reducing the visual prominence of the barriers.

The 1974 transfer of constructing authority to the CRB-instigated changes to the design of the Hoddle Street to Bulleen Road (Stage 1) of the freeway, which was then in construction, and to the planned second stage. Best documented is the revision of two bridges planned to be a part of the design sequence and rhythm of the first stage to more economical designs; these were the Trenerry Crescent pedestrian overpass and the Yarra River crossing (National Trust Classification Report, 2009: 3). The short second stage from Bulleen Road to Doncaster Road also employed conventional designs for the Kenneth Street pedestrian overpass and the Doncaster Road overpass, and for freeway lighting, but introduced extensive hydraulic engineering and landscape design including for the first time substantial new vegetation inside the corridor and outside of it in the new Koonung Creek Reserve south of the freeway and in a narrower greenspace on the north side.

A number of designers involved in the Eastern Freeway continued to work for the CRB. Rosa Niran, who as an architect/landscape architect with MMBW worked with Bruce Day on the shapes and surface treatments of the bridges throughout the project (National Trust Classification Report, 2009: 4-6), subsequently joined the CRB when it created a Landscape Section within its organisation in 1975 (AILA, 2011). Niran is reported to have been subsequently involved in the finalisation of the Eastern Freeway landscape design by the CRB (AILA, 2011), along with consulting landscape architect Ronald Rayment (Saniga, 2012: 202). Bruce Day is also understood to have continued to work with the CRB and its successor organisations into the 1980s. Over the next decades architects, landscape architects and designers became increasingly involved in the planning and design of large scale urban infrastructure, including the later stages of the Eastern Freeway.

The majority of the Hoddle Street to Bulleen Road (Stage 1) of the Eastern Freeway remains substantially intact. Apart from the bridges at Trenerry Crescent and over the Yarra River which were not built to the original MMBW concepts, the majority of the main sequence bridges have been retained without significant modification. Only the easternmost bridge at Bulleen Road has been substantially altered to accommodate the widening of Bulleen Road. Within the western group of bridges at Clifton Hill, the Hoddle Street bridge is presently implicated in construction works.

The design of the Doncaster Road to Springvale Road section of the Eastern Freeway (Stage 3; 1997) is of note for the level of professional recognition and acclaim it received. The best-known aspect of the design was a system of sculptural sound barriers achieved in curved form precast concrete panels designed by Wood Marsh architects with Pels Innes Nielson Kosloff. The concrete wall units are realised in several different constructed textures, finishes and tones, and are articulated in a series of returned curves, with the unit type changing at each return in the sequence (Zerrillo, 1999: 356). The height of the panels also varies between curves. The precast concrete barriers are closely integrated into topographic design of the highway extension, including various landforms designed by Tract Consultants. Polycarbonate sound barriers were also employed on a more limited basis, both independently and as a topping to the concrete units in some stretches of the extension.

Working in conjunction with a much more elaborated native planting design (by Tract) than was employed in previous stages of the Eastern Freeway, the noise barriers were the centrepiece of the design. The noise walls were awarded the RAI A (Victorian Chapter) Victorian Architecture Medal and the Joseph Reed Award for Urban Design (1998), the national RAI A's Walter Burley Griffin Award for Urban Design, and the Australian Native Landscapes Project Award from the AILA (Heritage Alliance, 2008: 263).

The Doncaster Road to Springvale Road (Stage 3) project also included the construction of several pedestrian overpasses of distinctive and successful design. Two bridges, at Koonung Road and Cabena Street, were designed by Sinclair Knight Merz with Gazzard Sheldon Architects, each employing a distinctive concrete arch

design to establish unique local landmarks. A third pedestrian overpass at Eram Road repeats the portal frame design of the Yarra Boulevard bridge (Stage 1) at a lighter scale, and includes an interpretation of the stone-faced sidewalls which were deleted from the original Stage 1 bridge.

The Heyington Avenue Footbridge was constructed in 1994 in advance of the Doncaster Road to Springvale Road (Stage 3) works. This striking cable-stayed structure was designed by the engineering firm Maunsell with architectural input from Brian Stafford and staff from contractor John Holland (Connal and Walsh, 1997) and won an award for engineering excellence from the Institution of Engineers. It features a curving cantilevered span, timber decking and coloured finishes.

The Hoddle Street to Bulleen Road (Stage 1; 1975-77) Eastern Freeway bridges group was assessed as of state significance in a 2008-2010 study of concrete bridges in Victoria produced by Gary Vines of Biosis Research Pty Ltd for the National Trust of Australia (Victoria), supported by VicRoads and Heritage Victoria. Vines identifies the bridges as being of historical, aesthetic, technical and social significance in Victoria, as well as comprising 'rare structural forms and designs', individually and as a group (HERCON categories A, B, E, F, and G) (National Trust Classification Report, 2009: 19-20). The bridges have not been nominated for the VHR or assessed by Heritage Victoria.

The Doncaster Road to Springvale Road (Stage 3; 1997) noise barriers were identified as of architectural and aesthetic significance in the Heritage ALLIANCE 2008 Survey of Post-War Built Heritage in Victoria. The study was a preliminary survey of post-war places of potential heritage value at a state level. This survey did not identify the earlier stages of the Eastern Freeway as significant.

Comment on significance: The Hoddle Street to Bulleen Road (Stage 1) of the Eastern Freeway in its entirety is considered to have heritage significance, potentially at the state level, for its design qualities. The freeway is also of some historical interest for its association with the local protest movement.

From an aesthetic/design perspective, the Hoddle Street to Bulleen Road (Stage 1) section of the Eastern Freeway was important in the history of freeway design in Victoria, in that it marked a shift towards an integrated architectural, urban design and landscape solution and set a new design standard in the state, if not more broadly, one which placed a high value on the experience of the road user and used consistent or related materials and design motifs. The key elements of the original design of stage 1 of the Eastern Freeway have been maintained and the aesthetic qualities remain, although they have received limited critical recognition.

While not the first of Melbourne's freeways, the planning and construction of the Eastern Freeway was the focus of significant public opposition and debate from the early 1970s. The movement against the freeway borrowed from earlier opposition movements and reflected a growing consciousness of the value of inner city suburbs, which has previously been dismissed as slums. This movement was not unique to the Eastern Freeway and reflected broader anti-freeway sentiment and social change.

As noted, the Vines/National Trust report (2008-2010) also assessed the Stage 1 Eastern Freeway bridges group as being of *technical* significance:

- For their innovative designs and prestressing technology, in site-specific contexts, particularly in their use of new and distinctive engineering approaches, designs and technologies such as rigid frame prestressed box girders on the Yarra Boulevard and Yarra Bend bridges
- For the long span bridges at Yarra Boulevard, Belford Road and Yarra Bend Road (3rd, 4th and 6th longest after the West Gate Bridge and Bolte Bridge)
- For the railway bridge as the second pre-stressed concrete railway bridge in Victoria, the first cast in situ pre-stressed concrete bridge in Victoria and the largest pre-stressed concrete rail bridge in Victoria.

In relation to this assessment it is commented that while a number of design or construction characteristics of interest, the relative importance of these characteristics in the broader historical context of concrete bridge design is not as clear. In addition, for some aspects of design, the National Trust assessment notes there are other precedents in Victorian and interstate engineering. Other aspects, such as the long spans of a number of the bridges, are not unique in a state context and there are much longer examples (West Gate Bridge and Bolte Bridge).

Stage 1 of the Eastern Freeway has been assessed in impact assessment.

Subsequent stages of the Eastern Freeway (Bulleen Road to Doncaster Road, Stage 2; Doncaster Road to Springvale Road, Stage 3) are of interest in terms of the further development of the freeway but are not considered to be of heritage significance. In terms of design quality, it is recognised there are a number of elements within or related to the Doncaster Road to Springvale Road (Stage 3) works which are distinctive and notable in terms of their design. However, rather than being unusual in the metropolitan context, these structures reflect on contemporary expectations of design quality as part of the delivery of major urban infrastructure. This is in contrast to the more ground-breaking and influential role of the Hoddle Street to Bulleen Road (Stage 1) Eastern Freeway works. Accordingly, Stage 2 and Stage 3 of the Eastern Freeway are not assessed further in this impact assessment.

Yarra River and environs

Section 6.1 above discusses unlisted places of potential heritage significant in the Yarra River and environs.

Sentinel

Sentinel is a 13-metre high painted steel sculpture at the Doncaster Road exit of the Eastern Freeway, shown in Figure 6.55. The sculpture was created in 2000 by renowned artist Inge King (1915-2016). The sculpture represents the Mullum Mullum and Koonung creeks in its curved forms and the municipality in the bright blue oval form (<<https://www.manningham.vic.gov.au/sentinel>>, accessed 18 May 2018). King was a resident of the municipality, having worked from her Warrandyte home and studio until her death.

German-born King migrated to Australia in 1951 after studying in London and Glasgow (<<https://www.smh.com.au/entertainment/art-and-design/australian-sculptor-inge-king-dies-aged-100-20160424-godze4.html>>, accessed 18 May 2018). Her sculptures adopt monumental forms, exemplified by one of her best-known works *Forward Surge* (1981) located on the lawn to the Melbourne Arts Centre. *Forward Surge* is included in the VHR (VHR H2378). Other examples of King's roadside sculptures include *Red Rings* (2008) on Eastlink.

Sentinel is one of a group of sculptures created by King which features a black painted finish to the steel fabric offset by other colours (Heritage Victoria, VHR H2378), including *Shearwater* (1994) and *Grand Arch* (2001).

This is a relatively recent work by Inge King and less significant when compared with King's other more major works. It is not considered to be of heritage significance and is not assessed further in this impact assessment.

However, it is noted that *Sentinel* was designed specifically for this location and there is likely to be a sensitivity related to the placement of the work.



Figure 6.55 Sentinel (2000) artist Inge King, located at the Doncaster Road exit of the Eastern Freeway

Orchard (former), Park Road, Donvale

This former orchard was noted as being of interest in the Doncaster and Templestowe Heritage Study (Peterson & Context, 1991). The orchard site was replanted after the construction of Eastlink on a reduced allotment and is not considered to be of any heritage value.

Remnant Monterey Pines, Manningham

The slopes north of the Eastern Freeway between Tram Road and Springvale Road contain scattered remnants of Monterey Pine windbreaks which were historically a dominant landscape feature of this area. Planted to shelter the extensive orchards which formerly operated throughout Manningham and northern parts of Boroondara and Whitehorse, these small remnant stands of trees have been retained following residential subdivision and the construction of the Eastern Freeway, and are now found largely within public parklands abutting the freeway.

Monterey Pine windbreaks and plantations have long been recognised by the City of Manningham for their local heritage value. The 2003 Manningham Monterey Pine and Cypress Tree Assessment (Michael Smith Landscape Architecture & Urban Design, 2003) identified and developed management policies for the conservation of these trees, of which hundreds exist throughout the municipality. Statutory controls have been applied to some of the more intact plantations through the HO and SLOs of the Manningham Planning Scheme.

The majority of Manningham pine stands within the Eastern Freeway section of the historical heritage study area are on high ground north of Koonung Creek, where they would generally be remote from North East Link construction works. No controls have been applied to the pine stands located directly north of the Eastern

Freeway, which are generally located on public land and are more fragmentary than the recognised examples elsewhere in the municipality.

Those trees located within areas where North East Link construction works would occur are:

- Near Windella Quadrant, midway between Tram Road and Wetherby Road
- East side of Wetherby Road, north of Koonung Creek, adjacent to the Wetherby Road Archaeological Site
- North-east of Koonung Creek, near the intersection of Cabena Street and Darvall Street.

Windella Quadrant pine trees: A small number of mature trees in a north-south row approximately 40 metres in length, located south-west of the Windella Quadrant access to the Koonung Creek parklands. This site has only been assessed in desk review from aerial imagery. This boundary planting appears as an incomplete/broken line of immature trees on c. 1945 aerial photography, and is unlikely to have presented as a major landmark or landscape feature in the local area. Within the row, instances of crown decline or dead individuals are apparent from current satellite imagery. Given the limited scale and integrity of the feature, these plantings are not considered to be of heritage significance.

Wetherby Road pine trees: These pines may be the remains of a planting visible on c. 1945 aerial imagery as two informal, diagonal rows of trees running south-west to north-east adjacent to land which in 1945 aerial photography was not in use as an orchard. The planting is of low integrity, consisting of a small number of trees located in clusters adjacent to Wetherby Road, as well as additional specimens located downslope away from the roadway. Given the low integrity of these plantings they are not considered to be of heritage significance.

Pine trees north-east of Koonung Creek, near Cabena Street: This pine plantation shown in Figure 6.56 consists of two north-south rows of trees, and several additional diagonal rows. One of the north-south rows may represent a pre-1945 planting; the other rows are more recent and may have been planted after commercial orcharding ceased on adjacent parcels. The condition of the trees in this plantation is relatively poor and due to the short length of the rows, their position in the terrain and the preponderance of newer plantings, the plantation is not highly legible as a landscape heritage feature. The Pine plantation near Cabena Street is of only limited heritage interest and is not of heritage significance.



Figure 6.56 Pine plantation north-east of Koonung Creek

Remnant Pine windbreak, Yarrandoo Park, Whitehorse

Yarrandoo Park in the City of Whitehorse contains the remains of a Monterey Pine windbreak just south of the Eastern Freeway. The windbreak is shown in Figure 6.57 and Figure 6.58. The windbreak is associated with commercial fruit orchards that were typical of Box Hill, Blackburn North, and Mitcham throughout the first half of the 20th century. A review of a 1945 aerial photograph shows this windbreak early in establishment, indicating a potential planting date in the late 1930s.

Running perpendicular to the Eastern Freeway on the slope east of Koonung Creek (and crossing the creek at the south edge of the park), the Yarrandoo Park windbreak consists of a single row of approximately 30 trees. The integrity of the plantation has deteriorated towards its northern end adjacent to the Eastern Freeway, where it is more exposed to north-west winds. The remainder of the planting is generally in good condition for an open-situated windbreak of its apparent age. The plantation is understood to have been retained during construction of Stage 3 of the Eastern Freeway and integrated into the development of Yarrandoo Park.

Although associated with the same period and history of orcharding as the neighbouring City of Manningham, few remnant specimens and stands of Monterey Pine have been conserved in the northern part of the City of Whitehorse. Historical aerial photography suggests that compared with Manningham, in Whitehorse pine windbreaks were less frequently used, but those that were established would nevertheless have been a substantial feature of the local landscape during the fruit-growing era.

The Yarrandoo Park windbreak appears to be a relatively intact and significant example of what was once a landscape feature employed throughout the northern part of the City of Whitehorse in association with commercial orcharding. On this basis, the windbreak is considered to be of local historical significance.



Figure 6.57 Yarrandoo Park Pine windbreak looking east



Figure 6.58 Yarrandoo Park Pine windbreak

Potential places and precincts identified in Kew East and Mont Albert

A number of residences and precincts have been identified as having local heritage significance in Context Pty Ltd, *City of Boroondara Municipal-Wide Heritage Gap Study Volume 5: Kew East and Mont Albert*, a study which is presently in draft form and has yet to be adopted by Boroondara City Council or enacted via a planning scheme amendment. Where these potential places are located within the historical heritage study area, they have been listed in Table 6.17.

Potential places identified by Whitehorse City Council

A number of residences and other structures have been identified as having the potential to have local heritage significance in an internal list maintained by Whitehorse City Council. Where these potential places are located within the historical heritage study area, they have been listed in Table 6.17 above.

24 Orion Street, Balwyn North

This butterfly-roofed modernist house is shown in Figure 6.59. The house was identified in the Balwyn & Balwyn North Heritage Study (Built Heritage, 2015: 93-96) and recommended at that time for inclusion in the HO. The house is identified in that study as being of local significance for its architectural characteristics, and for a specific association as the first and only known independent commission of Davis Bité. Bité, a Lithuanian émigré who designed the house at 24 Orion Street c. 1958 while still a student at RMIT, later achieving local and international recognition as an architectural renderer and as a design architect and director in the office of Peter McIntyre.

Positioned on an elevated, triangular parcel at the corner of Orion Street and Libra Street, and facing north across Orion Street to the corridor of the Eastern Freeway, the house is of a split-level design with a distinctively pitched and asymmetrical butterfly roof, with two roof planes sloping inward to a central box gutter. The house is described as being substantially intact, with only minor changes to its two street frontages and a rear addition which is not visible from the street.

The house is located near to where construction works for North East Link are proposed in the Orion Street Road Reserve, but these works would not be expected to impact on the property and/or pose any other physical impact to this potential heritage place. It is proposed the North East Link works would replace the

existing noise wall with a structure of similar scale and type and there would be no adverse impact on the house's architectural or associational values. The house is not further assessed in this impact assessment.

National Trust of Australia Register of Significant Trees

The National Trust of Australia maintains a Register of Significant Trees, a non-statutory list of trees recognised for various physical and cultural qualities, including heritage values. One tree included on this register is located within the Eastern Freeway section of the historical heritage study area and is listed in Table 6.17 above.



Figure 6.59 The house at 24 Orion Street, Balwyn North

7. RISK ASSESSMENT

A risk assessment of North East Link activities was performed in accordance with the methodology described in Section 5. The risk assessment has been used as a screening tool to prioritise the focus of the impact assessments and development of EPRs. The risk pathways link project activities (causes) to their potential effects on the environmental assets, values or uses that are considered in more detail in the impact assessment. Risks were assessed for the construction and operation phases of North East Link.

The identified risks and associated residual risk ratings are listed in Table 7.1. The likelihood and consequence ratings determined during the risk assessment process and the adopted EPRs are presented in Appendix A.

Table 7.1 Historical heritage risks

Risk ID	Potential threat and effect on the environment	Risk rating
Construction		
Risk HH01	Construction works and permanent infrastructure have a direct physical and/or visual impact on VHR-listed places of state significance with an adverse impact on heritage values	Low
Risk HH02	Construction works and permanent infrastructure have a direct physical and/or visual impact on heritage places listed in the planning schemes with an adverse impact on heritage values	Planned (major consequence)
Risk HH03	Construction works and permanent infrastructure have a direct physical and/or visual impact on places of potential heritage significance but with no statutory controls with an adverse impact on heritage values	Planned (moderate consequence)
Risk HH04	Construction work or the establishment of construction sites disturbs historical archaeological sites listed on the Victorian Heritage Inventory (eg Yarra Bend Park H7922-0142)	Planned (minor consequence)
Risk HH05	Construction works or the establishment of construction sites disturbs unidentified historical archaeological sites	Medium
Risk HH06	Vibration or ground settlement as a result of construction works causes damage to significant buildings or structures	Low
Risk HH07	Changes to groundwater conditions including groundwater drawdown cause damage to significant trees and landscapes as part of heritage places	Medium
Operation		
Risk HHO8	Changes to groundwater conditions including groundwater drawdown cause damage to significant trees and landscapes as part of heritage places	Medium

8. IMPACT ASSESSMENT

The locations of all places considered in this impact assessment are shown in the mapping at the end of this Section 8, from Figure 8.13 to Figure 8.21.

This section describes the impacts that have the potential to impact on historical heritage assets, values and uses from the construction and operation of North East Link.

8.1 Impact on VHR-listed heritage places (HH01)

8.1.1 Banyule Homestead, 60 Buckingham Drive, Heidelberg

Table 8.1 Heritage controls, Banyule

Legislation	Relevant VHI/VHI/HO number
Heritage Act	VHR H0926
Planning and Environment Act	HO13 (Banyule)

Discussion of heritage impacts

Construction

While Banyule Homestead is close to the proposed North East Link tunnelling works as shown in Figure 8.15 at the end of this Section 8, no works are proposed within this VHR-registered heritage place. This assessment has considered the potential for indirect impacts arising from the nearby tunnelling works (risk HH01).

Technical report D – Tunnel vibration assessed the risk of damage to buildings from vibration from tunnelling works to be low. No impact was projected to the heritage buildings at Banyule.

Technical report M – Ground movement assessed the risk of ground movement from tunnelling to impact on Banyule Homestead to be negligible.

The relevant NV and GM EPRs would apply to tunnelling works to address any potential risks of vibration and ground movement impacts. There would be a requirement to consider potential impacts on Banyule Homestead.

Refer to Section 8.5 for a discussion of potential vibration and ground movement impacts from the construction of North East Link.

The impact assessment also considered the potential for an adverse impact on the heritage values within the study area due to changes to groundwater conditions from the construction of North East Link (risks HH01 and HH07 and HH08). Refer to Section 8.6 for a discussion of groundwater drawdown during construction.

While some degree of groundwater drawdown has been identified in current modelling for the upland area in the vicinity of and including Banyule Homestead, Technical report G – Arboriculture concluded there is no risk of impacts on cultivated trees from groundwater drawdown effects.

Operation

Refer to Section 8.7 for a discussion of groundwater drawdown during operation. While some degree of groundwater drawdown has been identified in current modelling for the upland area in the vicinity of and including Banyule Homestead, Technical report G – Arboriculture concluded there is no risk of impact to cultivated trees from groundwater drawdown effects.

Recommendations

Refer to Section 8.5 for a consideration of construction vibration and ground settlement.

8.1.2 Heide I and Heide II, 5 and 7 Templestowe Road, Bulleen

The Heide Museum of Modern Art comprises two key elements: Heide I, an 1870s timber house and associated garden, and Heide II, the residence constructed in 1964-67 for the artists and art patrons John and Sunday Reed. Heide II also includes a developed garden, park, and cow paddock setting.

While Heide I and Heide II are co-located and under the same management, they are subject to separate heritage listings under the Heritage Act, and the Planning and Environment Act. These heritage controls are listed in Table 8.2.

Table 8.2 Heritage controls, Heide I and Heide II

Legislation	Relevant VHI/VHI/HO number
Heritage Act	VHR H0687 – Heide I VHR H1494 – Heide II
Planning and Environment Act	HO160 (Manningham) Heide I HO161 (Manningham) Heide II

Heritage considerations

The VHR documentation for Heide I and Heide II includes two separate statements of significance and registered extents. These extents are shown on Figure 8.1 and at Figure 8.16 at the end of this Section 8.

The VHR statement of significance for Heide I identifies the following key aspects of significance:

- Early farmhouse, modified by art patrons, John and Sunday Reed
- Of national significance for its association with John and Sunday Reed
- One of a small number of focal points around Melbourne for discussions concerning and experimentation in the arts.

The extent of the VHR registration for Heide I is the 1870s timber house and the whole of the designated land at 5 Templestowe Road.

The VHR statement of significance for Heide II identifies the following key aspects of significance:

- Historical and cultural importance (combined home and art gallery of pioneering modern art patrons, John and Sunday Reed)
- Architectural significance
- Archaeological significance (remains of Ricardo House, now removed)
- Landscape aesthetic significance (planted parkland)
- Horticultural significance (collection of exotic trees, some rare in cultivation).

In contrast with Heide I, the VHR documentation for Heide II has a detailed list of registered buildings, trees and other elements on the site.

In 2014, a Conservation Management Plan (CMP) was prepared by Lovell Chen (for Arts Victoria and the Heide Museum of Modern Art) for Heide I and Heide II.

While subject to two separate registrations, the CMP took the approach that Heide I and Heide II are inextricably linked through the Reeds' occupation and use of the site and there are significant common values. Accordingly, the CMP included a combined statement of significance. The statement was prepared having regard for the existing Heritage Victoria statements for the two registered places, as well as their shared values. In combination, Heide I and II were assessed as of *historical, aesthetic, architectural, scientific (research), social and spiritual significance* to Victoria. The CMP also found that the place is potentially of *historical significance* to Australia.

It is noted that while the CMP statement of significance is more current, it has not been endorsed by Heritage Victoria nor the Heritage Council, and the two individual VHR statements of significance remain relevant.

Building on the statement of significance, and supporting analysis, the CMP identified areas, elements, attributes and fabric—built and landscape—which contribute to the heritage values of the Heide Museum of Modern Art. Recognising not all their elements contribute equally to significance, the elements were divided into levels of significance:

- Primary significance (generally relate to the Reed’s period of ownership)
- Contemporary significance (of recent origins, includes some reconstructed elements and those that support the operation of the museum)
- Little or no significance and intrusive elements.

The majority of built and landscape elements were assessed as being of primary or contemporary significance in the CMP. For those of primary significance, the CMP recommended retention and conservation in accordance with Burra Charter principles. In the case of contemporary significance, the CMP stated a preference for retention and conservation, although there is flexibility to accommodate change.

From a heritage perspective, the elements of primary significance are more critical. These are listed in Table 8.3.

Table 8.3 Primary significant elements, Heide

Type	Areas, elements, attributes and fabric
Built	Heide I Doll’s House Heide II including furniture and fittings
Collections	Artworks, library and archives
Access and circulation	Internal road linking upper and lower carpark
Landscape area and elements	Yingabeal (River Red Gum) Heide I garden Heide II park including the cow paddock and river interface Heide II kitchen garden Post and rail fencing

Discussion of heritage impacts

Construction

Consideration has been given to the potential for physical or visual impacts on Heide Museum of Modern Art from the construction of North East Link (risk HH01).

The North East Link tunnels would extend below registered land associated with Heide II, as shown in Figure 8.16 at the end of this Section 8. There would be no works within the extent of registration for Heide I.

The Manningham Road interchange south of Bridge Street would be near Heide I and Heide II. This interchange would connect North East Link to Manningham Road while maintaining access for eastbound and westbound traffic on Manningham Road. The interchange would consist of a combination of underground and surface infrastructure extending from Bridge Street to Golden Way. The alignment would need to be close to the surface at Bridge Street to provide adequate grades to facilitate the interchange.

It should be noted there are currently two design options for the Manningham Road interchange; the reference project and an alternative design:

- The reference project would have a minimum of 10 metres distance between the top of the tunnels and the ground surface at Bridge Street. Ground improvement may be required over the TBM tunnels in Banksia Park, north of Bridge Street. The interchange would include a northbound direct entry ramp to North East Link at Bulleen Road, at the southbound exit ramp terminal intersection located opposite Avon Street.
- The alternative design for the Manningham Road interchange would position the tunnels 2 metres deeper (12.5 metres) and feature a 'loop alignment' for the northbound entry ramp. Ground improvement works would potentially be required north of Bridge Street for the alternative design.
- The alternative option for location of the TBM retrieval site within Banksia Park would locate shaft(s) and a work compound north of Bridge Street, within the area in which ground improvement works may be required in the base case.

Refer to Chapter 9: Project description for more information on the proposed and alternative design for the Manningham Road interchange, and the alternative design for the TBM retrieval site.

Ground improvement works:

The potential impacts from ground improvement works within Banksia Park required for the reference project as well as the alternative design of the Manningham Road interchange were considered (HH03). Ground improvement works may be required at the southern end of the TBM tunnel, north of Bridge Street and a zone for these works has been identified for the reference project and the alternative design. If required, the type and location of ground treatment would be determined through the detailed design development of North East Link. While ground improvement would necessitate the surface clearance (including vegetation) of areas within Banksia Park, the impacts can be reduced by avoiding or at least minimising the effects on native vegetation and/or mature trees. Once complete, it is assumed that the disturbed area would be reinstated and replanted.

The ground improvement works would occur outside the extent of the VHR registration for Heide II but could see a change to the landscape character of the area of Banksia Park immediately abutting the south-west boundary of the heritage place. This property boundary with Heide II is not readily evident in a physical/visual sense in that there is no clear distinction in terms of vegetation or landscape character. This could change in the event that a substantial number of trees were removed from the Banksia Park side of the boundary.

In assessing the potential for an adverse impact on the heritage values of Heide I and II arising from these works, the following are important considerations:

- The affected land within Banksia Park is not part of Heide and has not been part of the site historically.
- There was previously a more distinct landscape edge; an aerial view from 1968 shows Heide fully landscaped by John and Sunday Reed but Banksia Park was almost completely clear of vegetation. Landscape in this area of Banksia Park dates from the c. 1970s and later.
- When the Reeds acquired Heide in 1934, it was a run-down dairy farm which had been extensively cleared and significantly denuded of trees (Lovell Chen, 2014: 10); the landscape character was developed by the Reeds.
- There has been a conscious effort in recent years to integrate new landscaping within Banksia Park with Heide and to create a 'softer' edge in this location.
- The broader area of Banksia Park has a relatively open landscape character, and a large sculpture *Helmet* (Tanya Court and Cassandra Chilton, 2007, not of heritage value) is located north of Bridge Street <<https://www.manningham.vic.gov.au/helmet>>.

It is clear that Heide has links to the broader Yarra River environs and contributes to this wider cultural landscape. This contribution was noted in the CMP (Lovell Chen, 2014: 39). While recognising its relationship to the wider riverine environment, however, Heide is understood as a contained heritage place comprising two individual VHR registrations with extents that do not include Banksia Park.

If ground improvement works resulted in a change to the landscape character within Banksia Park where it abuts the Heide site, this change would be evident at the boundary of Heide II where it would result in a heightened sense of an edge to the site. The change would be far more evident from outside the registered land (that is; in views from the carpark and Banksia Park) (Figure 8.2 and Figure 8.3) than from within (Figure 8.4), because of the relatively dense character landscape in this part of the Heide site. There would be no impact on the presentation of the registered buildings and structures across the site, nor would there be an impact on an appreciation of its significant landscape qualities or its connection to the Yarra River. The heritage values of the Heide I and Heide II would be unaffected.

Relevant to this issue, it is noted that the CMP for Heide considered the question of a heritage curtilage for the combined Heide I and II. The CMP recommended the temporary reserve south of 7 Templestowe Road (the lower carpark) also be incorporated into the VHR extent of registration (Figure 8.1), to allow for the consideration of any future development in this area. It did not recommend including further parts of Banksia Park.

The issue of ground improvement works in Banksia Park is also referenced in the impact assessment for the Yarra River and environs (refer to Section 8.4.4).

Alternative design option – TBM retrieval site in Banksia Park:

An alternative option to stage TBM retrieval north of Bridge Street, within Banksia Park, has been considered. This option would include the excavation of retrieval shafts and the clearing and operation of an associated construction compound. Some ground improvement works would continue to be required in this area. Once complete, it is assumed that the disturbed area would be reinstated and replanted.

Works associated with this option would extend over a somewhat longer period than those associated with the ground improvement works discussed above and the works and activities in Banksia Park would be visible from some locations within Heide. In the longer term, however, and assuming reinstatement of landscape character, the impacts would be comparable to those expected to result from ground improvement. Staging of construction activities would preferably be designed to limit the affected area and any associated tree loss, and to allow for landscape remediation works.

There would be no impact to the presentation or appreciation of Heide I and II from this alternative design option.

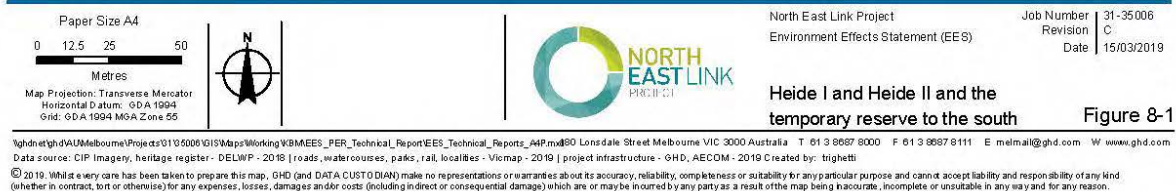
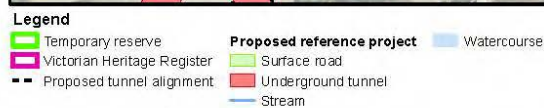
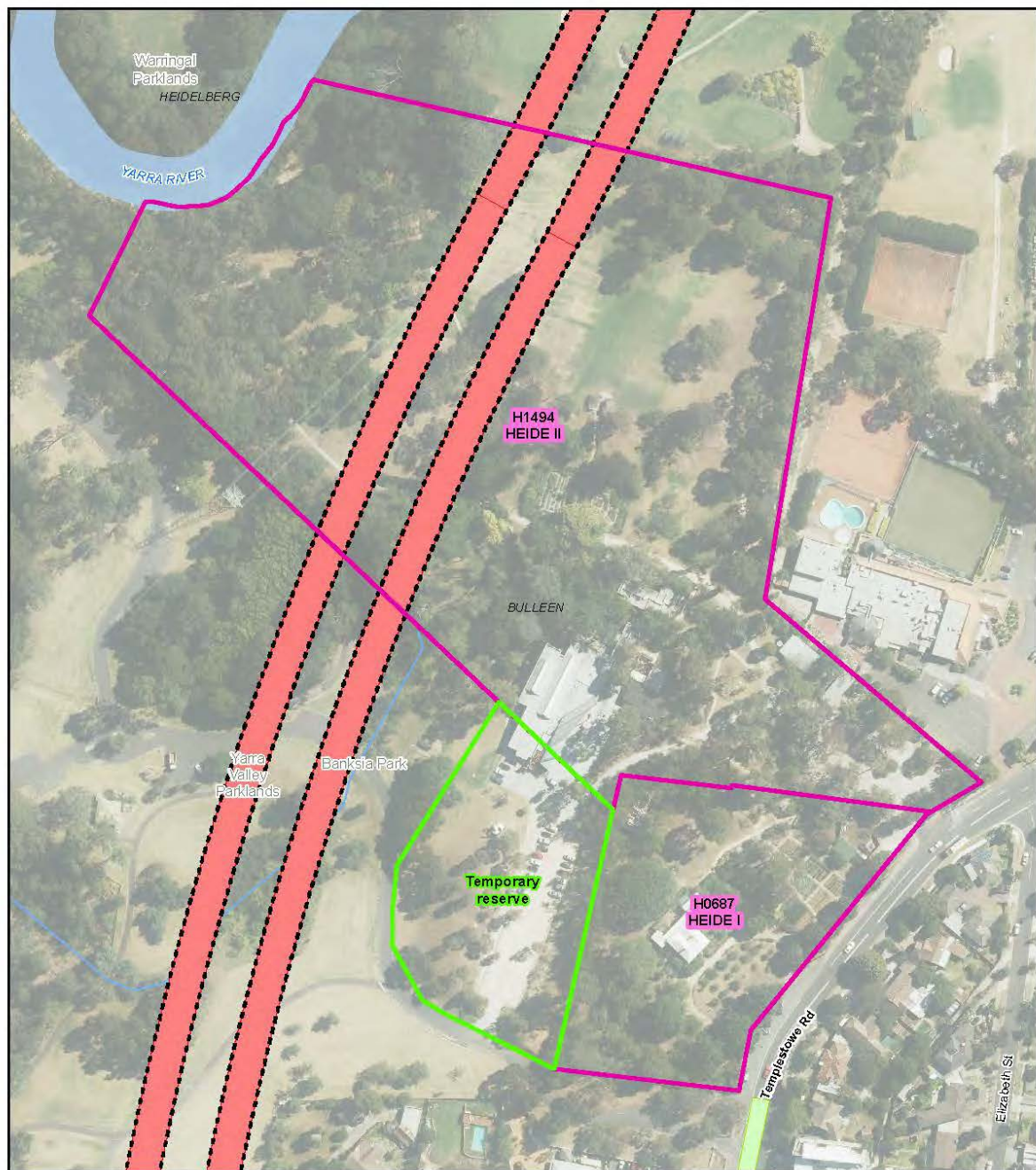


Figure 8.1 Heide I and Heide II and the temporary reserve to the south. The top of the image represents north.



Figure 8.2 View looking approximately west within Banksia Park (outside the boundary of Heide II)



Figure 8.3 View north from the lower carpark at Heide, taken from a point just outside the Heide II VHR extent. The boundary between Heide II and Banksia Park is within the stand of trees in the central part of this view



Figure 8.4 View south-west towards Banksia Park, from within the grounds of Heide II

Groundwater drawdown: The potential for groundwater drawdown as a result of the tunnels construction has also been considered; specifically the potential for changes in the groundwater conditions to have an adverse impact on the valued landscape qualities of Heide I and Heide II (risk HH01).

The modelling to 2024 shows changes to groundwater conditions north of Manningham Road, including within the Heide I site and the southern part of the Heide II site. The modelling for groundwater conditions during operation of the project also indicates changed groundwater conditions.

The landscaped grounds of Heide I and Heide II include extensive complements of mature exotic trees of heritage significance. Technical report G – Arboriculture concludes there is no risk of impact from groundwater drawdown to cultivated trees.

Technical report Q – Ecology identifies some risk of impact to ecological vegetation from groundwater drawdown occurring in threshold positions where existing groundwater is near the edge of the range in which it may be accessible to groundwater-dependent trees (primarily River Red Gum, *Eucalyptus camaldulensis*). One remnant River Red Gum of advanced age and size, known as ‘Yingabeal,’ is located within the grounds of Heide II. No groundwater drawdown at the location of this tree is anticipated in the modelling which is assessed in Technical report Q – Ecology.

Refer to the further discussion about potential groundwater impacts in Sections 8.6 and 8.7. While no adverse impact has been identified, EPR HH5 (heritage trees) applies to trees identified as registered as part of Heide II and other trees of significance as identified in the 2014 CMP (Lovell Chen, 2014, refer to Appendix F).

Vibration and ground movement: The potential for damage to heritage buildings and structures at Heide I and Heide II as a result of vibration or ground movement from the proposed tunnelling works for North East Link below and near the buildings and structures has also been considered (risk HH01).

The risk of impacts from tunnelling works is assessed in Technical report D – Tunnel vibration. The risk of damage to buildings along the tunnelled alignment has been assessed as low. No impact was projected to the heritage buildings at Heide I and Heide II.

Technical report M – Ground movement assesses the risk of impact to structures on the Heide site. Modelling and analysis identified two structures where there may be a risk of damage from ground movement; the artwork *Theoretical Matter* (1999-2000) and the small pavilion *Crescent House* (2013). More detailed second stage analysis determined that the risk of damage to *Crescent House* is Negligible to Slight, and the risk to *Theoretical Matter* is Negligible. Despite the low risk of damage, in both cases the relevant NV and GM EPRs apply and there would be a requirement to consider potential impacts on Heide (Heide I and Heide II) as a sensitive receptor.

Refer to Section 8.5 for a discussion of ground movement and vibration.

Visual impacts: Consideration was given in this report to the potential for adverse visual impacts from proposed North East Link permanent infrastructure in proximity to Heide I and Heide II (risk HH01). From a heritage perspective, the assessment is restricted to the potential for visual changes to have an impact on the identified heritage values of the place. In this context, no adverse visual impacts have been identified. The reference project and alternative design option for the Manningham Road interchange would be set away from Heide I and Heide II and additionally, the infrastructure is at grade or in cut, limiting its visibility. On this basis there is not considered to be any impact.

Operation

Groundwater modelling for North East Link during operation indicated that a change in groundwater conditions north of Manningham Road would result in a limited degree of groundwater mounding (a rise in groundwater levels). The mounding has been modelled as a rise in the range of 0.1 to 1 metres above current groundwater levels within the grounds of Heide I and Heide II. No potential impact to exotic or native vegetation has been identified as a result of groundwater mounding, as detailed in Technical report G – Arboriculture and Technical report Q – Ecology.

No other additional issues or impacts were identified for Heide I and Heide II during operation of North East Link.

Recommendations

Refer to Section 8.5 for a consideration of construction vibration and ground settlement and to Section 8.6 for consideration of changes to groundwater conditions.

8.1.3 Fairlea Women's Prison (former), Yarra Bend Road, Fairfield

Table 8.4 Heritage controls Fairlea Women's Prison (former)

Legislation	Relevant VHI/VHI/HO number
Heritage Act	VHR H1552 VHI H7922-0412
Planning and Environment Act	HO301 (Yarra)

Heritage considerations

While included in the VHR as the former Fairlea Women's Prison, this site historically was part of the Metropolitan Lunatic or Yarra Bend Asylum, the earliest asylum in Victoria (established in 1848). This was an extensive complex that in the 19th century covered a much larger area (Figure 8.5) of what is now Yarra Bend Park and is reflected in the VHI site H7822-0142 Yarra Bend Park Northcote 1 (see also Section 8.3.1). Following the closure of the asylum, the land later accommodated other institutions, including (on this particular site) the former Fairlea Women's Prison (1956-1996) (Figure 8.6).

More detailed information on the historical development of the present-day Yarra Bend Park area is provided in Appendix C – Land use history.

The VHR extent of registration for the former Fairlea Women's Prison is somewhat unclear. The official extent of registration does not reference a defined area of land, but rather, is defined by reference to particular structures that were formerly part of the Asylum complex (the infirmary wall and gate pillars). However, the infirmary wall is no longer evident as an above-ground structure, and a single gate pillar remains but has been relocated to a nearby location, outside the mapped extent of the place on Figure 8.19 at the end of this Section 8.

The location of the now-demolished structures referenced in the extent of registration could be confirmed through further research and investigation as they survived until the 1980s and were documented in a heritage assessment prepared in 1983 (Public Works Department, 1983). Accepting this, the extent of below-ground archaeological remains of these structures following their demolition is unknown. Rather than reference the demolished structures as the extent of registration, the preference would be to identify an appropriate area of land to be included in the VHR. It would be expected that Heritage Victoria could address this anomaly through a review and amendment to the VHR to include land associated with the place.

Setting aside the issue of the legal extent of registration, the place is registered as a heritage place and an archaeological place. Reflecting this, the values of the registered place are historical and archaeological, related to the association with the earlier Metropolitan Lunatic Asylum (established in 1848) rather than the Fairlea Women's Prison (1956-1996).

Relatively little is known of the archaeological potential of the site but it would be expected there would be evidence of earlier documented buildings and structures and potentially of other archaeological deposits associated with earlier land uses.

Discussion of heritage impacts

Construction

Works are proposed for a shared use path in the area affected by the VHR registration and consideration has been given to the potential for disturbance of significant archaeological features (risk HH01, risk HH04).

Within the current area mapped by Heritage Victoria, the works for the proposed shared use path are limited in terms of their scope, just skirting the southern edge of the former prison site and close to the existing path. The extent of subsurface disturbance for the works is yet to be confirmed but is not likely to be extensive.

While there is a risk that works may have an impact on archaeology, these impacts could be mitigated through archaeological investigation and management as required under the Heritage Act, and the partial realisation of the research potential of the site as a result of these actions.

Operation

No additional impacts are identified for when North East Link was operating. If required, any further future sub-surface disturbance would be subject to the approvals and management requirements under the Heritage Act.

Recommendations

Ensure works do not damage the relocated gate pillar. Where works involve subsurface disturbance, an archaeological management plan would be required to guide appropriate investigation and management of the site to the satisfaction of the Executive Director, Heritage Victoria. The relevant EPRs are HH1 (Design and construct to minimise impacts on heritage) and HH2 (Implement an Archaeological Management Plan to avoid and minimise impacts on historic archaeological sites and values).



Figure 8.6 1978 aerial showing the Fairlea Women's prison site at that date, including remnants of the Yarra Bend Asylum complex. The gate pillars and a section of wall were located on the curved Yarra Bend Road frontage and the former infirmary building is indicated with the red arrow.

Source: Land Victoria Historical Aerial Photography Collection.

8.2 Impact on heritage places listed in the planning schemes (risk HH02)

8.2.1 'Journeys End', 22-40 Bridge Street, Bulleen and Bridge Street Pine & Cypress Plantings, Bridge Street, Bulleen, HO25 (Manningham)

Table 8.5 Heritage controls Journeys End and Bridge Street Pine & Cypress Plantings

Legislation	Relevant VHI/VHI/HO number
Planning and Environment Act	HO26 (Manningham) – Journeys End
Planning and Environment Act	HO25 (Manningham) – Bridge Street Pine & Cypress Plantings

Heritage considerations

A remnant windbreak of Monterey Cypress and Monterey Pine extends along the north side of Bridge Street; this is in poor condition with boxthorn hedging interspersed. Two inter-war residences, White Oaks and Journeys End, are located on the north side of the street behind the windbreak planting. The eastern of these, Journeys End, has almost the full frontage to Bridge Street and includes a winding diagonal drive with some remnant cypresses. The two heritage overlay places, comprising the Journeys End residence and the Bridge Street Pine and Cypress Plantings, are shown in Figure 8.16 at the end of this Section 8.

The 1991 Doncaster and Templestowe Heritage Study (Peterson & Context, 1991: 30-32) and the Manningham Heritage Study (Context, 2006: 8) identified the two houses (described as 'Edwardian') considered together with the plantings as a forming a 'cultural landscape' which creates 'a link with the parkland along the Yarra River and with the garden trees from Heide I and II in Templestowe Road'. The trees on Bridge Street were described as forming 'a strong local landmark and accidental gateway composition with the Red Gum at the junction of Bridge Street and Manningham Road'.

The studies identified the grouping (the two houses and the trees on Bridge Street) as 'of local significance as a landscape feature'.

While referenced as part of this grouping, the eastern of the two houses, Journeys End, was also identified as of individual significance and that building has a separate assessment and citation in the 2006 study.

Manningham City Council's citation for Journeys End identifies it as of local architectural significance, with the following explanatory comments:

'Journeys End' is a timber double-storey Craftsman Bungalow. There is a dominant gable facing the drive with a cantilevered room (the former balcony) under the gable. Timber shingles clad the soffits and upper gables. A minor gable projects on the right-hand side. The roof is clad with Marseilles terracotta tiles. There is a verandah in the angle. All is now white painted. There is a serpentine drive lined by an avenue of cypress pines and an old post and wire fence on the south boundary with Bridge Street.

The landscape of the area is a significant survivor of 1920s to 1960s Templestowe, relatively intact and highly evocative. The house 'Journeys End' is a good large characteristic Craftsman Bungalow common in Camberwell and Malvern East, but rare in this municipality. The alterations are reversible and should be rectified.

A comparison is Tills house in Tills Drive (155.48) (Context, 2006: 9).

In the case of Journeys End, the HO includes tree controls in recognition of the driveway plantings. The HO schedule also references the entry gate on Bridge Street. There is a pair of gate posts remaining in place but the gates have been removed and are located adjacent to the southern pillar.

It is noted that aerial photographs from 1931 and 1945 appear to confirm both houses were constructed in the 1930s (they are inter-war rather than Edwardian). The 1931 aerial photograph in Figure 8.7 shows the sites before they were developed. The trees on Bridge Street appear on the 1931 aerial and pre-date the houses. The 1945 aerial photograph in Figure 8.8 shows White Oaks and Journeys End with perimeter plantings and the driveway plantings to Journeys End well established. An earlier residence at the corner of Bridge Street and Templestowe Road visible in both aerial photographs has been demolished and that site has been redeveloped.



Figure 8.7 1931 aerial showing the north side of Bridge Street, Bulleen, with the location of Journeys End and White Oaks indicated. The top of the image represents north. Source: Land Victoria Aerial Photography Collection.



Figure 8.8 1945 aerial showing the north side of Bridge Street, Bulleen, with the location of Journeys End and White Oaks indicated. The top of the image represents north. Source: Land Victoria Aerial Photography Collection.

It is important to note that the HO controls that were implemented did not adopt the characterisation in the 2006 Context study of this as a significant group or small precinct. Instead of applying HO to a wider area, the HO controls excluded the second residence, White Oaks and mapped the cypress and pine row and Journeys End as two separate HOs.

Journeys End has been inspected and based on this and the available views to the buildings from within the adjacent parklands, the approach to the application of the HO to one of the houses and not the other would appear to be based on the relative significance of the two buildings, and potentially also their intactness.

Figure 8.9 shows the apparent degradation of the Bridge Street Cypress row, and the alteration of the driveway plantings. Figure 8.10 shows Journeys End (HO26) and the Bridge Street Pine & Cypress Plantings (HO25) overlaid on an aerial photograph. Figure 8.11 shows the view into Journeys End (HO26) site from Bridge Street, Bulleen with the house end in the distance. Figure 8.12 shows the mature trees as part of the row on Bridge Street, Bulleen (HO25).



Figure 8.9 Bridge Street, Bulleen, showing the extent of the mature tree row on the north side, and the degraded driveway plantings to Journeys End. Source: Nearmap, accessed 4 April 2018.

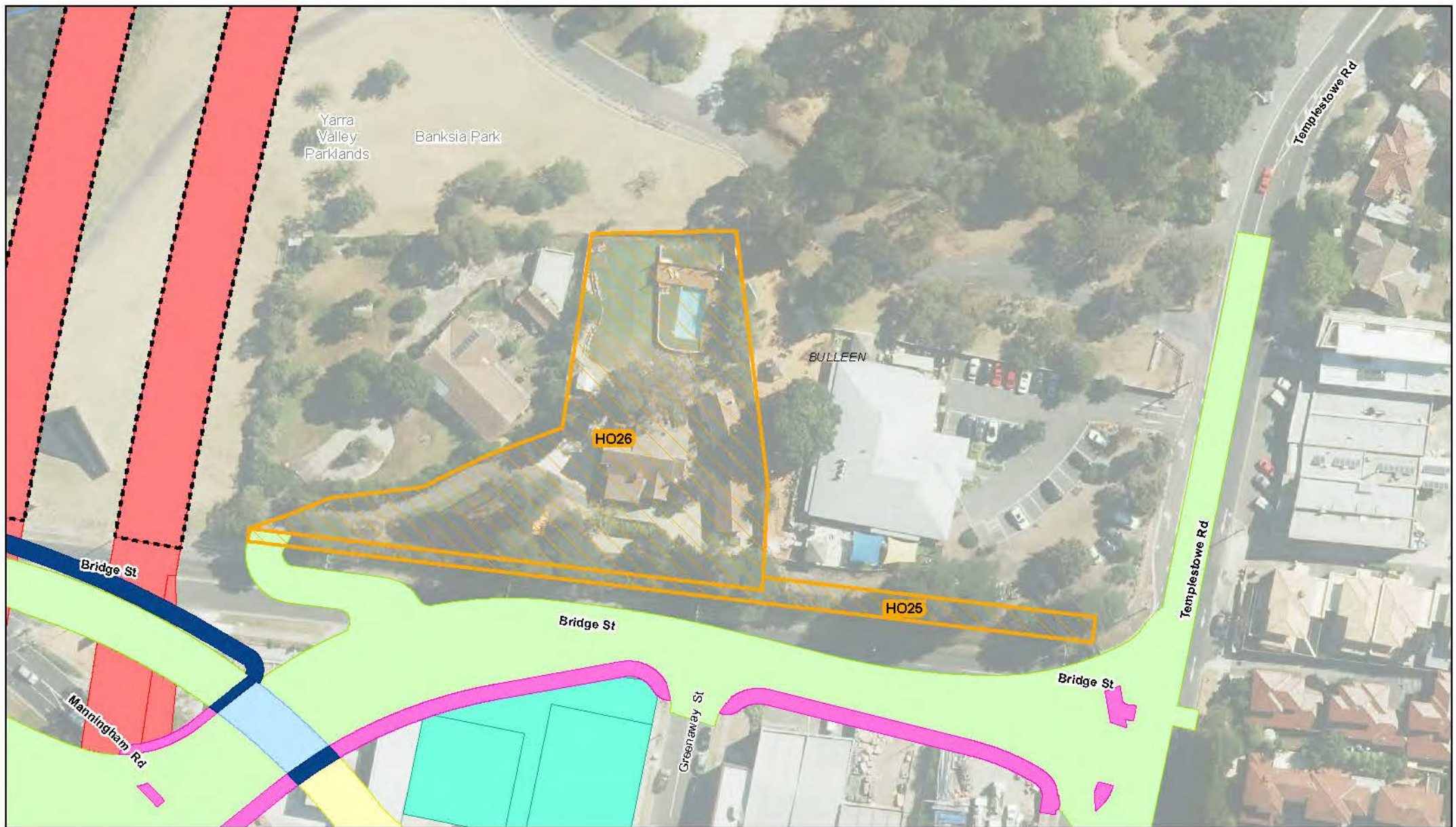




Figure 8.11 View into Journeys End (HO26) site from Bridge Street, Bulleen. The house itself is in the distance and the Journeys End entry gate pillars are central in this view



Figure 8.12 Remnant mature trees as part of the row on Bridge Street, Bulleen (HO25)

Discussion of impacts

Construction

While no works are proposed within Journeys End or the tree row in Bridge Street in the reference project for the Manningham Road interchange, consideration has been given to the potential for works to have a physical or adverse visual impact on one or both HO places (risk HH02). Both the reference project and the alternative design include works to realign Bridge Street which would occur in proximity to the two HO places.

In the reference project and the alternative design for the Manningham Road interchange, works would occur near the entry to Journeys End (and the adjacent property, White Oaks), to maintain access into those sites from an altered Bridge Street configuration. It appears likely that these works could be undertaken without a direct physical impact on the mature cypresses near the entry (part of the Bridge Street row) or the gates to the Journeys End property itself. Requirements for tree retention and arboriculture assessments would apply, as would the requirement for a tree protection plan. If direct physical impacts occur, consideration should be given to the broader management of the row and a tree replacement strategy if appropriate. Any mitigation measures should be developed having regard for overall condition and the outcome of any arboricultural assessments.

In terms of the heritage values of the places, no adverse visual impacts are expected from the permanent infrastructure for the reference project of the Manningham Road interchange nor for the alternative design.

There would be a change to the immediate setting of the tree row with the changes to the adjacent road layout for both design options, but this change is not considered to pose an adverse impact. Along with numerous other windrow plantings scattered throughout Manningham, the row would continue to provide evidence of earlier land uses and road layouts.

In relation to Journeys End, the house is not oriented on the site in a manner that directly addresses the street and is largely obscured from view. There would not be an adverse visual impact from the changes in the road layout in proximity.

The potential for damage as a result of ground movement (settlement) from tunnelling works in proximity has been considered in the Technical report M – Ground movement and the risk is considered negligible. Refer to Section 8.5 for a discussion of this issue and requirements for more detailed assessment, monitoring, mitigation and rectification measures.

The potential for construction vibration from tunnelling has also been considered and the risk to Journeys End is considered to be low. Refer to Section 8.5. No impact from other construction activities is anticipated.

Refer to Section 8.6 for a discussion of the potential impacts arising from changes to groundwater conditions. Technical report G – Arboriculture concludes that cultivated trees would not be expected to experience impacts from groundwater drawdown.

Ground improvement works required in this general area within Banksia Park are proposed to occur outside the two HO places and there would be no impact associated with these.

Recommendations

For the detailed design of North East Link, the works and construction methodology should be reviewed to avoid impacts on significant trees on the Bridge Street frontage (within the Bridge Street row HO25 or Journeys End HO26). If direct physical impacts occur, consideration should be given to the broader management of the row and a tree replacement strategy if appropriate. Any mitigation measures should be developed having regard for overall condition and the outcome of any arboricultural assessments.

Relevant EPRs are HHI (Design and construct to minimise impacts on heritage), AR1 (Maximise tree retention), AR2 (Tree Protection Plan), and AR3 (Tree Canopy Replacement Plan).

Refer to Section 8.5 for recommendations and relevant EPRs for ground movement and vibration and Section 8.6 for groundwater drawdown.

Operation

No additional impacts are identified for Journeys End and the Bridge Street Pine and Cypress Plantings, Bulleen, once North East Link is operating. Journeys End is located within an area which modelling shows would experience a degree of groundwater mounding due to the project. This mounding would be a rise in the range of 1-2 metres at Journeys End. Technical report G – Arboriculture identifies no potential for impact to exotic trees as a consequence of groundwater mounding.

While it is unlikely that significant trees would be impacted by the construction of North East Link, based on the recommendations for landscape protection below, in the event there were impacts it would be expected that landscape remediation works would be undertaken and over time the valued landscape character may be recovered.

8.2.2 River Red Gum, Bridge Street cnr Manningham Road, Bulleen

Table 8.6 Heritage controls River Red Gum

Legislation	Relevant VHI/VHI/HO number
Planning and Environment Act	HO24 (Manningham)

Heritage considerations

The location and extent of the HO24 overlay is shown on Figure 8.16 at the end of this Section 8.

The Bulleen area remained relatively rural into the mid-20th century and development was hampered by its isolated location: ‘bordered on all but its eastern side by watercourses, with only two bridges [and] no public transport which came near it’ (Bulleen, Victorian Places, accessed 4 May 2018). Fruit-growing and dairying were typical agricultural undertakings in the area. Suburban development increased in the post-war period.

Bridge Street between Bulleen Road and the Yarra River developed as a small commercial area in the post-war period, with businesses relating to light industry and motoring. By 1970, the Sands & McDougall directory listed a nursery, die-casters, food preservers, machinery hire, estate agents and two service stations (Sands & McDougall, 1970). The service station at the apex of what is now Bridge Street and Manningham Road was originally an Esso service station, later a Caltex, which was established on a previously undeveloped site in c. 1965-1970 (Sands & McDougall, 1965, 1970).

A large River Red Gum on the site was retained in the service station redevelopment and this remains today. Earlier aerials from 1931 and 1945 (refer to Figure C.23 in Appendix C) show the tree standing in relative isolation, suggesting a conscious decision to retain it when land around it was cleared.

The protection of trees in the Bulleen and Lower Templestowe area became a local issue in the late 1960s, as residential and commercial development increased in the area. Such was the interest in the subject, that by late 1967 the Doncaster & Templestowe Tree Preservation Society had 183 financial members (*East Yarra News*, 17 May 1967: 1). In 1969, as reported by secretary Mrs E Fullarton in the local newspaper, the Society undertook a survey of ‘notable trees’ in the area (*East Yarra News*, 13 December 1967: 3).

The issue had a good deal of currency locally. A number of articles in the *East Yarra News* reported on the protection or removal of mature gums and pine trees, and the local interest appears tied with an overall concern with the perceived loss of remnants of the area’s history. The local newspaper ran a campaign in late 1967 to ‘save tree slaughter’, inviting the formation of ‘vigilante groups to promote tree planting [and] report on any act of vandalism’ (*East Yarra News*, 20 December 1967:1). The campaign attracted the support of councillors, and the Mayor, Cr. Basil Elms, endorsed the theme ‘if you fell a tree – plant three’. Land developers were also required by the Doncaster and Templestowe Council to obtain a permit to remove trees and were obliged to plant a tree for each new block in a subdivision (*East Yarra News*, 20 December 1967: 3). The issue remained as development continued into the early 1970s, with a council meeting in 1971 resolving that a ‘canoe tree’ in a new subdivision in Gisborne Street, Bulleen, should be ‘saved for posterity’ (*East Yarra News*, 2 March 1971: 5).

In 1969, in a letter entitled 'last of the living gums', Mrs Fullarton wrote to the *East Yarra News* about the removal of river red gum in Potter Court, Lower Templestowe, while the retention of an 'old gum tree' was highlighted in an October 1970 report on progress of the Templestowe High School site (*East Yarra News*, 12 August 1969: 9; *East Yarra News*, 27 October 1970: 7). It is interesting to note a reference to Aboriginal people in Mrs Fullarton's letter, as a cultural reference and signifier of the age of the tree. The Tree Preservation Society was later renamed the Doncaster & Templestowe Conservation Society in 1970, with Mrs E Fullarton elected as president (*East Yarra News*, 1 December 1970: 17).

The Bridge Street tree has been recognised by the National Trust of Australia and is included in its Significant Tree Register. The register includes a historical references to a 'Mrs Fullarton' as responsible for saving the tree (National Trust, Significant Tree Register

<http://trusttrees.org.au/tree/VIC/Bulleen/Cnr_Bridge_Street_And_Manningham_Road> accessed 16 May 2018). If accurate, it is assumed this reference would be to the Mrs Fullarton of the Tree Preservation Society.

The River Red Gum was first identified in the Doncaster and Templestowe Heritage Study in 1991 (Peterson & Context, 1991: 34).

The tree was subsequently assessed by John Patrick Pty Ltd in the Manningham Heritage Garden and Significant Tree Study of 2002:

The National Trust (Victoria) Registered River Red gum located on the corner of Bridge & Manningham Roads, Bulleen is a fine example of remnant indigenous vegetation. Believed to be over 300 years old, it is of regional significance for its age and size and overall aesthetic value to the surrounding landscape (John Patrick Pty Ltd, 2002: 42-43)

The study also described the tree as 'forming a local landmark'.

The John Patrick assessment made a series of recommendations for management of the tree to improve its overall health.

The tree was also assessed in the Manningham Heritage Study (Context, 2006: 10) as of local historical and scientific significance:

Why is it Significant?

Of scientific (botanical) and historical significance for its very early age and as a rare specimen predating European settlement that provides evidence of the landscape at the time of first settlement by non-Indigenous people (Context, 2006: 10)

In summary, the various Council citations reference the heritage values of the River Red Gum as scientific, aesthetic and historical (the latter based on the age of the tree and its demonstration of pre-contact landscape).

In addition to these values, the original efforts to retain the tree and subsequent work to improve and maintain its health are likely to reflect on a high community value and potentially a level of contemporary attachment (social value), that is not explicitly recognised in the existing citations.

These potential community and social values may arise as a result of the age and size of the tree and its landmark qualities. Related to this, the tree bears a plaque which references the recognition by the former City of Doncaster and Templestowe of its heritage value and a commitment to work with Melbourne Water to maintain it.

The potential for the tree to have Aboriginal cultural significance was considered in Technical report L – Aboriginal cultural heritage. The tree was subject to an assessment as part of the preparation of the CHMP and the cultural values mapping exercise undertaken with Elders from the Wurundjeri. There was broad agreement between the Elders present that while this tree represents an important remnant landscape element there was nothing inherently culturally significant about the tree.

Discussion of impacts

Construction

The removal of the River Red Gum would be required to construct the Manningham Road interchange for the reference project as well as for the alternative design. Consideration has been given to the impact of this action on the values of the place (risk HH02).

The works would result in the loss of the tree and all associated heritage values. The tree has been variously assessed (by local councils and the National Trust) as of local and regional heritage significance and is a local landmark. From a heritage perspective its retention and protection would be preferred.

Operation

N/A

Recommendations

The relevant EPR is HH4 (archival photographic records).

In addition to the standard recording, a more tailored response to recording the history and cultural associations and meanings of the River Red Gum over time is being developed. This will consider the identified values of the tree, including its status as a local landmark and is likely to include a more detailed written history and the incorporation of oral history sources. This work is to be undertaken by NELP.

This would not mitigate the loss of the tree but would provide appropriate recognition of its significance.

8.2.3 Sites associated with the Yarra River and environs

There are three listed HO places which form part of the Yarra River environs.

- Archaeological site at the former Bulleen Drive-In
- Bolin Bolin Billabong, Bulleen Road, Bulleen
- Yarra Flats, 340-680 The Boulevard, Eaglemont.

Figure 8.17 and Figure 8.18 at the end of this Section 8 show the location of these places and their HO extents.

Table 8.7 Heritage controls for sites associated with the Yarra River and environs

Legislation	Relevant VHI/VHI/HO number
Planning and Environment Act	HO72 (Manningham) – Archaeological site Bulleen Drive-In (fmr)
Planning and Environment Act	HO30 (Manningham) – Bolin Bolin Billabong
Planning and Environment Act	HO134 (Banyule) – Yarra Flats

As previously commented, the former Bulleen Drive-in (HO72, Manningham) is the site of the now-demolished Hoyts Bulleen Drive-in. All that remains of the former kiosk structure is a concrete ground slab. Aerial imagery indicates there is an exotic planting along the northern site boundary, though the age and significance of this is unknown. Despite investigations, the basis for inclusion on the HO remains unclear, other than for a general potential for Aboriginal archaeological values (Ellender, 1991: 67). As a largely cleared site, its contribution to the broader Yarra River environs as a cultural landscape appears to be of limited value, other than for the natural vegetated river edge which continues to the north and south.

Bolin Bolin Billabong (HO30, Manningham) is a place with natural and Aboriginal cultural heritage values but no identified historical heritage values.

A registered Aboriginal cultural heritage place is present within the Bolin Bolin Billabong curtilage along with an Aboriginal historical reference. The precise nature and extent of the historical reference is yet to be determined and would be dealt with in greater detail through the development of the Aboriginal Cultural

Heritage Management Plan (CHMP) for North East Link. These values are currently understood to be restricted to the billabong itself and to land immediately to its north and west.

Yarra Flats (HO134, Banyule) retains evidence of early occupation (Aboriginal and post-contact agrarian) and this is seen in an Aboriginal scarred tree and exotic plantings of oaks and boundary plantings of hawthorn. The Yarra Flats also includes two billabongs, and these can be seen to connect to the wider network of billabongs to the south. The Yarra Flats is of local level historical, Aboriginal, aesthetic and social value, that latter relating to the connection of community groups dedicated to the revegetation of the parkland.

These three listed places all form part of the Yarra River environs and can be considered in that broader context of the continuous, albeit varied, cultural landscape of the Yarra Valley.

Discussion of heritage impacts

Construction

Consideration has been given to the impact of construction works within the former Bulleen Drive-in (risk HH02).

Construction may occur in this location subject to contractor requirements and this could include clearance and potential sub-surface disturbance. The vegetated riparian edge of the site would be retained and protected.

Permanent infrastructure is also proposed to be constructed within the site, in the eastern portion. This includes road in open cut and cut and cover tunnels, involving extensive ground disturbance. The effect would be to truncate the site on its eastern side.

The current understanding of the heritage values of this place, pending site investigations, is that these are likely to be limited to the potential for Aboriginal archaeological values to exist in the site and a general contribution to the Yarra River environs as a cultural landscape. Based on the limited information available and noting the fieldwork is yet to be undertaken, the contribution of the site to the historical heritage values of the Yarra River environs appears to be limited to the river edge interface itself.

While the former Bulleen-Drive-in site is listed as having Aboriginal heritage values it should be noted there are no formally registered Aboriginal cultural heritage places within the site. As noted earlier, it appears the listing derives from general statements made about archaeological potential by Ellender in relation to the broader Yarra River environment and to potential future works on this site (Ellender, 1991: 67). There is some potential for archaeological values to be present along the river frontage of the site where impacts associated with the construction of the drive-in would likely not have extended. That being said, the potential for significant Aboriginal cultural heritage values across the majority of this site is considered to be low given the likely impacts associated with the development of the drive-in. Aboriginal cultural heritage impacts would be managed through the CHMP process.

In terms of the place's contribution to the historical values of the Yarra River environs, the protection of the vegetation on the river's edge would ensure the landscape character of the river environs was maintained.

Permanent infrastructure for North East Link would be set well away from the Yarra River on land that has been cleared and previously developed for a drive-in complex. North East Link would be in tunnels or open cut roads and would not have any adverse impact on the identified values associated with the Yarra River and its environs.

Other potential historical heritage values associated with the site have yet to be confirmed, pending a site investigation.

While no works are proposed within the more sensitive Bolin Bolin Billabong, works would occur in proximity and consideration has been given to the potential for visual impacts on this HO place from works and permanent infrastructure in the surrounding area (risk HH02).

There would be changes to Bulleen Road in proximity to the billabong and North East Link would come to the surface in cut and cover tunnels to at grade roads to the south and east of the billabong. The closest part of the Bolin Bolin Billabong HO to these works does not include any significant features, nor is it accessible, having recently been redeveloped for a water storage facility. The proposed ventilation structures for the North East Link tunnels would be located to the south of the billabong (south of the Veneto Club). The ventilation

structures would each be up to 40 metres high but there would be very limited visibility of the structures from within the main billabong area and would not have an adverse impact on the experience or presentation of the place.

As noted above, the known or registered Aboriginal heritage values of this site are more closely linked to the billabong itself. While there is a high likelihood that Aboriginal cultural heritage values are likely more broadly spread across this site than the known registrations would suggest, there would be no direct impact to these values as no North East Link works are proposed within the site. Any such values would be documented by and, if impacts are expected to occur, managed through the CHMP. As noted earlier, a Cultural Values Mapping exercise is also underway with WWCHAC, concurrent with the CHMP, and this will provide a greater appreciation of Aboriginal cultural heritage values.

In the case of the Yarra Flats, there are no construction works for North East Link proposed within the site and any permanent infrastructure would be constructed across the Yarra River to the east of the site. Again, consideration has been given to the potential for visual impacts on this HO place from construction works and permanent infrastructure in the surrounding area (risk HH02).

The ventilation structure would be in relatively close proximity, albeit on the eastern side of the Yarra River. However, views out of the Yarra Flats site in this location are largely screened by existing trees and the ventilation structure would be unlikely to have any adverse impact on the presentation or experience of the heritage place.

All three heritage places fall partly within an area modelled for changes in groundwater conditions and consideration was given to potential adverse impacts as a result of these changes (risk HH07). Technical report G – Arboriculture concludes that cultivated trees would not be impacted by groundwater drawdown. The contribution of indigenous vegetation present along the riparian edge is also important, but Technical report Q – Ecology concludes this vegetation would be unlikely to be impacted by the modelled drawdown. However, the potential for groundwater drawdown to cause localised impacts to ecological vegetation at the eastern end of the Bolin Bolin Billabong wetland has been identified in Technical report Q – Ecology. Refer to the discussion in Section 8.6 for a discussion of potential impacts and mitigation measures.

To the south, the land to the east of the Yarra River comprises a mix of sporting facilities and parkland of no identified historical heritage significance. The ventilation structure for the North East Link tunnels would be visible in some views within these areas, but with no adverse impacts on the Yarra River environs.

Operation

No additional impacts for the Yarra River and environs are expected during operation of North East. The modelled groundwater drawdown at the east end of Bolin Bolin Billabong would be sustained once the project was operating. Refer to Section 8.7 for a discussion of potential impacts and mitigation measures.

Recommendations

It is recommended that significant vegetation in the Yarra River and environs is protected and retained and the requirements of the CHMP approved under the Aboriginal Heritage Act are complied with. The potential for historical archaeology should be recognised and protocols put in place for sites discovered during the construction of North East Link.

Relevant EPRs are AH1 (Comply with the Cultural Heritage Management Plan), HH2 (Implement an Archaeological Management Plan to avoid and minimise impacts on historic archaeological sites and values), AR1 (Develop and implement a Tree Removal Plan) and AR2 (Implement a Tree Protection Plan(s) to protect trees to be retained).

Where groundwater effects may interact with ecological vegetation associated with heritage values, the relevant EPRs identified in Technical report Q – Ecology are applicable: GW2, GW5, SW4, CL2, FF2, FF4, FF6.

8.2.4 Yarra River Protectorate Station site, Yarra River, Yarra Bend Park, Yarra Bend

Table 8.8 Heritage controls Yarra River Protection Station site

Legislation	Relevant VHI/VHI/HO number
Planning and Environment Act	HO307 (Yarra)
	ESO2 (Yarra)
Heritage Act	Yarra Bend Park Northcote 1, Yarra Bend Road, Fairfield HI H7822-0142

Heritage considerations

The Yarra River Protectorate Station site represents a combination of Aboriginal cultural heritage and historical archaeological values and broadly speaking encompasses the locations of the Merri Creek Aboriginal School, Yarra Protectorate, Native Police Corps Headquarters and associated burials of Aboriginal people. Reflecting its values, the place is covered by a Victorian Aboriginal Heritage Register listing (VAHR 7922-1185) which incorporates a number of previously separately registered items. The attachment to the intangible cultural heritage values of this site are current and strongly maintained by members of the WWCHAC.

The Yarra River Protectorate Station site is also covered by the requirements of the Heritage Act and is within a large VHI site (Yarra Bend Park Northcote 1, VHI H7822-0142). Refer to the discussion in Section 6.4.3.

The HO place does not have significant above-ground features or visual qualities, other than for its location at the river's edge. The extents of the HO place are included on Figure 8.19 at the end of this Section 8.

The site is also subject to a broader overlay ESO2 (Merri Creek Environs) in the Yarra Planning Scheme and this overlay also reflects on similar values of heritage and archaeology:

The Merri Creek is an environmental, heritage and recreation corridor that draws its significance from its role as a continuous corridor as it does from the qualities of individual reaches. All areas of the creek are important because they contribute to the linking of areas of environmental, heritage and recreational values along the creek ... The creek is the focus of a large number of pre and post-contact archaeological sites which, as a group, are highly significant. Many unknown sites are likely to exist and the areas likely to have the greatest density of these are sensitive to development (ESO2 statement of environmental significance).

Discussion of impacts

Construction

Consideration was given to the potential for adverse impacts on the values of the locally-listed Aboriginal heritage place (risk HH02) and the archaeological values of the broader VHI site, noting that archaeological values are also referenced under the ESO control (risk HH04).

Proposed works in this area do have the potential to impact on heritage values, but it should be noted that a substantial part of the area has been previously impacted through the construction of the Eastern Freeway which resulted in substantial cutting and a realignment of the Yarra River. As a result, North East Link construction works within the Eastern Freeway road reservation are extremely unlikely to have any physical impact of consequence. Refer to the discussion at 8.3.

A proposed wetland and shared use path have limited potential to impact Aboriginal cultural heritage and historical archaeological values given the relatively limited extent of these works and the previous widespread impacts associated with the construction of the Eastern Freeway. These limited impacts are likely to be managed and mitigated through the processes of archaeological investigation and consultation processes under the Heritage Act and the Aboriginal Heritage Act.

Operation

No additional impacts are identified for the Yarra River Protectorate Station site during operation of North East Link. If required, any further future sub-surface disturbance would be subject to the approvals and management requirements under the Heritage Act applicable to the VHI site.

Recommendations

Subsurface disturbance should be undertaken in accordance with an Archaeological Management Plan and the approved CHMP for North East Link under the Aboriginal Heritage Act.

Relevant EPRs are HH2 (Implement an Archaeological Management Plan to avoid and minimise impacts on historic archaeological sites and values) and AH1 (Cultural Heritage Management Plan).

8.2.5 English Oak, Doncaster Road (near Hender St corner), Doncaster

Table 8.9 Heritage controls English Oak

Legislation	Relevant VHI/VHI/HO number
Planning and Environment Act	HO42 (Manningham)

Heritage considerations

This specimen of English Oak (*Quercus robur*) is isolated in the footpath. It was apparently planted by a John Smedley who arrived in this locality in 1860 and is the only tree surviving from a row planting. Manningham City Council's citation references its value as a landmark. It is noted the tree is in a compromised location and in poor condition. The location and HO extent of the tree is shown in Figure 8.20 at the end of this Section 8.

Discussion of impacts

Construction

Consideration was given to the potential for construction activities to have a physical impact on the tree (risk HH02). Construction is expected in this location subject to contractor requirements. While it is considered to be of a relatively low level of local significance, any impact should be avoided through its protection within this site.

Operation

No additional impacts are identified for the tree during operation of North East Link.

Recommendations

Retain and protect the tree.

Relevant EPRs are AR1 (Develop and implement a Tree Removal Plan) and AR2 (Implement a Tree Protection Plan(s) to protect trees to be retained).

8.2.6 Archaeological site (Ref. VAS 7922/202), Wetherby Road eastern Cnr Eastern Freeway, Doncaster East

Table 8.10 Heritage controls Archaeological site

Legislation	Relevant VHI/VHI/HO number
Planning and Environment Act	HO181 (Manningham)

Heritage considerations

This site appears to have been listed due to the presence of a registered Aboriginal place located to the south and outside of the curtilage of the site. The listing has no known historical archaeological associations. The HO extent of the place is shown on Figure 8.21 at the end of this Section 8.

Discussion of impacts

Construction

It is proposed to locate a new detention basin in the far south-eastern corner of the site. The works would affect only a very minor area on the edge of the site.

Consideration was given to whether disturbance of the site is likely to have an adverse impact on its values (risk HH02).

The proposed works are peripheral to the main area of the site and do not approach the registered Aboriginal cultural heritage place. The potential for Aboriginal cultural heritage values to be impacted by the proposed works cannot be discounted, but these potential impacts would likely be limited and would be dealt with and managed through the CHMP for North East Link. The potential for impacts to historical archaeological values is considered to be extremely low given the limited extent of the works.

Operation

No additional impacts are identified for the archaeological site during operation of North East Link.

Recommendations

The relevant EPR is AH1 (Comply with the Cultural Heritage Management Plan).

8.3 Impact on historical archaeology (risks HH04, HH05)

8.3.1 Archaeological sites listed on the VHI

Table 8.11 Heritage controls Yarra Bend Park Northcote 1, Yarra Bend Road, Fairfield

Legislation	Relevant VHI/VHI/HO number
Heritage Act	VHI H7922-0412

Heritage considerations

This site represents a large listing incorporating the locations and potential archaeological remains of a number of separate historical activities including an infectious diseases hospital, a lunatic asylum, a VD Clinic, and women's prison. From 1926 the area was proclaimed a park and now forms Yarra Bend Park. Refer to the discussion in the land use history at Appendix C. The extents of the VHI place as it relates to the study area are depicted in Figure 8.19 at the end of this Section 8.

Discussion of impacts

Construction

The potential to disturb significant archaeology within the VHI site was considered (HH04).

Proposed works within this item are restricted to the construction of a shared use path and a small wetland and as such potential impacts area would likely be limited. The location of the proposed wetland is in an area which was heavily impacted during the construction of the Eastern Freeway and the associated realignment of the Yarra River. As such, impacts in this location would likely be negligible. The construction of a shared use path through this item may have some impacts, particularly as the path moves further east away from the Merri Creek crossing, but these impacts cannot at present be determined in relation to the known locations of structures and features associated with the historical use of the land. Figure 8.5 in Section 8.1.3 above suggests that features associated with the Yarra Bend Lunatic Asylum may overlap with the location of the shared use path. It should be noted that works undertaken for the installation of drainage infrastructure in 1996 exposed

in situ bluestone footings and associated artefactual material in the vicinity of these features, although the precise location of these works is unclear (VHI H7922-0188 Site Register Sheet).

While the works may have an impact on archaeological remains, they would be limited in extent and providing the disturbance is managed appropriately, it would be expected that any impacts could be mitigated by the realisation of the research potential of the site.

Operation

No additional impacts are identified to this archaeological site during operation of North East Link. If required, any further future sub-surface disturbance would be subject to the approvals and management requirements under the Heritage Act.

Recommendations

An archaeological management plan would be required to support a consent application and guide appropriate investigation and management of the site. The management plan would detail measures to avoid, minimise, mitigate and manage disturbance. It would include requirements for background historical research, excavation methodology, research design, reporting and artefact management and analysis, consistent with the Guidelines for Investigating Historical Archaeological Artefacts and Sites (Heritage Victoria 2015) and to the satisfaction of the Executive Director, Heritage Victoria.

The relevant EPR is HH2 (Implement an Archaeological Management Plan to avoid and minimise impacts on historic archaeological sites and values).

8.3.2 Unidentified archaeological sites

Heritage considerations

Broadly speaking, the potential for impacts to yet unidentified archaeological sites and places across the study area is considered to be relatively low. This consideration is based on the highly modified and urbanised nature of most of the study area where ground surface impacts would occur. The study area as a whole has been heavily impacted by road and other infrastructure construction and the development of suburbs.

Discussion of impacts

Construction

The risk for impacts to previously unidentified archaeological sites was considered (risk HH05).

In commenting on the nature of this risk, a substantial proportion of the currently and ostensibly undeveloped open space likely to be impacted by North East Link has been impacted through the development of public and private open space such as parks and playing fields. Undocumented features most likely to be impacted by North East Link comprise sites and features associated with the earlier pastoral occupation of what are now the eastern and northern suburbs of Melbourne. As the nature of this occupation was relatively dispersed, these remains, should they occur, are likely to be relatively localised in nature potentially surviving in small pockets of relatively un-impacted land.

Operation

No additional impacts are identified for the unidentified archaeological sites during operation of North East Link.

In the event further future sub-surface disturbance occurred during operation of North East Link, the requirements in the Heritage Act to stop work and report archaeological discoveries to Heritage Victoria would apply.

Recommendations

A protocol should be developed in consultation with Heritage Victoria for managing previously unidentified historical archaeological sites discovered during the construction of North East Link. This would ensure that if impacts occurred, the adverse impact was mitigated through the investigations and management of the archaeology to realise the research potential of sites.

The relevant EPR is HH2 (Implement an Archaeological Management Plan to avoid and minimise impacts on historic archaeological sites and values).

8.4 Impact on unlisted places of potential heritage value (risk HH03)

8.4.1 Simpson Barracks

Heritage considerations

The location of Simpson Barracks is shown in Figure 8.14 at the end of this Section 8. It was identified in the Banyule Heritage Review (Context, 2012: 3, 40) as a place of potential heritage value. Within the Barracks site, the residence Aldermaston (former Ainslie Meares House) was assessed in the Heidelberg Conservation Study (Butler, 1985) as of state significance and in the Banyule Heritage Places Study (Allom Lovell & Associates, 1999) as of local significance. The Banyule Heritage Review (Context, 2012: 36) recommended it for the CHL. The house was nominated to the CHL (Place ID 106255) but has not yet been assessed or included in the CHL.

Simpson Barracks has also been the subject of a draft heritage assessment for the Department of Defence (Biosis and ERM, *Heritage Assessment for Simpson Barracks*, unpublished draft, prepared for Department of Defence, 21 November 2017). This draft study identified a level of historical significance applying to the place as a whole. It also identified two significant buildings; the residence Aldermaston and the former communications facility, Building 147, albeit both these buildings are outside the historical heritage study area. None of the other buildings on the site were assessed as of significance and none of the landscaping was assessed as of significance for historical heritage reasons.

Simpson Barracks as a whole was assessed as meeting CHL criterion A, reflecting historic heritage values at a local level. In addition:

- The residence Aldermaston has been assessed as meeting criterion A, E, G and H; historic, aesthetic, associational values. Aldermaston is outside the study area.
- The former communications facility Building 147, has been assessed as meeting CHL criterion A and B, demonstrating historic and rarity values at a local level. This building is also located outside the study area.

The VWHI also includes reference to Simpson Barracks as a whole and the residence Aldermaston, as well as to the Watsonia Simpson Barracks Memorial in Watsonia.

While not referenced in the Biosis and ERM draft report, three additional elements associated with the defence use of the site were identified in the study area:

- Watsonia Simpson Barracks Memorial
- Assembly Place and Lone Pine Commemorative Plantings, south of Blamey Road
- 138 Signal Squadron (formerly Army Headquarters Signal Regiment) Flag Station and Memorial.

All three are considered to contribute to the local historical significance of Simpson Barracks. All three could also have contemporary social values due to their traditional uses and associations, which would also be at the local level.

Discussion of impacts

Construction

Consideration was given to the potential for the construction of North East Link to have an adverse impact on the heritage values of Simpson Barracks as a whole and the individual elements within the site (HH03). The assessment considered the potential for direct physical impacts and for other indirect impacts as a result of construction activities, as well as for visual impacts as a result of permanent North East Link infrastructure constructed on or near Simpson Barracks.

Simpson Barracks: North East Link construction works are proposed along the western edge of the Simpson Barracks site. Three temporary construction compounds are proposed: one at the north-west corner of the site, at Greensborough and Yallambie roads, a second on the south side of Blamey Road extending south along Greensborough Road and a third extending further south, also along the western flank of Greensborough Road.

Extensive cut and cover, at grade and elevated roads are proposed along the western edge of the site and extending into the site. The northern ventilation structure (up to 40 metres in height) is proposed to be located immediately south of Blamey Road, within the existing perimeter of Simpson Barracks. These works would change the landscape setting and context for the barracks.

The construction and operation of North East Link would also cause some changes to groundwater conditions. These would have the potential to impact on groundwater-dependent vegetation on the retained woodland areas on this western edge and could result in a thinning of this vegetation.

No impacts of note for Simpson Barracks were identified in the ground movement assessment. The closest building to the project is Building 1 (not a heritage building) and the impact from ground movement has been assessed to be negligible. No impacts were identified associated with surface or tunnel vibration.

Overall, North East Link would result in an evolution of the landscape setting and change in the context of Simpson Barracks, a place which has been assessed as having local historical significance. Specifically, the proposed actions would result in physical impacts to the western boundary of the barracks—directly through construction activities and permanent infrastructure alongside the Greensborough Highway and within the adjacent bushland area and creekline, and indirectly through the effects of groundwater drawdown which would intersect additional sections of the western bushland buffer of the barracks. The removal of some woodland trees and the construction works and permanent North East Link infrastructure on Commonwealth land on the western perimeter of Simpson Barracks would result in a significant change in terms of the excision of land along the western flank and new infrastructure nearby and a change in the setting and character of this area.

Recognising this level of physical change would result in an altered context for Simpson Barracks, the generalised historical values identified for the place as a whole would not be undermined by the change. These impacts would be restricted to the western boundary and to those buildings and facilities to which this area forms a backdrop or context, a fraction of the total complex.

The historical interest of Simpson Barracks as a major defence institution in the local area is not reliant on a particular physical/visual setting and there have been multiple changes to the extent and layout of the place. Additionally, the barracks is a military campus that has developed as an inward-looking community with a degree of anonymity and privacy from its surroundings. Views from within much of the barracks site, and particularly towards the west, are not considered of importance in a heritage context.

Individual elements: The impact on the heritage values of individual elements of significance within the Simpson Barracks site is also limited.

Previous assessments have identified two buildings of significance (Aldermaston and Building 147), neither of which is within the historical heritage study area. There would be no direct physical impact on either of these buildings. In considering the potential for visual impacts, the ventilation structure would be located some distance from the buildings and would have no adverse visual impact.

As part of this review, three additional elements of significance have also been identified within the study area:

- Watsonia Simpson Barracks Memorial
- Assembly Place and Lone Pine Commemorative Plantings, south of Blamey Road
- 138 Signal Squadron (formerly Army Headquarters Signal Regiment) Flag Station and Memorial.

Of these, the Assembly Place and Lone Pine Commemorative Plantings are located within a North East Link construction area and could be directly affected, while the potential for visual and indirect impacts was considered in the case of the Watsonia Simpson Barracks Memorial and 138 Signal Squadron Flag Station Memorial.

The Watsonia Simpson Barracks Memorial on Blamey Road would be proximate to North East Link construction works. However, this memorial is no longer actively used as part of the official ANZAC Day service at Simpson Barracks, and its context has previously undergone substantial changes as a result of the recent development of a new gatehouse facility. The current level of visual and physical access to this place would be maintained, as

would any casual use or private interest in the memorial that may sustain some degree of social attachment or significance for the place. No adverse impact is identified.

Construction of the northern ventilation structure for North East Link south of Blamey Road could have a direct impact on the Assembly Place and Lone Pine Commemorative Plantings. The elements comprising the Assembly Place including the mound, flagpole, commemorative tree plantings and associated plaques are located within a construction area for North East Link and in close proximity to the proposed northern ventilation structure. While an area of sloping open space associated with the Assembly Place would remain to the north of the ventilation structure, this would be in an altered context and presentation. Notwithstanding this, the area is understood not to have been used for ceremonial purposes for several years and would not be expected to be reused for ANZAC Day or other services during operation of North East Link.

The need to remove the memorial has not been confirmed and this may not be required, but this potential outcome has been considered on the basis of its location within the construction site and in proximity to the ventilation structure. Based on the contribution of the element to the overall historical values of the barracks as a whole, there would be a minor impact on these values arising from the removal of this element, if that is required. In the event removal is required, it is recommended Simpson Barracks be consulted in more detail to identify management protocols and any further mitigation measures to ensure that the elements of the place are treated appropriately. Depending on the outcome of this consultation, there may be potential to salvage elements of the place. These items would be received by the Base on behalf of the Department of Defence.

As an alternative and if required, the memorial could be relocated and re-established in an alternative location within the Barracks complex, and in that case the values could be retained or recovered. If relocated as part of the proposed action, an appropriate methodology would be developed consistent with the ICOMOS Burra Charter and with Defence protocols. Whether or not the memorial is re-established, it should be recorded prior to removal. It is noted that a museum is located within Simpson Barracks and it may be appropriate for some components of the place (such as brass plates) to be included in that collection.

In the event the memorial is retained in situ, as a landscape feature set into a broader landscape setting, the positioning of the new ventilation structure and associated infrastructure in close proximity to the memorial would change these arrangements and may have an adverse impact on the visual presentation of the feature. Accepting this, the memorial is not in active use and the identified historical and social values would not be affected. Revegetation and other mitigating works would address ecological, urban design and visual impacts of the works and reinstate a level of landscape character as context. As noted above, relocation would be a possibility, depending on further consultation with Barracks personnel. If relocation is preferred, an appropriate methodology would be developed consistent with the ICOMOS Burra Charter and with defence protocols.

The 138 Signal Squadron (formerly Army Headquarters Signal Regiment) flag station and memorial is actively used and maintained. This place would be in relatively close proximity to the new infrastructure to the west, but no change to use and access to the flag station by defence personnel is anticipated. Based on consultation with the Base Manager at Simpson Barracks, there would be no change to its use or associated activities from the construction and operation of North East Link.

Conclusion: A tunnel ventilation structure of substantial scale within the Simpson Barracks site would have a degree of visibility from the surrounding area. Permanent North East Link infrastructure is also proposed along the western edge of the site and further potential impacts have also been identified to ecological vegetation which forms a part of its physical setting on this western edge. However, the historical interest in the place as a major defence institution in the local area is not reliant on a particular physical/visual setting and there have been multiple changes to the extent and layout of the Barracks. There would be little to no impact on the identified heritage values of the place as a result of these physical changes.

While not confirmed, it is possible that North East Link may result in removal of one of three memorials on the western edge of the site; the Assembly Place and Lone Pine Commemorative Plantings south of Blamey Road. If required, this would have a minor impact on the historical heritage values of Simpson Barracks as a whole but there is potential for this to be mitigated through management (including potential relocation), subject to consultation with relevant barracks or Defence personnel. No direct impact would occur to the other two memorials and no adverse impacts on use and access to these are expected.

Operation

Changes to groundwater conditions would continue during operation of North East Link, with the potential to have an impact on groundwater-dependent vegetation in the retained woodland areas on the western edge of Simpson Barracks. This could result in a thinning of this vegetation. If this occurs it would contribute to a change in the setting of the barracks, but with limited impact on the historical heritage value identified for the place.

In the case of the memorials, during operation of North East Link, it would be expected that any required mitigation measures would be in place (including the relocation of the Assembly Place and Lone Pine Commemorative Plantings if appropriate).

Recommendations

While little to no adverse impact on the identified historical values of Simpson Barracks would be expected related to the changes on its western edge, it is noted that revegetation and other mitigating works would address ecological, urban design and visual impacts of North East Link construction works and reinstate a level of landscape character. Over time, these would be expected to mitigate some of the visual impacts to the context through the promotion of new canopy.

All three of the identified memorials on the western edge of Simpson Barracks would have an altered context due to the proximity of North East Link infrastructure. No adverse impact is expected for the Watsonia Simpson Barracks Memorial or the 138 Signal Squadron (formerly Army Headquarters Signal Regiment) Flag Station and Memorial. In the case of the Assembly Place and Lone Pine Commemorative Plantings, there is also the potential for a more direct impact, including removal, and in that scenario, mitigation measures including salvage and potential relocation would be considered and an appropriate methodology would be developed in consultation with Simpson Barracks and consistent with the ICOMOS Burra Charter and with defence protocols.

Relevant EPRs are HH1 (Design and construct to minimise impacts on heritage) and HH4 (Undertake archival photographic recording).

8.4.2 Veneto Club

Heritage considerations

The Veneto Club has been assessed (Heritage Alliance, 2008) as of potential state significance for architectural, aesthetic and social reasons.

This review has suggested the architectural significance is more likely to be at a local level, as an unusual and distinctive work of the early 1970s by émigré architect Ermin Smrekar. While not assessed in detail, the Veneto Club is also of high historical and social value to the Italian community.

The location of the Veneto Club is indicated on Figure 8.18 at the end of this Section 8.

Discussion of impacts

Construction

Significant construction works for North East Link would be undertaken on the eastern edge of the Veneto Club site and in close proximity. Consideration was given to the potential for physical works within the site and permanent infrastructure in proximity to have an adverse impact on significant fabric or the identified values of the place (risk HH03).

It is proposed to widen Bulleen Road at the frontage of the site and a new roadway providing access from Bulleen Road to sporting fields to the south would also be constructed within the site (at its southern side). Cut and cover works would also be required for North East Link, angling across the carpark, and the southern tunnel portal and associated ventilation structure (up to 40 metres in height) would be located immediately to the south of the site.

While extensive, these works would be set well away from the original Veneto Club building. They would not impact on any significant fabric (the impact would be on the fence, recent entry structures and roadway, trees and carpark), nor would they impact on the presentation of the building. The Veneto Club is a robust and

monumental building that sits in an open setting and with a substantial setback from Bulleen Road. Minor changes to Bulleen Road directly in front of the building are unlikely to have any significant impact. More substantial permanent above ground infrastructure including the ventilation structure would be set away to the south. These structures would see a change to the immediate surroundings but would not have an adverse impact on the presentation of the building. It is assumed the same or similar boundary treatment would be reinstated on Bulleen Road, while noting there are no heritage-related requirements for the design.

The assessment of ground movement impacts relating to the Veneto Club focused on the arched portico and column structure at the eastern entry, but only a negligible risk has been identified. Refer to the discussion in Section 8.5.

There would be no impact on the historical values arising from the works. The social values are likely to relate in part at least to ongoing use and would be unaffected if use is maintained or reinstated.

Operation

No additional impacts to the Veneto Club are expected during operation of North East Link.

Recommendations

Reinstate a suitable boundary treatment on Bulleen Road and new landscaping following works.

Maintain access to the site if possible during works.

Relevant EPRs include AR3 (Implement a Tree Canopy Replacement Plan).

Refer to Section 8.5 for a discussion of EPRs related to ground movement.

8.4.3 Eastern Freeway Stage 1

Heritage considerations

The Hoddle Street to Bulleen Road (Stage 1) of the Eastern Freeway in its entirety is considered to have heritage significance, potentially at the state level, as related to its early integrated urban and landscape design treatments and bridge design. It is also of historical significance as a focus for major community protests in the 1970s.

The Hoddle Street to Bulleen Road (Stage 1) of the Eastern Freeway was significant in the history of freeway design, in that it marked a shift towards an integrated architectural, urban design and landscape solution and set a new design standard in Victoria, one which placed a high value on the experience of the road user and used consistent or related materials and design motifs. The original bridges have also been identified as of technical (engineering) significance as related to their engineering design and construction. While not the first of Melbourne's freeways, the planning and construction of the Eastern Freeway was also the focus of significant public opposition and debate from the early 1970s, marking a shift in community attitudes to freeways and in particular the defence of the inner suburbs and parklands.

Important elements include the bridges, embankments including rock cuttings, layout of carriageways with central median, the use of landscaping within the reserve as well as the borrowed landscaping from the broader setting, the distinctive tall light masts, and the understated noise walls. These all variously contribute to an understanding of the design.

Subsequent stages of the Eastern Freeway (east of Bulleen Road) are not considered to be of heritage significance.

Discussion of impacts

Construction

Extensive construction works for North East Link are proposed within the road reservation for the Hoddle Street to Bulleen Road (Stage 1) of the Eastern Freeway. The locations of these are shown in Figure 8.13, Figure 8.18 and Figure 8.19 at the end of this Section 8. The potential for these works to impact on significant fabric and the aesthetic qualities of the place was considered, in terms of construction impacts as well as the design and placement of new infrastructure (risk HH03).

North East Link construction works are identified as follows, and a comment follows in terms of impacts on the original design:

West of Chandler Highway:

- No alteration to the Trenerry Crescent pedestrian overpass, Merri Creek bridges and Yarra Bend Road bridge
- Bridge strengthening works to the Yarra River bridges
- Narrowing of central median (widening of inner lanes of eastbound and westbound carriageways)
- Light masts retained to the median and to either side of the freeway
- Shared use path is on the north side and elevated/set away from the freeway; new opening (approximately 2.5 metres high and 4.0 metres wide) through abutment and below deck at northern most point of Yarra Boulevard bridge for the shared use path; loss of vegetation to the northern side of the freeway for the shared use overpass at Yarra River crossing (bridge in the order of 190 metre-long sloping downward to the west); modification of benching/cutting to embankment on north side for the shared use path
- Existing noise walls to be removed/replaced
- Safety barriers to be introduced to the shared use path where adjacent to busway.

Comment on impacts: Impacts in this area would be relatively minor. The works to the Yarra Boulevard bridge would not have a significant impact on presentation. The Yarra River bridges for the east and west carriageways were constructed to a standard CRB design and these are, from a design perspective, of lesser sensitivity. Depending on the detail, strengthening works would likely have limited impact to the identified values. Changes to vegetation, cutting/benching to the embankment and other works associated with the shared use path would be noticeable but would not detract significantly from the overall character.

Chandler Highway interchange:

- Viaduct structure (diagonal bridge over eastbound and westbound) heading west (for busway)
- Modification to east-bound off-ramp
- Works for the busway on the northern side of the freeway at Chandler Highway – the busway is under the northern of the two spans of the Chandler Highway bridge and is in a cut
- The shared use path is in an underpass until it meets the surface under the northern span.

Comment on impacts: The busway viaduct would present as a significant interruption of the sequential viewing of the bridges along the Eastern Freeway. In this instance, the new structure would foreground the Chandler Highway bridge as it is approached from the west.

The intervention at the northern span of the Chandler Highway Bridge should be designed to minimise physical impacts and maintain the aesthetic qualities of the structure as a whole.

East of Chandler Highway:

- Wholesale occupation of median east of Chandler Highway to Meldrum/Minogue streets (including under Belford Road), then a very narrow strip of median returns west of Burke Road; removal of light masts
- No physical impact is anticipated on the Belford Road bridge (carriageway for the busway may be in cut to accommodate the required clearance under the northern supporting structure)
- Existing noise walls to be removed/replaced.

Comment on impacts: The works would see the loss of the central median and light masts in this area, which would alter the visual qualities of the freeway, but the landscaped edge treatment including embankments (where these exist) could be maintained.

Burke Road interchange:

- Alteration to the median for the east-bound left turn lane and busway; loss of some of the green edge; possible alteration of the embankment below the northern section of the bridge to achieve clearance for the busway extending under the bridge on its northern side, road may be lowered into cut
- New structure viaduct for east-bound off-ramp over busway
- Median retained approaching the bridge from east and west for a short distance.

Comment on impacts: There would be a minor visual impact on the bridge structure as a result of the new busway. The new elevated ramp on the north side would be visible but would not interrupt the sequence of bridges. The retention of sections of the median on approach to the Burke Road bridge is a positive aspect of the design. There is no physical impact on the bridge itself though it is possible there would be an impact on the northern embankment.

Burke Road to Bulleen Road:

- North-side vegetation to eastbound lanes to be removed for busway
- Existing noise walls removed
- Median occupied by east and west-bound carriageways, removal of light masts
- Columba Street overpass: road widening works would impact on the embankment (the east-bound busway extends into the northern embankment and under the northern end of the Columba Street overpass, west bound ramp extends from Bulleen Road as a viaduct over the freeway and underneath the southern end of the Columba Street bridge to join freeway)
- Northbound exit approach to Bulleen Road would be significantly widened into the northern vegetated roadside and embankment.

Comment on impacts: While the overpass would be retained, there would likely be changes to both north and south embankments (rock cuttings) where the road is widened beneath the overpass. This would have an adverse impact on the presentation and experience of this section of road. The removal of vegetation on the north side of the freeway and the central median would also result in a significant change. There would be a visual impact associated with the elevated west-bound ramp between the Columba Street overpass and the Bulleen Road bridge, which would interrupt the experience of the bridge sequence.

Bulleen Road interchange:

- Structure viaducts are proposed to the east and west side of the Bulleen Road bridge as northern connections, including passing over the freeway
- A new shared use overpass is proposed on the east of the Bulleen Road bridge
- Removal of north-side embankment (and some of the adjacent golf course) for bus lane and exit lanes on north side of freeway.

Comment on impacts: There are substantial works proposed for the Bulleen Road interchange. There would be an impact on the experience of the two bridges in this location. The longer views to the Bulleen Road bridge from the west and the east would be affected, but the bridge would still be viewed at close quarters. Similarly, as noted above, the presentation of the Columba Street overpass would be affected on approach from the east.

The proposed new shared use overpass on the east side of the Bulleen Road bridge may also have a physical and visual impact, depending on detailed design, albeit the Bulleen Road bridge is understood to have been widened previously.

Additional works:

In addition to the above, it is anticipated there may also be other infrastructure required including crash barriers at the bridge piers. These have not been designed but may have an adverse visual impact in terms of an appreciation of the original design of the individual bridges.

Conclusion

The impacts on the original design and presentation of the Hoddle Street to Bulleen Road (Stage 1) section of the Eastern Freeway are relatively minor at the western end and become more significant further east, from the Chandler Highway interchange.

The most significant impact would be from the proposed viaduct structures crossing the freeway at the Chandler Highway and Bulleen Road interchanges, which would interrupt the sequence of bespoke designed bridges when travelling along the freeway.

From Chandler Highway east, the medians and associated light masts would be removed and east of Burke Road, the removal of the landscaped edge treatment would also be required on the north side and these changes will also be noticeable.

There would be a major change in presentation in those locations where the central median is to be incorporated. Accepting this, the freeway was designed with the wide central median and wide span bridges so that this space could be taken up by heavy rail (Country Roads Board Annual Report 1975:5). It was not necessarily anticipated that medians would remain open as has occurred.

Accepting these impacts, many of the key attributes of the original freeway design would be retained. Importantly, all of the distinctive bridge structures are to be retained, with some minor changes. The embankments would also be retained, albeit altered in some locations, as would much of the landscaping. The borrowed views to vegetation in surrounding areas generally would be maintained.

Overall, while there would be some impact on intactness and aesthetic qualities, subject to detailed design, it is considered likely that North East Link construction works to the earliest section of the Eastern Freeway (Hoddle Street to Bulleen Road, completed in 1977) could be delivered in a manner that ensures key attributes and features are largely maintained and the design origins remain legible.

Operation

No additional impacts are expected to the Eastern Freeway (stage 1) during operation of North East Link. Over time, maturing vegetation recommended below would help to reinstate the vegetated character of the freeway margins.

Recommendations

The Urban Design Strategy for North East Link would guide the approach to freeway infrastructure design. In detailed design efforts should be made to retain and conserve the fabric and aesthetic qualities of the Hoddle Street to Bulleen Road (Stage 1) section of the Eastern Freeway consistent with its original design, as far as is possible.

Within the constraints of functional and safety requirements, new freeway infrastructure such as lighting, safety and crash barriers and noise walls should be designed in a manner that has regard for the original design qualities.

To the extent that it is possible, landscape works should seek to reinstate the vegetated character of the freeway margins, which was an important aspect of its design.

Relevant EPRs are HH1 (Design and construct to minimise impacts on heritage), HH4 (Undertake archival photographic recording), AR1 (Develop and implement a Tree Removal Plan), AR3 (Implement a Tree Canopy Replacement Plan), and LV1 (Design to be generally in accordance with the Urban Design Strategy).

8.4.4 Yarra River and environs (risks HH01, HH02, HH03, HH06, HH07, HH08)

Heritage considerations

The Yarra River and environs takes in areas which are subject to heritage controls (such as the Yarra Flats and Bolin Bolin Billabong HO places), areas which have been subject to formal assessment and proposed for listing (Warringal Parklands and Banyule Flats) as well as areas which have not been proposed or listed. An indicative extent of this area is shown on Figure 8.13 at the end of this Section 8 and on the figures that follow it.

As noted in Section 6.1, while not at present described as a heritage place and accordingly not subject to statutory controls to its full extent, the Yarra River and its environs is considered to be a layered cultural landscape where historical heritage is a relevant value, along with Aboriginal cultural heritage values.

The likely nature of these cultural landscape values and related historical themes have been described in a general sense in this report. Refer to Section 6.1 for more information on the Yarra River and environs.

Discussion of impacts

Construction

North East Link has been designed to avoid significant impacts on the Yarra River and its environs through the incorporation of tunnels at depth through the riverine environment. Notwithstanding this, consideration was given to the potential for impacts arising from the tunnelling works as related to:

- Ground movement (subsidence over tunnels within Yarra River environs) (risk HH06)
- Changes to groundwater conditions and possible impact on significant trees and other vegetation (risk HH07)
- Ground improvement works if required.

The impact of other construction works and new infrastructure was also considered.

Ground movement

In relation to the issue of subsidence, the findings in Technical report M – Ground Movement predict that the magnitude of ground movement induced by the tunnels and trenched excavations is unlikely to impact on heritage values.

Groundwater impacts: The indicative drawdown modelling in Technical report N – Groundwater, shows changes to groundwater conditions within the Yarra River environs in the vicinity of Manningham Road and south to the southern portal of North East Link. Modelled levels of groundwater drawdown during the construction and operation of the project have been assessed in Technical report Q – Ecology generally as unlikely to result in impacts to ecological vegetation within the river environs. This finding includes floodplain vegetation associated with specific places or potential places such as Yarra Flats and Banyule Flats, and to the extended riparian corridor of the river to which some degree of historical heritage values may apply.

However, as noted at Section 8.2.3, the potential for groundwater drawdown to cause localised impacts to ecological vegetation at the eastern end of the Bolin Bolin Billabong wetland has been identified in Technical report Q – Ecology. Significant impacts to aquatic and terrestrial ecosystems at the billabong are not anticipated. Nevertheless, a groundwater dependent ecosystem monitoring and mitigation plan would be implemented for the project. If required, mitigation could include measures such as periodical filling and or topping of the billabong. Melbourne Water are actively managing the hydrological regime of the billabong. Sections 8.6 and Section 8.7 discuss groundwater drawdown effects further.

The other impacts or potential impacts on the Yarra River and environs are as follows:

Ground improvement works in Banksia Park: The potential impacts from ground improvement works within Banksia Park required for the reference project as well as the alternative design of the Manningham Road interchange were considered (HH03). Ground improvement works may be required at the southern end of the TBM tunnel, north of Bridge Street and a zone for these works has been identified for the reference project and the alternative design. If required, the type and location of ground treatment would be determined through the detailed design development of North East Link. While ground improvement would necessitate the surface

clearance (including vegetation) of areas within Banksia Park, the impacts can be reduced by avoiding or at least minimising the effects on native vegetation and/or mature trees. Once complete, it is assumed that the disturbed area would be reinstated and replanted.

Importantly, the zone of ground improvement works does not extend to the edge of the Yarra River and the immediate riverine environment would be unaffected. The broader Banksia Park has a more open character and has evolved over time.

Accepting this, preferably the ground improvement works within Banksia Park would be designed to limit the affected area and any associated tree loss, and would allow for landscape remediation works.

Alternative design option – TBM retrieval site in Banksia Park: An alternative option to stage TBM retrieval north of Bridge Street, within Banksia Park, has been considered. This option would include the excavation of retrieval shafts and the clearing and operation of an associated construction compound. Some ground improvement works would continue to be required in this area. Once complete, it is assumed that the disturbed area would be reinstated and replanted.

As above, the area in which the works are contemplated has an open character and is separated from the immediate riverine environment of the Yarra River. There would be an awareness of the works and activities in Banksia Park from within the riverine environment but there would be no direct impact. Staging of construction activities would preferably be designed to limit the affected area and any associated tree loss, and to allow for landscape remediation works.

Shared use path improvement works in proximity to the Yarra River in the vicinity of Manningham Road: These works would not have an adverse impact.

Potential for disturbance for construction activities and the construction of new infrastructure on the eastern side of the Yarra River south of Manningham Road: These works are also considered in the discussion in Section 8.2.3. The majority of this area of the Yarra River environs is in a no-go zone. Outside the no-go zone construction may occur in this location subject to contractor requirements and this could include clearance and potential sub-surface disturbance. New infrastructure would also be constructed including roads, noise walls and SUPs, set back from the river environs. The vegetated riparian edge would be retained and protected.

Permanent infrastructure for North East Link would be set well away from the Yarra River on land that has been cleared and previously developed for a drive-in complex and other uses. North East Link would be in tunnels or open cut roads and would not have any adverse impact on the identified values. The protection of the vegetation on the river's edge would ensure the landscape character of the Yarra River environs was maintained. No significant adverse visual impacts on the river environs has been identified.

Works within the existing Eastern Freeway reserve and close to the Yarra River: While new infrastructure within the freeway reserve would be visible from within the river environs and would be a significant change in some locations, the changes are in areas of the river environs where the freeway is already a major feature. No adverse impact on the broader heritage values of the Yarra River are identified.

Overall, assuming effective mitigation of the potential localised risk to ecological conditions at the Bolin Bolin Billabong, the overall impact on the heritage values of the Yarra River and environs is considered to be negligible.

Recommendations:

Groundwater: Technical report Q – Ecology identifies a number of EPRs for managing potential impacts to ecological vegetation: GW2, GW5, SW4, CL2, FF2, FF4, FF6.

Ground improvement: it would be desirable that any ground improvement works were designed to limit the affected area and any associated tree loss, and allow for landscape remediation works. The same recommendation would apply to the construction and staging works associated with the Banksia Park TBM retrieval shafts alternative. Relevant EPRs are HH1, AR1 (Develop and implement a Tree Removal Plan) and AR3 (Implement a Tree Canopy Replacement Plan).

Other general recommendations are to retain and protect significant vegetation, comply with the requirements of the CHMP for North East Link approved under the Aboriginal Heritage Act, consider the potential for

historical archaeology, and ensure protocols are in place for sites discovered during construction of the project. Relevant EPRs are AH1 (Comply with Cultural Heritage Management Plan), HH2 (Implement an Archaeological Management Plan to avoid and minimise impacts on historic archaeological sites and values), AR1 (Maximise tree retention), AR2 (Implement a Tree Protection Plan(s) to protect trees to be retained), AR3 (Implement a Tree Canopy Replacement Plan).

Operation

No additional impacts on the Yarra River and environs are expected during operation of North East Link. The limited degree of groundwater drawdown has been modelled to continue beneath a portion of Yarra Flats, but no potential impact to indigenous vegetation in this area has been identified in Technical report Q – Ecology. Drawdown and potential impact to the eastern end of Bolin Bolin Billabong would also continue.

8.4.5 Yarrandoo Park windbreak planting

Heritage considerations

The Yarrandoo Park windbreak appears to be a relatively intact and significant example of what was once a landscape feature employed throughout the northern part of the City of Whitehorse in association with commercial orcharding. On this basis, the feature is considered to be of local historical significance. The location of the windbreak is indicated on Figure 8.13 at the end of this Section 8.

Discussion of impacts

Construction

The potential for physical impacts on the windbreak from nearby North East Link activities has been considered (risk HH03).

Construction may occur in proximity to the Yarrandoo Park Windbreak subject to contractor requirements. While there would be no direct impact, care should be taken to protect the trees.

Recommendations

Relevant EPRs are AR1 (Develop and implement a Tree Removal Plan) and AR2 (Implement a Tree Protection Plan(s) to protect trees to be retained).

Operation

No additional impacts on the Yarrandoo Park windbreak are expected during operation of North East Link.

8.5 Vibration and ground movement (risk HH06)

Discussion of impacts

Consideration has been given to the following:

- The potential for impacts to heritage places through vibration associated with construction works (risk HH06)
- The potential for impacts to heritage places through ground movement during the construction and operation of the project (risk HH06).

The following impact assessment is based on the findings for the following impact assessment reports, all of which consider the potential for impacts to buildings and structures as a result of North East Link's construction:

- Technical report D – Tunnel vibration
- Technical report C – Noise and surface vibration
- Technical report M – Ground movement.

Construction

Tunnel vibration: Technical report D – Tunnel vibration provides an assessment of potential impacts from the construction and operation of the North East Link tunnels. The assessment specifically considered the potential for sensitive receptors to be impacted by tunnel vibration, including heritage buildings such as Heide I and Heide II and Banyule Homestead (the closest VHR-registered places) as well as HO-listed places. The findings from the draft report are as follows:

- The assessment considered the possibility that heritage buildings could be damaged by the vibration generated by the construction methods (risk TV17).
- The modelling has calculated the levels of vibration from the tunnelling activities and shown these as a series of vibration contours along the alignment.
- The expected maximum level of vibration from the tunnelling activities is calculated as less than 1.5mm/s. The vibration may be perceptible to some persons along the North East Link alignment but the level is well below the values presented in the international literature and standards as potentially representing the onset of superficial damage to buildings.
- The Construction Environment Management Plan (CEMP) would be prepared before construction of North East Link started and would detail the extent of any condition surveys that would be undertaken before tunnelling-related activities started. This would provide additional protection for residents relating to any instances of damage to their property.
- The possibility that vibration from controlled tunnelling and other excavation methods associated with the dive structure and cross passage development would produce damage is low. The vibration levels would comply with EPR NV5 and EPR NV9.

The risk of damage to buildings along the North East Link alignment, including to the Heide I and Heide II and Banyule Homestead is identified as low.

Similarly, the assessment is that the risk to the two HO places, Journeys End and Clarendon Eyre is also low.

Surface vibration: Technical report C – Surface noise and vibration assesses the potential impact of noise and vibration from North East Link, including on historical heritage. This includes the potential for impacts to buildings and structures from construction vibration caused by surface works. The assessment provides recommended safe working distances representing threshold values for cosmetic damage to buildings from a variety of vibration intensive construction equipment, though it also notes that more stringent conditions may be applied to heritage structures.

In most cases, heritage places identified in the historical heritage study area would be separated from North East Link surface works by distances exceeding the safe working distances identified in Technical report C – Surface noise and vibration. Where works would occur in proximity to structures, including heritage buildings identified and assessed in this report, EPR NV9 establishes guideline values for vibration for particular buildings and structures, including heritage buildings. If these targets are not achieved, the EPR requires implementation of management actions. For example, one of the memorials at Simpson Barracks, the 138 Signal Squadron (formerly Army Headquarters Signal Regiment) flag station is close to works and management actions may be required depending on equipment proposed for use.

Technical report C – Surface noise and vibration notes that heritage buildings and structures would need to be considered on a case-by-case basis before the construction of North East Link. Where a building or structure was deemed to be sensitive to vibration, the vibration criteria should be reduced. Further investigation would be undertaken during the detailed design of North East Link for the development of specific construction, noise and vibration management plans.

EPR NV4 requires an overall Construction Noise and Vibration Management Plan (CNVMP) which would identify how noise and vibration would be assessed and managed in accordance with the limits and methodologies outlined in the Noise and Vibration EPRs (including EPR NV9). The CNVMP requires:

- Identification of noise and vibration sensitive receptors along the North East Link alignment
- Construction noise and vibration targets as per EPR NV3

- Details of construction activities and an indicative schedule for construction works, including the identification of key noise and/or vibration generating construction activities that have the potential to generate airborne noise and/or surface vibration impacts on surrounding sensitive receivers
- How construction noise (including truck haulage) and vibration would be minimised (see EPR T2)
- Management actions and notification and mitigation measures to be implemented
- Any processes and measures to be implemented as part of the Communications and Community Engagement Plan including measures concerning complaints management (see EPR SC2)
- Measures to ensure effective monitoring of noise and vibration associated with construction (see EPR NV3)
- Sets out the Out of Hours Work and Unavoidable Works that would be undertaken, including their location, timing, and duration.

It would be expected the CNVMP would identify any heritage buildings that could be impacted by the construction of North East Link and appropriate limits or other management measures that would be implemented to avoid any impact.

Related to this, EPR HH3 requires vibration monitoring during construction for heritage sites at risk of impact and monitoring of their condition during the construction of North East Link and once it was operating. EPR HH3 also recognises a need to address the particular requirements for rectification that may apply in the event damage does occur to heritage buildings and structures. In the event of damage, documentation and undertaking of rectification works to heritage buildings and structures would need to be undertaken in a particular manner consistent with the significance of the place, to the satisfaction of the Executive Director, Heritage Victoria.

Ground movement: Technical report M – Ground movement uses a three-stage assessment process for potential damage to buildings and structures as a result of settlement. In the Stage 1 assessment, a potential zone of influence where greater than 5 millimetres of ground settlement is identified. Areas of various levels of risk for potential damage are identified within the potential zone of influence depending on the magnitude of settlement.

The Stage 2 assessment considers infrastructure subject to a degree of settlement of 10 millimetres or greater, and accounts for properties specific to the individual structure such as construction materials, footing details, location and dimensions. The output of this assessment identifies the potential for crack formation resulting from tensile strains within the structure after Burland (1995).

Stage 3 assessments are detailed assessment of individual buildings and would involve more detailed condition and engineering assessments for individual buildings and structures and development of mitigation measures if required. Stage 3 assessments are required for sensitive buildings and structures.

Stage 3 assessments were considered for those structures in Stage 2 which were deemed to be of particular cultural or communal sensitivity. This assessment involves understanding the existing condition, structural characteristics and the soil-structure interaction effects and using these as inputs into numerical modelling if required.

Modelling and analysis for Stage 2 has identified four structures where there may be a risk of damage, listed in Table 8.12. Note that the damage categories allocated are conservative.

While not the subject of specific assessments, consideration has also been given to the potential for settlement to cause damage to the memorials at Simpson Barracks. Here, the approach has been to consider the settlement levels in proximity to these, with Building 1 at the barracks site having been subject to a Stage 2 assessment.

Due to the negligible risk associated with the construction of North East Link, the structures identified below were not further assessed to Stage 3 of the Ground movement assessment.

Table 8.12 Stage 2 assessment of damage risk

Name	Comment	Statutory controls	Settlement ¹	Rankin risk category ²
<i>Theoretical Matter</i>	Artwork at the Heide Museum of Modern Art, welded steel on concrete base, Neil Taylor, 1999-2000	Heide II (VHR H1494)	24 mm	2-Slight
<i>Crescent House</i>	Small pavilion building at the Heide Museum of Modern Art, installed in 2013, designed by architect Andrew Burns	Heide II (VHR H1494)	18 mm	2-Slight
Journeys End	22-40 Bridge Street Bulleen, interwar Craftsman Bungalow of local architectural significance	Journeys End (HO26)	5 mm	1-Negligible
Veneto Club	191 Bulleen Road, Bulleen, arched portico and column only	None	6 mm	1-Negligible
Simpson Barracks 138 Signal Squadron and flag Station and memorial	Not assessed but adjacent to Building 1 at Simpson Barracks. Building 1 was assessed	None	0–2 mm	1-Negligible
Watsonia Simpson Barracks Memorial	Not assessed, further from works than Building 1	None	-	-

Technical report M – Ground movement specifies a series of EPRs (GM1-GM4) which are directed at further assessment, monitoring and mitigation of the effects of ground movement. Of particular relevance is EPR GM2 (Ground Movement Plan) which required the characterisation and modelling of structures which could be affected by ground movement. EPR GM3 (Condition surveys – property and infrastructure) is also relevant. This requires the preparation of condition surveys for all buildings considered at risk of damage. The results of the condition surveys under GM3 and the modelling undertaken under EPR GM1 must be used to determine appropriate ground movement impact acceptability criteria for the relevant property and infrastructure as part of the Ground Movement Plan. EPR GM3 also requires consultation with stakeholders.

The findings suggest there is a low level of risk of damage to heritage buildings and structures in proximity to tunnelling works as a result of settlement.

In the event damage does occur, there are EPRs to ensure rectification. EPR GM4 (Properties & assets impacted by ground movement & settlement) requires any damage caused to be rectified other actions as agreed with the property or asset owner. Consultation with Heritage Victoria is required in the case of VHR-registered buildings.

Further to this requirement, EPR HH3 (Monitoring of heritage sites, referenced above) also applies.

Alternative design option – TBM retrieval shafts in Banksia Park: An alternative option to stage TBM retrieval north of Bridge Street, within Banksia Park, has been considered. This option would include the excavation of retrieval shafts and associated dewatering.

¹ As modelled and assessed in Technical report M – Ground movement.

² As modelled and assessed in Technical report M – Ground movement.

The potential for this option to produce impacts as a result of ground movements has been considered in Technical report M – Ground movement. No risk to the house and local heritage place at 22-40 Bridge Street, Bulleen ('Journeys End') was identified. As noted above in Section 8.2.1, Journeys End was originally identified in local heritage studies as a grouping with the adjacent house at 42 Bridge Street, Bulleen ('White Oaks'), however this latter property has not been included to the Manningham heritage overlay. A 'slight' risk to that latter house was identified in first stage assessment of potential ground movement for this alternative design option, however the second stage assessment indicated a 'negligible' damage risk category for the house at 42 Bridge Street. EPRs GM1 (Geotechnical model and assessment), GM2 (Ground Movement Plan) and GM3 (Condition surveys –property and infrastructure) would be applied.

Recommendations

The risk to heritage buildings and structures from tunnelling vibration has been assessed as low.

The risk to heritage buildings and structures from ground movement is also assessed as low.

The risk to heritage buildings and structures from construction vibration from other construction activities is assessed as low.

Relevant EPRs are NV3, NV4, NV9, GM1, GM2, GM3, GM4, HH3.

Operation

No additional impacts are expected during operation of North East Link.

8.6 Changes to groundwater conditions during construction (risk HH07)

Discussion of impacts

Consideration has been given to the potential for changed groundwater conditions to have an impact on trees and other vegetation with heritage values (HH07). Indicative drawdown modelling is presented in Technical report N – Groundwater. This modelling is assessed in Technical report G – Arboriculture and Technical report Q – Ecology for risks and impacts to ecological and cultivated vegetation. The findings of those reports are considered here.

Vicinity of northern portal, including trench/cut-and-cover tunnel

Modelling of groundwater drawdown projects a drawdown in the range of 1 to 2 metres in an area to approximately 500 metres from the project boundary following completion of the structures north of Lower Plenty Road. Greater degrees of drawdown, in the range of 2 to 3 metres have been modelled within 200 metres of the project boundary.

One locally listed heritage place, Strathalan in Erskine Road Macleod (HO164, Banyule) is located within the study area, in the area modelled for drawdown. Strathalan includes significant trees, including a River Red Gum and a row of Monterey Pines at the former entrance. No adverse impacts have been identified. Technical report Q – Ecology concludes that River Red Gums are unlikely to be accessing groundwater resources in areas where groundwater is at the (assumed) depth present below Strathalan (35 metres below ground level). Technical report G – Arboriculture concludes that impacts associated with groundwater drawdown are unlikely for exotic trees in cultivation, a finding that applies to the Monterey Pines.

Levels of drawdown are also modelled to occur under portions of Simpson Barracks where the heritage building Aldermaston includes a garden and front landscape setting with exotic trees, and where a number of memorials incorporating commemorative trees have been identified as of importance to the barracks and its personnel. As above, these cultivated exotic trees are unlikely to experience impacts associated with groundwater drawdown.

Technical report Q – Ecology identifies potential impacts to an area of indigenous woodland which may result from groundwater drawdown during construction, including premature decline and mortality in large old trees which may be dependent on access to groundwater. As noted above in Section 8.4.1, although this woodland forms a part of the larger setting of Simpson Barracks, this setting has not been identified as a key aspect of the historical significance of the barracks and changes to the setting would not be expected to affect those values.

Additional zones extending to the west and east of the study area would experience groundwater drawdown in the lower range of 0.1 to 1.1 metres by 2024, but this would not be expected to impact on vegetation of heritage value. Refer to the discussion on Simpson Barracks at Section 8.4.

Tunnel section

Groundwater drawdown in the main tunnelled section below the Yarra River valley, including the area of Banyule Flats, has been modelled at less than 0.1 metre. Technical report Q – Ecology concludes that no impacts would be expected for ecological vegetation in the area as a result of this marginal level of drawdown, which in many places would be expected to be within the bounds of existing seasonal variation.

Modelling of groundwater drawdown has identified an area of leakage in the upper extent of the tunnel, from the vicinity of McCrae Road south-east of the edge of the escarpment below Banyule Drive. Projected drawdown in this area during the construction of North East Link would be in the range of 0.1 to 1 metre. This area includes the VHR-registered place Banyule Homestead (H0926), including a number of significant exotic trees. The conclusion of Technical report G – Arboriculture is that cultivated trees would not be expected to experience impacts from any level of groundwater drawdown. Ecological vegetation which is relevant to the broader setting of Banyule Homestead is located within the valley, outside the area of modelled drawdown. No impacts to ecological vegetation at Banyule Flats have been identified in Technical report Q – Ecology.

Several local heritage places are included in the Banyule heritage overlay (H052, H053, and H054) in the broader area projected to experience more limited drawdown during construction. Vegetation of heritage significance at the former Novitiate of the Sisters of Mercy (H053, Banyule) is restricted to exotic specimen trees; Technical report G – Arboriculture identifies no potential for impacts to this type of vegetation from groundwater drawdown. No vegetation of heritage significance has been identified with respect to the other two heritage places.

Vicinity of Manningham Road interchange, cut and cover and mined tunnels and southern portal

Works to construct the southern tunnel portal and cut-and-cover and mined tunnels south of Manningham Road are also expected to produce areas of drawdown and mounding in an area surrounding the project.

Low levels (0.1 to 0.5 metres) of drawdown are modelled to occur during construction along the western edge of the project where it abuts the Yarra River corridor, extending at its broadest extent across the river to take in a portion of the Yarra Flats (H0134, Banyule).

Low levels of drawdown are also modelled to occur in the vicinity of Journeys End and in an area of Banksia Park immediately west of Heide I and south of Heide II. Vegetation of heritage significance in these areas is primarily comprised of cultivated exotic trees.

A portion of Bolin Bolin Billabong (Manningham H030) would also be subject to this low level of drawdown during construction, with a potential for this change to impact aquatic ecosystems identified in Technical report Q – Ecology. Significant impacts to aquatic and terrestrial ecosystems at the billabong are not anticipated. Nevertheless, a groundwater dependent ecosystem monitoring and mitigation plan would be implemented for the project. If required, mitigation could include measures such as periodical filling and or topping of the billabong. Melbourne Water are actively managing the hydrological regime of the billabong.

A small area of more intensive drawdown (up to 4 metres) is identified where North East Link would cross beneath Bulleen Road in a mined tunnel. Drawdown of 1 to 2 metres associated with this area is projected to occur in the vicinity of Clarendon Eyre (H0147, Manningham) and the associated Moreton Bay Fig (H0146, Manningham) tree on Robb Close. Technical report G – Arboriculture concludes that cultivated trees would not be expected to experience impacts from groundwater drawdown.

Technical report Q – Ecology assesses the potential for impacts to naturally occurring stands of Eucalypts from the modelled extents of groundwater drawdown as being limited to threshold areas where groundwater is currently present at depths from 10 to 20 metres below ground surface level. In these areas, indigenous trees of species such as River Red Gum (*Eucalyptus camaldulensis*) have the potential to be accessing groundwater under existing conditions and may see that access disrupted by the drawdown that has been modelled. In the riverine environs, where groundwater is present at considerably shallower depths, indigenous vegetation within the riparian woodlands is expected to be accessing groundwater. On the Yarra Flats and in the broader Yarra River environs this vegetation is not expected to experience impacts from the modelled drawdown.

Mounding of groundwater would be concentrated in an area to the east of the Bulleen Road interchange, with a lesser area in the vicinity of the southern portal. No risk pathway for groundwater mounding to produce impacts to historical heritage values has been identified in this study.

Alternative design option – TBM retrieval shafts in Banksia Park: An alternative option to stage TBM retrieval north of Bridge Street, within Banksia Park, has been considered. This option would include the excavation of retrieval shafts and associated dewatering.

Impacts to groundwater as a result of this option have been considered in Technical report N – Groundwater. Some additional change in the depth to groundwater has been modelled for this option; the radial extent of drawdown is modelled to be 50 to 70 metres larger than what would occur in the base case. This modelling has been considered in Technical report Q – Ecology; no impacts to native vegetation along the Yarra River or to large or scattered trees (such as those within the Heide II grounds) were identified. No additional impacts to historical heritage values have been identified from the groundwater changes modelled for this alternative design option.

Recommendations

Where groundwater drawdown has the potential to impact ecological habitat to which heritage values have also been identified (localised aquatic and riparian habitat in an area of the Bolin Bolin Billabong), the EPRs identified in Technical report Q – Ecology are applicable: GW2, GW5, SW4, CL2, FF2, FF4, FF6.

Technical report G – Arboriculture concludes that no impacts to cultivated vegetation would be expected from groundwater drawdown.

8.7 Changes to groundwater conditions during operation (risk HH08)

Technical report N – Groundwater has also modelled changes to groundwater conditions during operation of North East Link (to 2075) and consideration has been given to the potential for these to affect trees or vegetation with heritage values or within heritage places (HH08).

Vicinity of northern portal, including trench/cut-and-cover tunnel

In this area, long-term groundwater drawdown of 0.5 to 2 metres has been modelled for an area on both sides of the project boundary within approximately 500 metres of the tunnel portal, with a lesser degree (0.1 to 0.6 metres) of drawdown projected for a much greater area surrounding the project.

As discussed above in Section 8.6, the potential for this area of drawdown to impact on vegetation has been considered in Technical report G – Arboriculture and Technical report Q – Ecology. Their findings inform an assessment of potential impacts to vegetation of heritage significance. Within this part of the study area, no impacts are expected to heritage places from the level of operational drawdown that has been modelled. Adverse impacts have been projected for some larger trees in an area of indigenous woodland on the western edge of the Simpson Barracks, but no heritage associations have been identified with respect to this vegetation. There would be a change in the setting and presentation of this part of the barracks and there would be little to no impact on its heritage values. Ecological management and mitigation of potential impacts to this area of vegetation would take place under EPRs identified in Technical report Q – Ecology. Refer to the discussion at Section 8.4.

Tunnel section

Groundwater drawdown in the main tunnelled section of North East Link below the Yarra River valley, including the area of Banyule Flats, has been modelled at less than 0.1 metres. Technical report Q – Ecology concludes that no impacts would be expected for ecological vegetation in the area as a result of this marginal level of drawdown, which in many places would be expected to be within the bounds of existing seasonal variation.

Modelling of groundwater drawdown has identified an area of leakage in the upper extent of the tunnel, which during operation of North East Link would extend from the vicinity of Lower Plenty Road south-east of the edge of the escarpment below Banyule Drive. Projected drawdown in this area to 2075 would be in the range of 0.1 to 1 metre in an outer zone extending to Rosanna Road in the west, and 1 to 2 metres in a tighter area south of Banyule Creek. That area of greater drawdown includes the VHR-place Banyule Homestead (H0926) which includes a number of significant exotic trees. The conclusion of Technical report G – Arboriculture is that

cultivated trees would not be expected to experience impacts from any level of groundwater drawdown. Ecological vegetation which is relevant to the place's setting and views to the Banyule Flats wetland area is located within the valley, outside the area of modelled drawdown. No impacts to ecological vegetation at Banyule Flats have been identified in Technical report Q – Ecology.

Several local heritage places are included in the Banyule heritage overlay (HO52, HO53, and HO54) in the broader area projected to continue to experience a more limited degree of groundwater drawdown during operation of North East Link. Vegetation of heritage significance at the former Novitiate of the Sisters of Mercy (HO53, Banyule) is restricted to exotic specimen trees. Technical report G – Arboriculture assesses there is no risk of impact to cultivated vegetation from groundwater drawdown.

Vicinity of Manningham Road interchange, cut and cover and mined tunnels and southern portal

Long-term changes to groundwater conditions have also been modelled to 2075 in the area south of Manningham Road, including permanent areas of drawdown and mounding in an area surrounding the project.

Two areas of limited (0.1 to 0.5 metres) permanent drawdown have been modelled during operation of North East Link along the western edge of the project where it would abut the Yarra River corridor. A northern area immediately south of Manningham Road would extend at its broadest extent across the river to take in a portion of the Yarra Flats (HO134, Banyule). A southern area along the west side of Bulleen Road would also experience drawdown in the range of 0.1 to 0.5 metres. A portion of Bolin Bolin Billabong (HO30, Manningham) would be included in the southern area of drawdown, and a potential impact to aquatic ecosystems at this location has been identified in Technical report Q – Ecology; this would be monitored and mitigated if necessary.

In the broader area of the riverine environs, including the Yarra Flats heritage place and potential heritage values on the east bank of the river south of Manningham Road, groundwater is present at shallow depths. In such locations, Technical report Q – Ecology does not project the limited degree of groundwater drawdown to pose impacts to riparian woodland vegetation.

A large area of long-term groundwater mounding is projected to occur to the east of Bulleen Road. No risk pathway for groundwater mounding to produce impacts to historical heritage values has been identified in this study.

Alternative design option – TBM retrieval shafts in Banksia Park: Some recovery in the area of construction-period groundwater drawdown identified for the design option has been modelled in Technical report N – Groundwater to occur over the life of the project, with long-term drawdown estimated to be less than 1 metre at distances greater than 25 metres from the retrieval structures. No additional impacts to vegetation were identified in Technical report Q – Ecology.

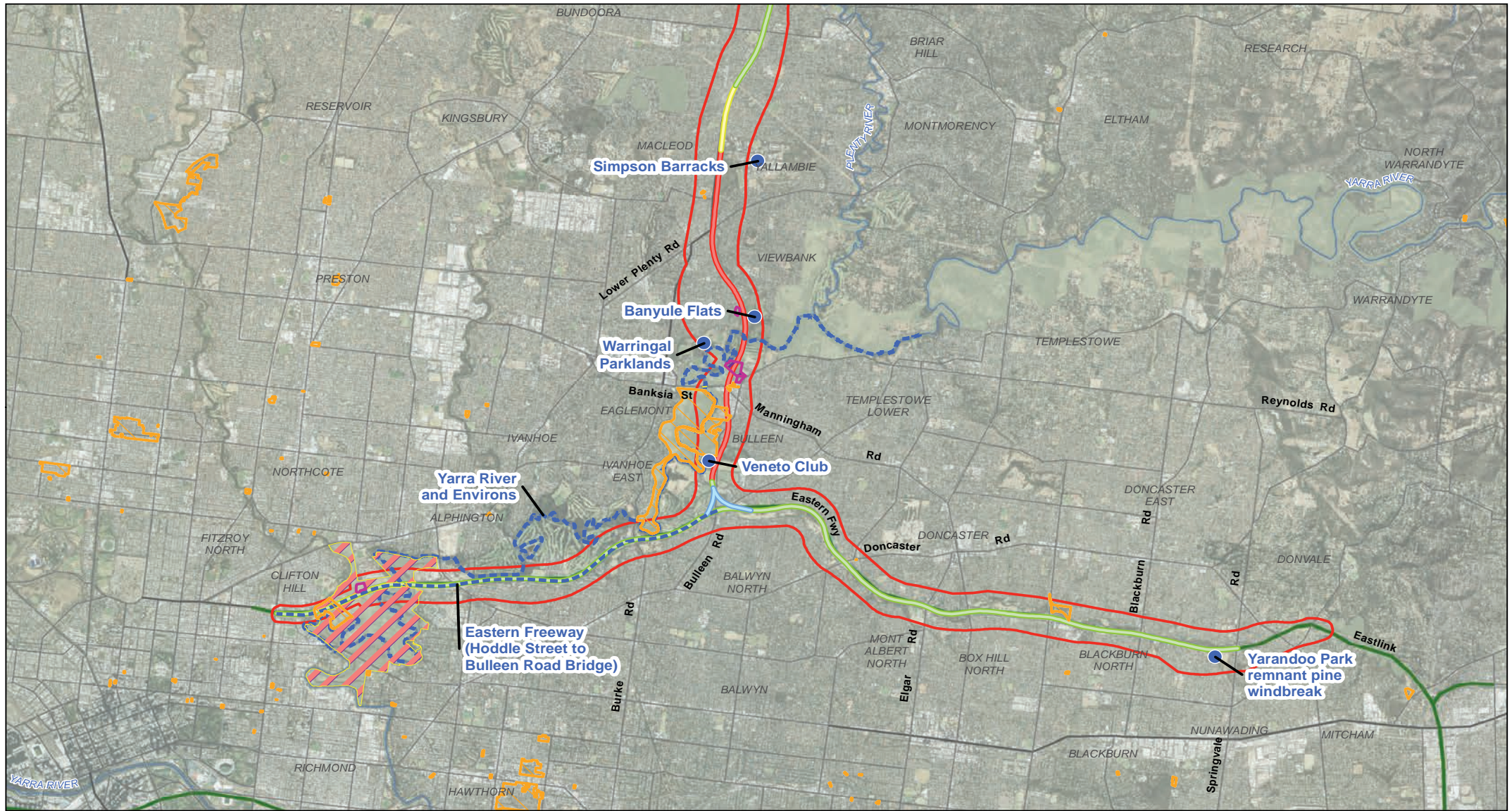
Recommendations

Where groundwater drawdown has the potential to impact ecological habitat to which heritage values have also been identified (localised aquatic and riparian habitat in an area of the Bolin Bolin Billabong), the EPRs identified in Technical report Q – Ecology are applicable: GW2, GW5, SW4, CL2, FF2, FF4, FF6.

It is the conclusion of Technical report G – Arboriculture that no impacts to cultivated vegetation would be expected from groundwater drawdown.

8.8 Cumulative impacts

None identified.



Paper Size A4
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Metres
Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 55



Legend

- Historic Heritage Study Area
- Victorian Heritage Register
- Heritage Overlay
- Potential Heritage Places
- Potential Heritage Places
- Victorian Heritage Inventory
- Roads
- Freeway
- Highway
- Major road

Watercourses

- River
- Parks & reserves

Proposed reference project

- Elevated ramp

- Surface road
- Road in trench
- Underground tunnel



North East Link Project
Environment Effects Statement (EES)

Job Number 31-35006
Revision K
Date 27/03/2019

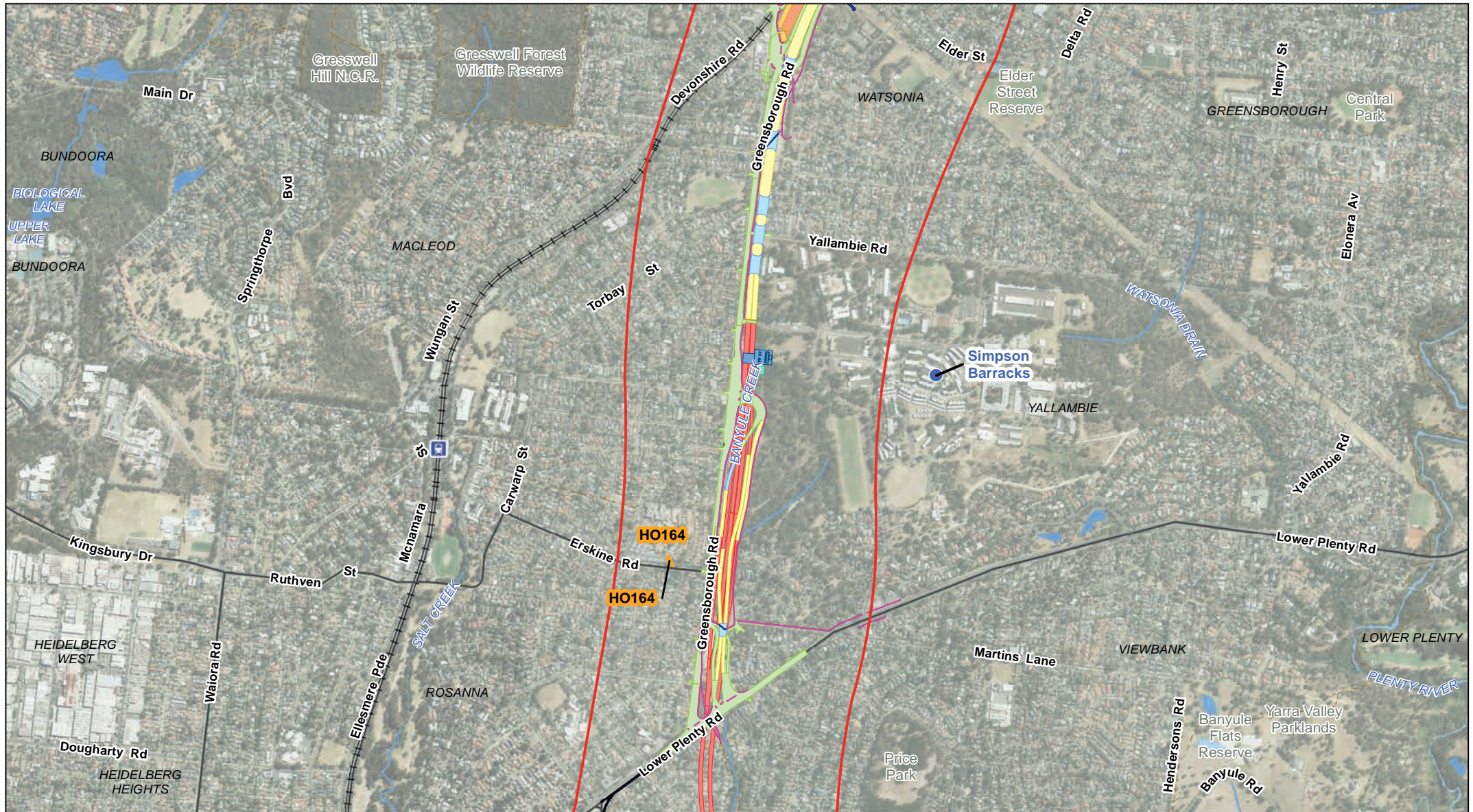
Heritage places impact assessment **Figure 8-13**

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Data source: CIP Imagery, heritage register - DELWP - 2018 | roads, watercourses, parks, rail, localities - Vicmap - 2019 | project infrastructure - GHD, AECOM - 2019 Created by: bkaemmerling



Paper Size A4
0 115 230 460
Metres
Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 55



Legend

- Historic Heritage Study Area
- Heritage Overlay
- Potential Heritage Places
- Highway
- Major road

- Walking or cycling path
- Railway
- Stream
- Drain or channel
- Watercourse

- #### Proposed reference project
- Ventilation system
 - Area for substation
 - Shared use path overpass
 - Shared use path

- Lake
- Shared use path underpass
- Multi-deck car park
- Public transport infrastructure upgrade
- Elevated ramp
- Surface road

- Road in trench
- Underground tunnel



North East Link Project
Environment Effects Statement (EES)

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Revision K
Date 27/03/2019

Heritage places impact assessment

Figure 8-14

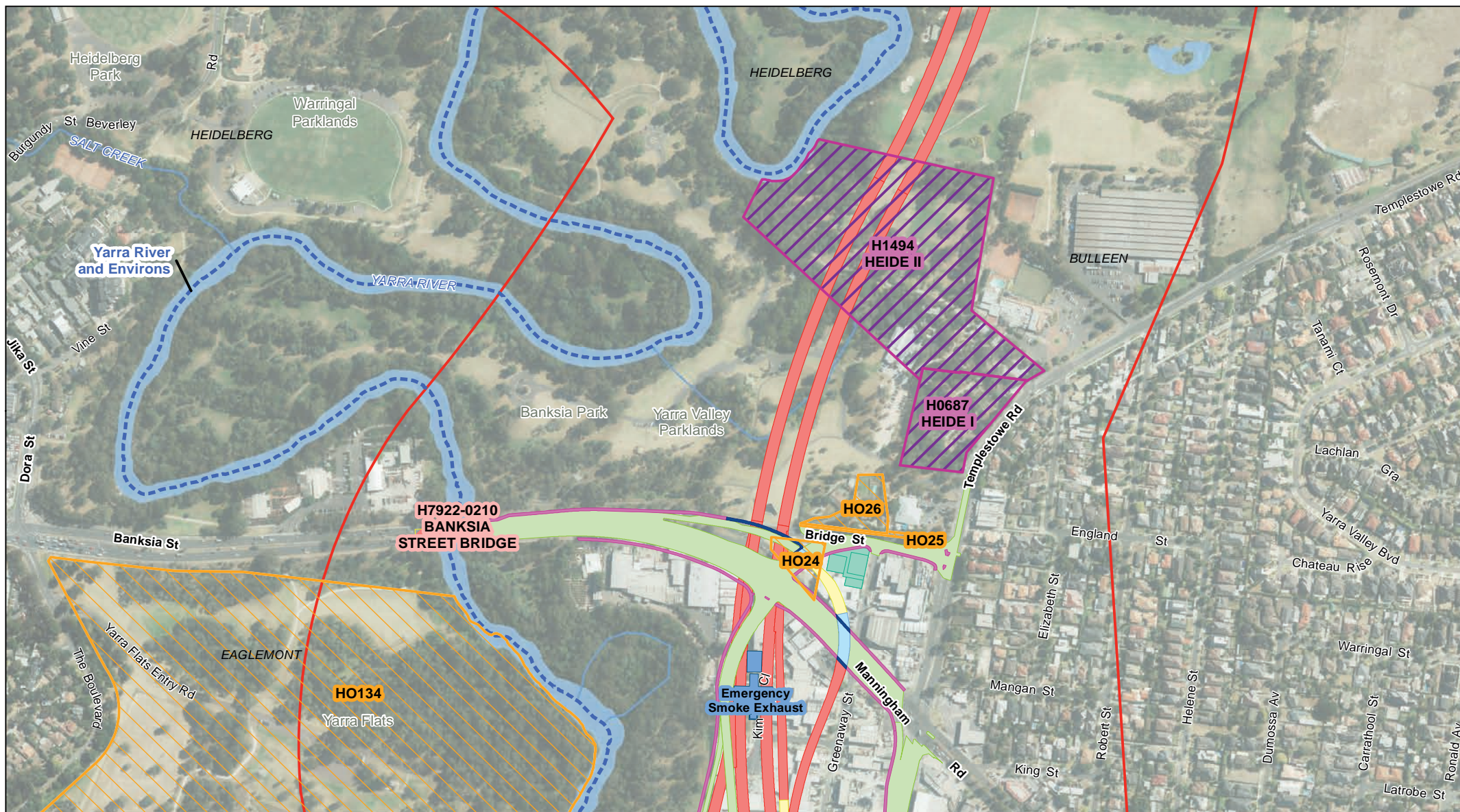
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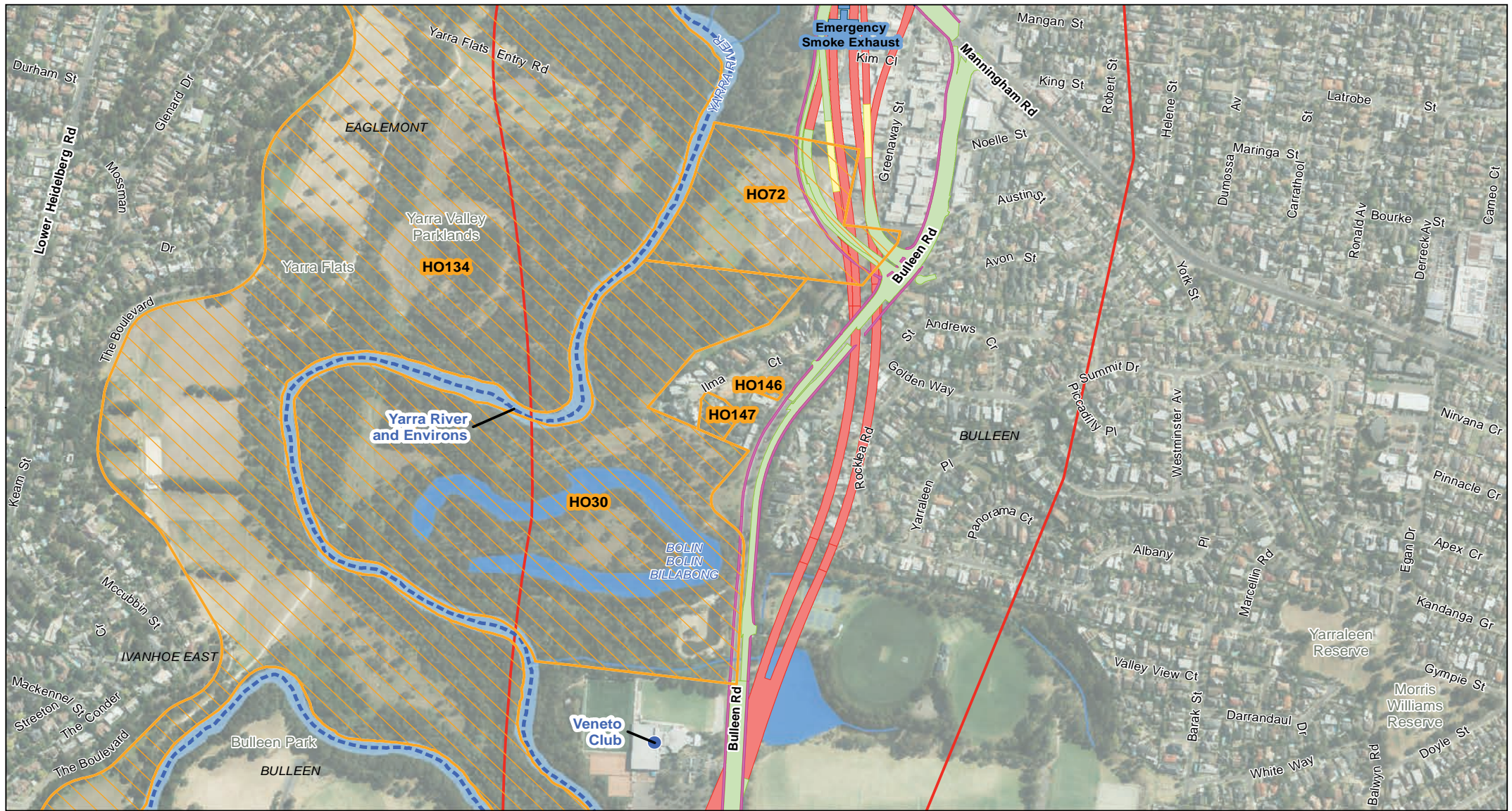
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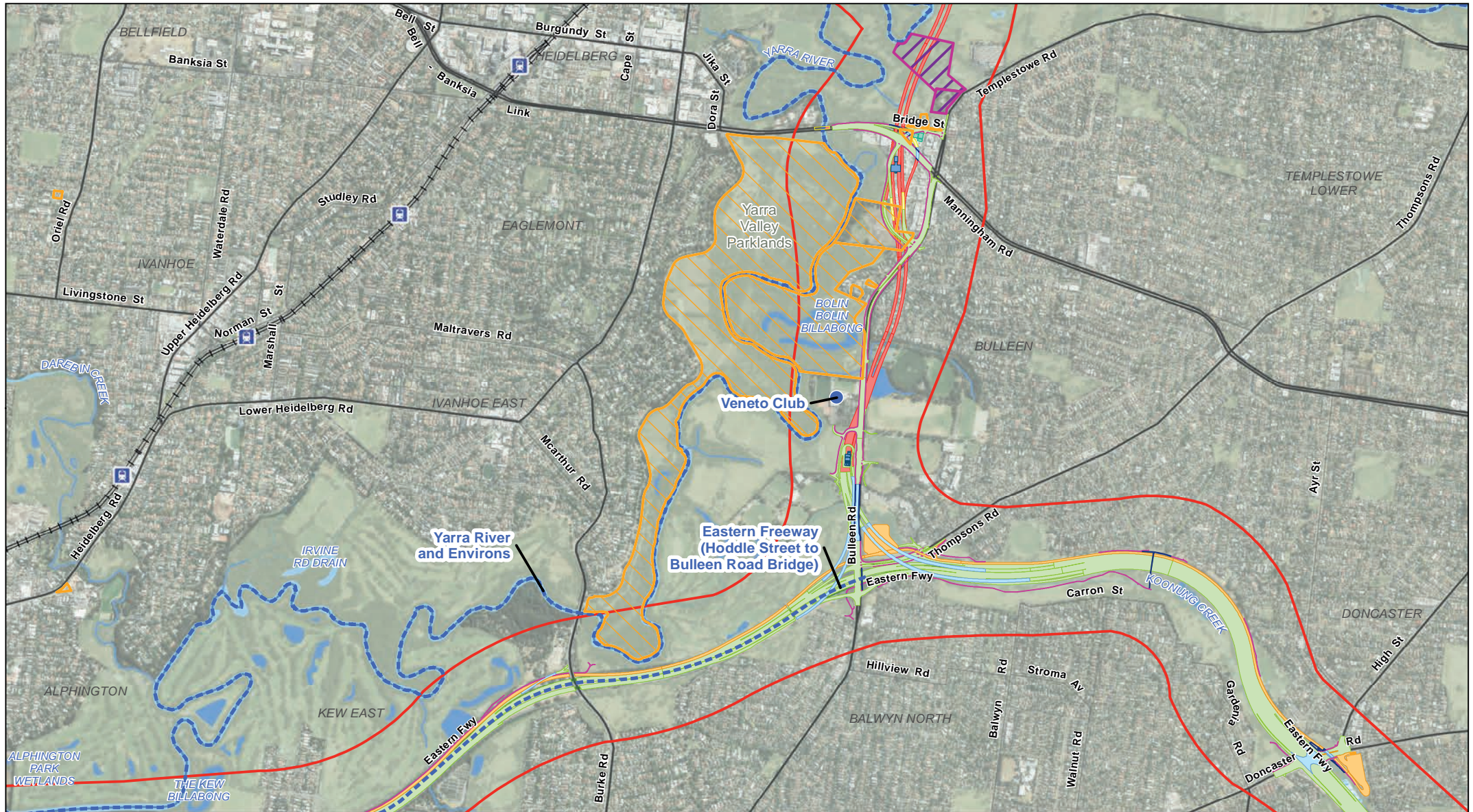
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Data source: CIP Imagery, heritage register - DELWP - 2018 | roads, watercourses, parks, rail, localities - Vicmap - 2019 | project infrastructure - GHD, AECOM - 2019 Created by: bkaemmerling

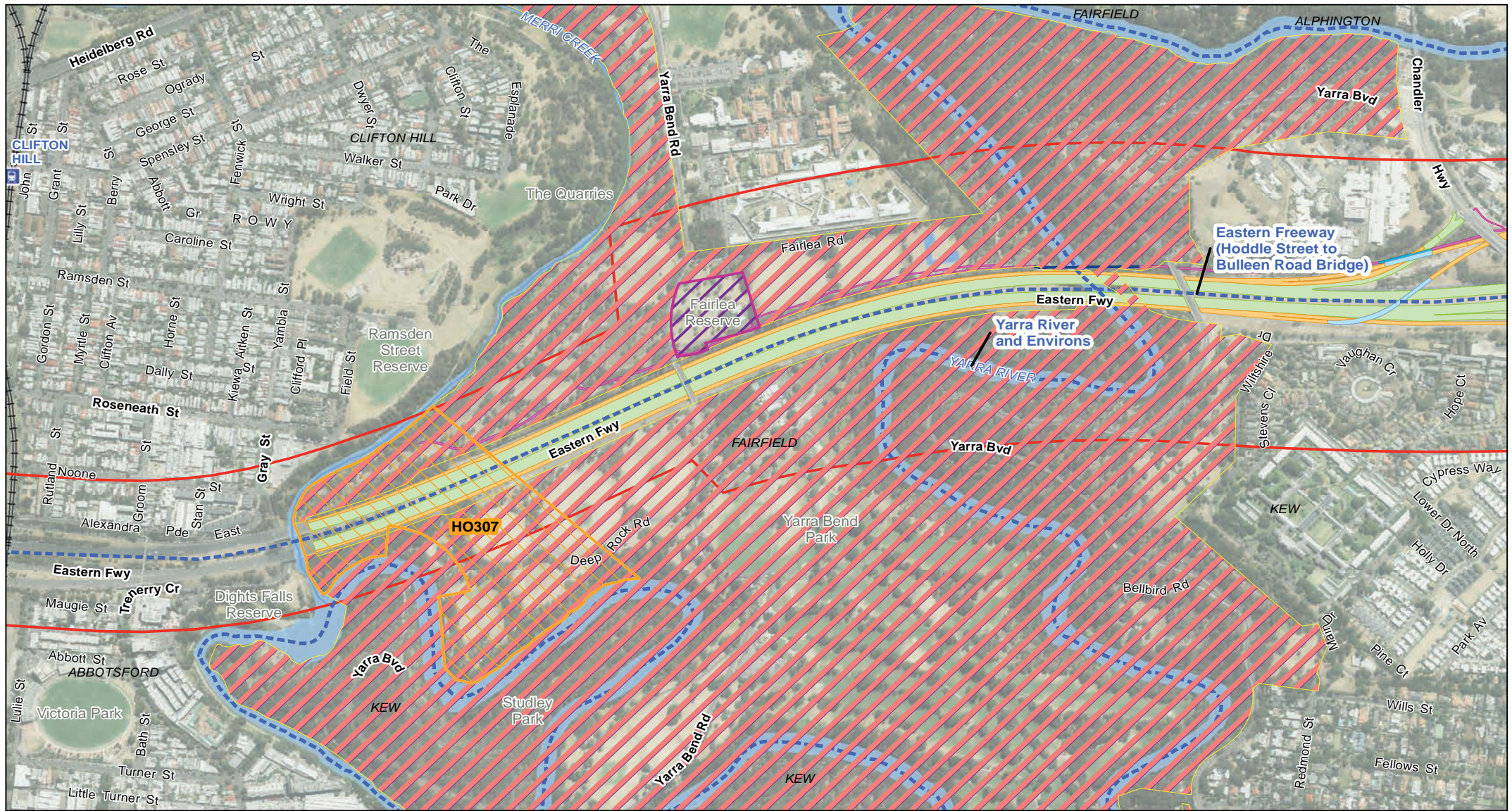


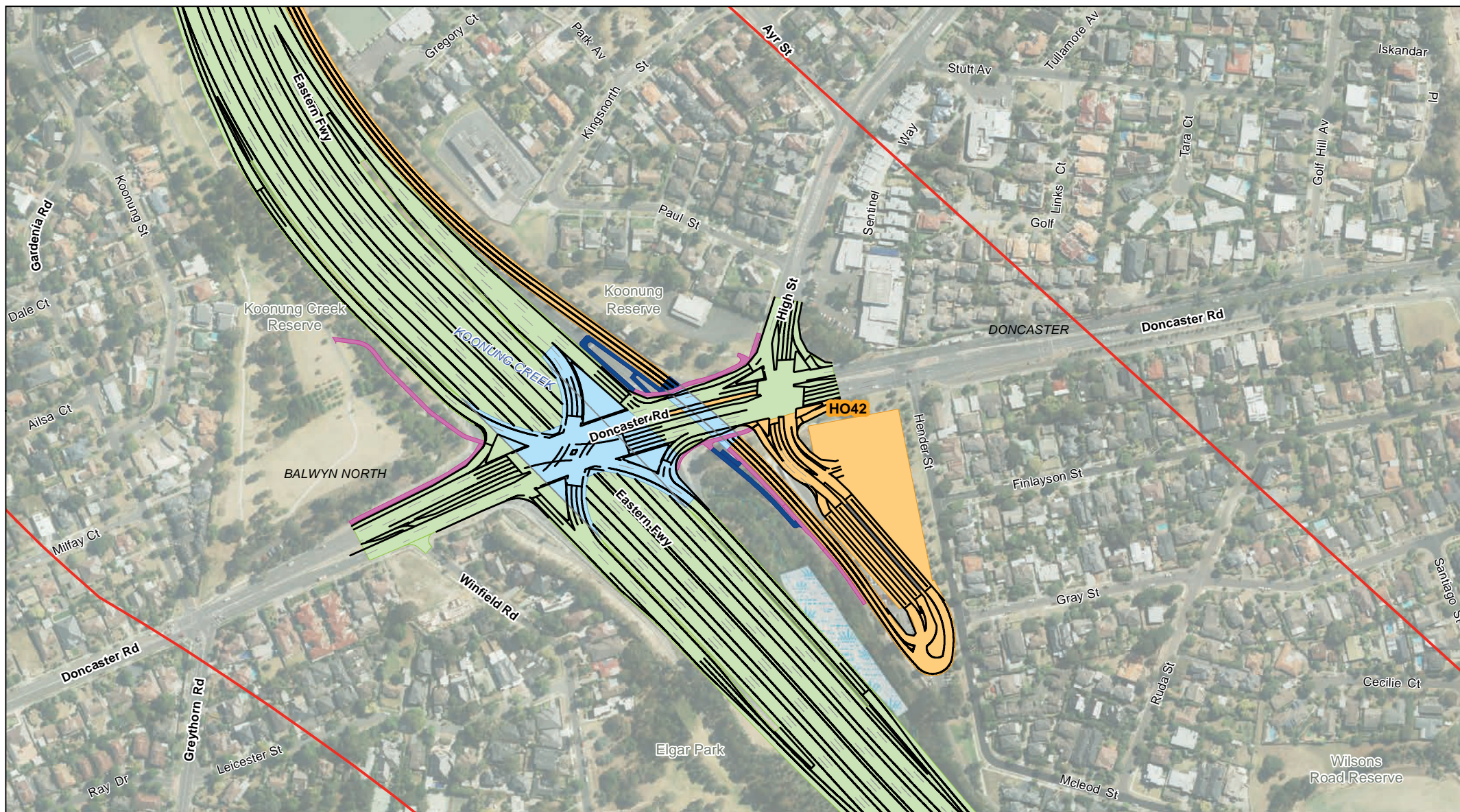
Heritage places impact assessment **Figure 8-15**

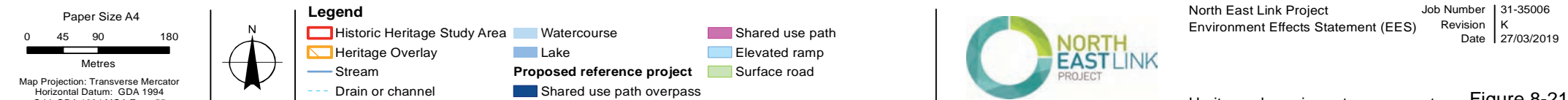






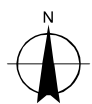








Paper Size A4
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Metres
Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 55



Legend

- Historic Heritage Study Area
- Potential Heritage Places
- Stream
- Drain or channel

Proposed reference project

- Shared use path overpass
- Shared use path
- Surface road



North East Link Project
Environment Effects Statement (EES)

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Heritage places impact assessment **Figure 8-22**

9. ENVIRONMENTAL PERFORMANCE REQUIREMENTS

Table 9.1 lists the recommended Environmental Performance Requirements relevant to the historical heritage assessment.

Table 9.1 Environmental Performance Requirements for historical heritage

EPR ID	Environmental Performance Requirement
EPR HH1	<p>Design and construct to minimise impacts on heritage</p> <p>Undertake detailed design of the permanent and temporary works to minimise impacts where practicable, on the cultural heritage values of heritage places in consultation with Heritage Victoria and/or local councils (as applicable).</p> <p>Prior to commencement of works that affect heritage structures, features or places, develop and implement in consultation with the relevant heritage authority:</p> <ul style="list-style-type: none"> Physical protection measures for heritage structures, features and places as appropriate A methodology for any required dismantling, storage or reinstatement of heritage fabric (with reference to the ICOMOS Burra Charter, 2013).
EPR HH2	<p>Implement an Archaeological Management Plan to avoid and minimise impacts on historic archaeological sites and values</p> <p>Develop and implement an Archaeological Management Plan, in consultation with Heritage Victoria, detailing measures to avoid, minimise, mitigate and manage disturbance of archaeological sites and values affected by the Project. Undertake investigations in accordance with the Guidelines for Investigating Historical Archaeological Artefacts and Sites, Heritage Victoria 2015 and to the satisfaction of the Executive Director, Heritage Victoria.</p> <p>The Archaeological Management Plan must include:</p> <ul style="list-style-type: none"> Requirements for background historical research, excavation methodology, research design, reporting and artefact management and analysis. Protocols for managing previously unidentified historical archaeological sites discovered during the works.
EPR HH3	<p>Monitoring of heritage sites</p> <p>Undertake pre-construction and post construction condition survey(s) in accordance with EPR GM3 for heritage places at risk of impact from settlement and structural integrity disturbance as a result of the project. Measures to manage and monitor potential vibration impacts on heritage places during construction must be implemented in accordance with the Construction Noise and Vibration Management Plan required by EPR NV4. Report the results of monitoring for heritage places to the Executive Director, Heritage Victoria and take remedial action, if required, to the satisfaction of the Executive Director, Heritage Victoria.</p>
EPR HH4	<p>Archival photographic records</p> <p>Prior to construction, undertake archival photographic recording of all heritage places disturbed by the works in accordance with Heritage Victoria's specification for the archival photographic recording of heritage places or alternative applicable Heritage Victoria guidelines as updated, to the satisfaction of the Executive Director, Heritage Victoria.</p>
EPR HH5	<p>Heritage trees</p> <p>Comply with any requirements of Heritage Victoria if the trees that are to be impacted by the project are listed on the Victorian Heritage Register (VHR).</p>

In addition to the above historical heritage EPRs, the following additional EPRs drawn from other technical reports are recommended.

Table 9.2 Other Environmental Performance Requirements relevant to historical heritage

EPR ID	Environmental Performance Requirement
EPR NV3	Minimise construction noise impacts to sensitive receptors
EPR NV4	Implement a Construction Noise and Vibration Management Plan (CNVMP) to manage noise and vibration impacts
EPR NV5	Establish vibration guidelines to protect utility assets
EPR NV9	Minimise construction vibration impacts on structures
EPR GM1	Design and construction to be informed by a geotechnical model and assessment
EPR GM2	Implement a Ground Movement Plan to manage ground movement impacts
EPR GM3	Carry out Condition surveys for potentially affected property and infrastructure
EPR GM4	Rectify damage to properties and assets impacted by ground movement or settlement
EPR AH1	Comply with Cultural Heritage Management Plan
EPR AR1	Develop and implement a Tree Removal Plan
EPR AR2	Implement a Tree Protection Plan(s) to protect trees to be retained
EPR AR3	Implement a Tree Canopy Replacement Plan
EPR GW2	Monitor groundwater
EPR GW5	Manage groundwater during operation
EPR SW4	Monitor water quality
EPR CL2	Minimise impacts from disturbance of acid sulfate soil
EPR FF2	Minimise and offset native vegetation removal
EPR FF4	Protect aquatic habitat
EPR FF6	Implement a groundwater dependent ecosystem monitoring and mitigation plan
EPR LV1	Design to be generally in accordance with the Urban Design Strategy

10. CONCLUSION

The purpose of this report is to provide historical heritage impact assessments to inform the preparation of the EES and EPBC Act assessments required for North East Link.

A summary of the key assets, values or uses potential affected by North East Link and the associated impacts assessment are summarised below.

10.1 Existing conditions

The existing conditions work for the historical heritage assessment has described a diverse range of heritage values and places, reflecting the patterns of historical development within the historical heritage study area. Place types within the study area are also diverse, including archaeological sites, buildings and landscapes, significant trees and broader cultural landscapes. The existing conditions can be discussed in four sections as follows:

Yarra River and environs

A significant portion of the historical heritage study area for North East Link extends through the Yarra River valley. The river is a large-scale geographical feature with significant cultural values. While specific areas abutting the river have been identified as being of heritage value and some have statutory controls, the river has not been formally identified or recognised as a single heritage place. Despite this, it does have heritage values and is therefore an important consideration for the historical heritage study.

The Yarra River and its environs is also recognised as a landscape of special significance within metropolitan Melbourne. As established in the Yarra River Protection (Wilip-gin Birrarung murrnong) Act, the importance of the river and its associated parklands is in its cultural, social, environmental and amenity values (s.5a).

The historical heritage assessment recognises and has considered the potential in the future for the Yarra River environs as a whole to be recognised as a cultural landscape with significant heritage values. It is recognised that the river and its lands have multiple values, including natural, Aboriginal cultural and historical. These values are not defined in detail in this study and a detailed analysis of the river environs and its cultural heritage values is beyond the scope of this assessment. In terms of historical heritage, however, it is evident that the river environs retain evidence, albeit in some cases fragmentary, of a range of activities and historical phases, including archaeology, landscape and other features. A cultural values mapping exercise currently under way with WWCHAC may also inform an understanding of Aboriginal heritage values within the landscape.

M80 Ring Road to northern portal

In the M80 Ring Road to northern portal section of the study area there are relatively few heritage places with statutory controls in the study area (a school, some institutional buildings, a residence and some archaeological sites).

Simpson Barracks occupies a large area of Commonwealth land east of the Greensborough Highway and the western part of the site is within the study area. While not currently included in the CHL or the NHL, the Barracks has been assessed as of Commonwealth Heritage value (with a local level of significance) for Criterion A. Further to this, two elements on the site, the former residence Aldermaston and a former communications building, Building 147, have been assessed as of Commonwealth heritage value for multiple criteria, but these are located outside the study area. Three memorials on the site have also been identified in work undertaken for this study as of significance for social and historical reasons.

Northern portal to southern portal

Heritage places in the northern portal to southern portal section of the study area are mixed in terms of place types and historical origins.

By the late 19th century, the area from Rosanna through to Heidelberg and Bulleen was predominantly occupied by large estates and utilised for farming. Early rural occupation of the area is demonstrated by heritage places such as Banyule, set high on an escarpment looking over the river at Heidelberg and the

archaeological site, Arthur Hogues House, Viewbank (VHI H7922-0492). Heide I is also an early timber farmhouse, dating from the 1870s.

As noted above, the Yarra River environs through this area, including the Warringal Parklands and Banyule Flats, contain remnant and in some cases fragmentary evidence of 19th and 20th century land uses including farming activities, interspersed with later parkland and other community uses and conservation movements. The Warringal Parklands and Banyule Flats has been recognised as of local heritage significance.

Just north of Bridge Street, on Templestowe Road and extending west to the river are Heide I and Heide II, two significant VHR-listed places collectively known as the Heide Museum of Modern Art. An inter-war bungalow, Journeys End, is close by on the north side of Bridge Street and this includes remnant mature trees.

An early pipe bridge of local significance but with no heritage controls is located at the river at Banksia Street.

Other heritage places relate to later development of the suburbs in this area and are located away from the river in Rosanna and Heidelberg.

South of Manningham Road, there is a single River Red Gum of great age and with historical, aesthetic, scientific and potential social heritage value at Bridge Street, two early residences (Clarendon Eyre and Ben Nevis) and a post-WWII social club building of architectural and potential social/historical significance (Veneto Club).

There are also identified sites on both sides of the Yarra (Bolin Bolin Billabong, Yarra Flats and the former Bulleen Drive-in) where there may be Aboriginal cultural heritage values and archaeological potential but where the historical heritage values are not in all cases confirmed. These sites all form part of the broader Yarra River and environs landscape.

Eastern Freeway

The Eastern Freeway section of the study area clearly is highly disturbed for the freeway construction and otherwise reflects the diverse origins of the areas it passes through.

At the western end there are large numbers of heritage places, including dense heritage precincts, on the western side of the Merri Creek in Collingwood and Abbotsford.

Land to the east of the creek and in the Yarra River environs (Yarra Bend Park) was developed for a series of institutional uses in the 19th century and was subsequently turned over to parkland. Remnants of these earlier uses are generally historical and archaeological in nature, with relatively few buildings or complexes remaining. One notable exception is Willsmere, a 19th century lunatic asylum adapted and redeveloped for residential use. Further east, heritage places are outside the Eastern Freeway and generally are separated from it.

While not currently subject to heritage controls, the first stage of the Eastern Freeway – Hoddle Street to Bulleen Road (Stage 1) was identified in an earlier study as of heritage value. This study has confirmed its aesthetic and historical heritage values, as related to its early integrated urban and landscape design treatments and bridge design and as a focus for major community protests in the 1970s. A level of technical (engineering) significance has also been ascribed to the bridges.

10.2 Impact assessment

It is anticipated that most impacts could be avoided because North East Link would be in tunnels for a substantial portion of the project, including through the sensitive areas of the Yarra River and its environs.

In other parts of North East Link, there are relatively few locations where construction works would intersect or otherwise have an impact on historical heritage places or values.

Importantly, no adverse impacts were identified for VHR places. Banyule is located close to tunnelling works but no direct or indirect impacts are expected. Heide I and II are also close to works and in the case of Heide II, the proposed tunnels would extend below part of the site. No adverse impacts were identified for either of these registered places.

Key impacts which are identified in the study are as follows:

River Red Gum, Bridge Street

Council citations reference the heritage values of this tree as scientific, aesthetic and historical (the latter based on the age of the tree and its demonstration of pre-contact landscape).

In addition to these values, the original efforts to retain the tree and subsequent work to improve and maintain its health are likely to reflect on a high community value and potentially a level of contemporary attachment (social value) that is not explicitly recognised in the existing citations. These potential community and social values may arise as a result of the age and size of the tree and its landmark qualities.

The removal of this River Red Gum is required to construct the reference project as well as the alternative design of Manningham Road interchange. The works would result in the loss of the tree and all associated heritage values.

The tree has been variously assessed (by local councils and the National Trust) as of local and regional heritage significance and is a local landmark. From a heritage perspective its retention and protection would be preferred.

While not mitigating the loss, the tree should be recorded in accordance with EPR HH4 (archival photographic records). In addition to the standard recording, a more tailored response to recording the history and cultural associations and meanings of the River Red Gum over time is being developed. This will consider the identified values of the tree, including its status as a local landmark and is likely to include a more detailed written history and the incorporation of oral history sources. This work is to be undertaken by NELP.

Eastern Freeway Stage 1

The impacts on the original design and presentation of the Hoddle Street to Bulleen Road (Stage 1) section of the Eastern Freeway are relatively minor at the western end and become more significant further east, from the Chandler Highway interchange.

The most significant impact would be from the proposed viaduct structures crossing the freeway at the Chandler Highway and Bulleen Road interchanges, which would interrupt the sequence of bespoke designed bridges when travelling along the freeway.

From Chandler Highway east, the medians and associated light masts would be removed and east of Burke Road, the removal of the landscaped edge treatment would also be required on the north side and these changes will also be noticeable.

There would be a major change in presentation in those locations where the central median is to be incorporated. Accepting this, the freeway was designed with the wide central median and wide span bridges so that this space could be taken up by heavy rail (Country Roads Board Annual Report 1975:5). It was not necessarily anticipated that medians would remain open as has occurred.

Accepting these impacts, many of the key attributes of the original freeway design would be retained. Importantly, all of the distinctive bridge structures are to be retained, with some minor changes. The embankments would also be retained, albeit altered in some locations, and much of the landscaping. The borrowed views to vegetation in surrounding areas generally would be maintained.

Overall, while there would be some impact on intactness and aesthetic qualities, subject to detailed design, it is considered likely that North East Link construction works to the earliest section of the Eastern Freeway (Hoddle Street to Bulleen Road, completed in 1977) could be delivered in a manner that ensures key attributes and features are largely maintained and the design origins remain legible.

The Urban Design Strategy for North East Link would guide the approach to freeway infrastructure design. In detailed design efforts should be made to retain and conserve the fabric and aesthetic qualities of the Hoddle Street to Bulleen Road (Stage 1) section of the Eastern Freeway consistent with its original design, as far as is possible.

Within the constraints of functional and safety requirements, new freeway infrastructure such as lighting, safety and crash barriers and noise walls should be designed in a manner that has regard for the original design qualities. To the extent that it is possible, landscape works should seek to reinstate the vegetated character of the freeway margins, which was an important aspect of its design.

Relevant EPRs are HH1 (Design and construct to minimise impacts on heritage), HH4 (Undertake archival photographic recording), AR1 (Develop and implement a Tree Removal Plan) and AR3 (Implement a Tree Canopy Replacement Plan). The UDS would provide guidance in relation to the design response.

Historical archaeology

There are known and potential sites with archaeological values that may be disturbed by the construction of North East Link and these are identified in this report. Both are afforded statutory protection under the Heritage Act.

Where North East Link would impact on archaeological sites, their research value could be realised through appropriate archaeological techniques in accordance with EPR HH2 and the requirements of the Heritage Act. This is the case for the proposed shared use path north of the Eastern Freeway which would result in some subsurface disturbance on both the VHR-registered former Fairlea Women's Prison (registered with both historical and archaeological values) and the VHI site H7922-0412 Yarra Bend Lunatic Asylum. In both cases archaeological investigations would be undertaken in accordance with HH2 and to Heritage Victoria's satisfaction.

EPR HH2 (Implement an Archaeological Management Plan to avoid and minimise impacts on historic archaeological sites and values) sets out the requirements for known sites and sites that may be discovered during the construction of North East Link.

Yarra River and environs

North East Link has been designed to avoid significant impacts on the Yarra River and its environs through the incorporation of tunnels at depth through the riverine environment.

Issues that may arise associated with the tunnelling works are:

- Ground movement (subsidence over tunnels within Yarra River environs)
- Changes to groundwater conditions and possible impact on significant trees and other vegetation.

In relation to the issue of subsidence, Technical report M – Ground movement predicts that the magnitude of ground movement induced by the tunnels and trenched excavations is unlikely to impact on heritage values.

The issue of changes to groundwater conditions is as noted above. Groundwater changes have been modelled in parts of the river environs south of Manningham Road for the construction and operation of North East Link.

Technical report Q – Ecology identified limited impacts to indigenous vegetation within the river environs. The exception is an area at the eastern end of the Bolin Bolin Billabong, which was identified as one where there may be impact through a lowering of the deep pool there and loss of surface area. The ecological impacts of lowering are discussed in Technical Report Q. Significant impacts to aquatic and terrestrial ecosystems at the billabong are not anticipated. Nevertheless, a groundwater dependent ecosystem monitoring and mitigation plan would be implemented for the project. If required, mitigation could include measures such as periodical filling and or topping of the billabong. Melbourne Water are actively managing the hydrological regime of the billabong.

Technical report G – Arboriculture concludes that no impacts to cultivated vegetation would be expected from groundwater drawdown.

There are some other impacts or potential impacts on the river and its environs as follows:

- Ground improvement works in Banksia Park, and an alternative option to locate the TBM retrieval site within Banksia Park
- Shared use path improvement works in proximity to the Yarra River generally in the vicinity of Banksia Street

- Potential for disturbance from construction activities on the eastern side of the Yarra River south of Manningham Road
- New infrastructure east of the river south of Manningham Road including in the eastern part of the former Bulleen Drive-in site, and new roads and related structures and a ventilation structure in the parkland areas east of the river and south of the Veneto Club
- Works within the existing Eastern Freeway reserve and close to the Yarra River.

The potential impacts from ground improvement works within Banksia Park required for the reference project as well as the alternative design of the Manningham Road interchange were considered (HH03). These works would occur immediately to the south and south-west of Heide II and a zone for these works has been identified for the reference project and the alternative design. The zone of ground improvement works in Banksia Park would not extend to the edge of the Yarra River and the immediate riverine environment would be unaffected. The broader Banksia Park has a more open character and has evolved over time. It is preferred that any ground improvement works in Banksia Park are designed to limit the affected area and any associated tree loss, and allow for landscape remediation works.

An alternative design option is also proposed, in which the TBM retrieval site would be located north of Bridge Street within Banksia Park, within the area proposed for ground improvement works. There would be an awareness of the works and activities in Banksia Park from within the riverine environment but there would be no direct impact. No additional impacts to historical heritage values were identified with respect to this alternative.

The other more direct impacts of construction areas and new infrastructure on the east side of the Yarra River south of Manningham Road are not considered to pose a significant adverse impact on the valued qualities of the river environs nor on its heritage values. The majority of this area of the river environs would be a no-go zone for North East Link, including the sensitive Bolin Bolin Billabong (HO30, Manningham). Works are proposed in the largely cleared area of the former Bulleen Drive-in and sporting fields south of the Veneto Club and vegetation on the edge of the Yarra River is to be retained and protected. No significant adverse visual impacts on the river environs has been identified from the proposed permanent North East Link infrastructure.

The potential for groundwater drawdown to cause localised impacts to ecological vegetation at the eastern end of the Bolin Bolin Billabong wetland has been identified in Technical report Q – Ecology. Significant impacts to aquatic and terrestrial ecosystems at the billabong are not anticipated. Nevertheless, a groundwater dependent ecosystem monitoring and mitigation plan would be implemented for the project. If required, mitigation could include measures such as periodical filling and or topping of the billabong. Melbourne Water are actively managing the hydrological regime of the billabong. Assuming effective mitigation controls are in place for this location, the overall impact on the heritage values of the Yarra River and environs is considered to be negligible.

Ground movement and vibration

Informed by the findings of the relevant North East Link EES technical reports, consideration has been given to the potential for unintended impacts from tunnelling and other works as associated with ground movement or vibration to cause damage to heritage buildings or structures.

Based on modelling, the risk to heritage buildings and structures from tunnelling vibration has been assessed as low. The findings are that the risk to heritage buildings and structures from ground movement is also low.

No impact for surface works vibration is expected to heritage buildings but the relevant technical report notes that these need to be considered on a case-by-case basis before the construction of North East Link started. Where a building or structure was deemed to be sensitive to vibration, the vibration criteria should be reduced. Further investigation would be undertaken during the detailed design of North East Link for the development of specific construction, noise and vibration management plans.

Relevant EPRs are NV3, NV4, NV9, GM1, GM2, GM3, GM4, HH3.

Groundwater drawdown

Consideration has been given to the potential for groundwater drawdown to have an impact on heritage places and areas with significant trees and landscapes.

This may occur in three locations:

- Northern tunnel portal and trench/cut-and-cover tunnel
- Tunnel section between Lower Plenty Road and Buckingham Drive
- Manningham Road interchange, cut and cover and mined tunnels and southern tunnel portal.

Consideration has been given to the potential for groundwater drawdown to impact on heritage places and areas with significant trees and landscapes.

Potential groundwater changes have been modelled for the construction of North East Link as well as once it was operating.

There are a number of heritage places with significant trees and landscape within the area south of Manningham Road where the modelling has indicated that North East Link would change groundwater conditions.

Technical report G – Arboriculture anticipates no impacts to cultivated exotic trees from groundwater drawdown effects.

Technical report Q – Ecology has assessed the potential for modelled groundwater drawdown to impact areas of ecological vegetation, including vegetation in the Yarra River valley to which some degree of recognised and potential heritage significance has been identified. Limited impacts to indigenous vegetation within the river environs have been identified. The exception is an area at the eastern end of the Bolin Bolin Billabong, where a potential impact was identified with a lowering of the billabong's deep pool as well as a loss of surface area, with ecological impacts. A number of measures are recommended to address potential ecological impacts, including groundwater and surface water level monitoring to inform any required mitigation including delivery of supplementary water.

Where groundwater drawdown impacts to ecological vegetation have been identified or subsequently arise, Technical report Q – Ecology identifies the following EPRs: GW2, GW5, SW4, CL2, FF2, FF4, FF6.

10.3 Interpretation of heritage themes

It is recommended that an approach to the interpretation of heritage themes be developed for the project. This work could potentially reference both Aboriginal and historical heritage themes, including historical heritage places along the alignment. These could be explored where bicycle and pedestrian paths or other publicly accessible locations are proposed associated with the works. It should include an audit of existing heritage interpretation and be compatible with existing materials and themes and should be developed and implemented in consultation with key stakeholders, including the WWCHAC, and relevant local councils. Interpretation could include (but would not necessarily be limited to) signage, artworks or online sources.

Some of the historical heritage themes that could be explored might include (this list is not exhaustive):

- History of the Yarra Bend area (institutions in Yarra Bend Park)
- Yarra River environs
- Banksia Street pipe bridge (including early bridges)
- Eastern Freeway design
- Orchard/agricultural history themes (Banyule, Manningham and Whitehorse).

Consistent with this recommendation, the UDS includes a requirement to *Recognise Past, Contemporary & Shared Indigenous & Historic Cultural Values* (Key Direction 3). This sets out a range of requirements to reference, explore and respond to both Aboriginal and historical cultural heritage through the project and provides an appropriate basis for the development of place and project-based interpretation.

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